West Virginia University is a land-grant research institution founded in 1867. WVU is a student-centered learning community meeting the changing needs of West Virginia and the nation through teaching, research, service, and technology.

The West Virginia University Graduate Catalog 2010-2012 is a general source of information about course offerings, academic programs and requirements, expenses, rules, and policies. In order to reach the goals and fulfill the mission of the University, the courses, requirements, and regulations contained herein are subject to continuing review and change by the West Virginia Higher Education Policy Commission, the WVU Board of Governors, University administrators, and the faculties of the schools and colleges. The University, therefore, reserves the right to change, delete, supplement, or otherwise amend the information, course offerings, requirements, rules, and policies contained herein without prior notice. The indicia depicted are registered trademarks of West Virginia University. Copyright © West Virginia University, 2010.

http://www.wvu.edu
West Virginia University Calendar
2010*

Summer Session 2010

May 17................................................................. Registration
May 17................................................................. On Campus First Day of Classes
May 31................................................................. Memorial Day Recess
June 25................................................................. Final Exam for First Six-Week Session
July 5................................................................. Independence Day Recess
July 30................................................................. ETD Submission Deadline
August 6............................................................. Final Exam for 12-Week Session
August 13............................................................ Degree Conferring Date

Fall Semester 2010

August 19.......................................................... New Student Orientation
August 20.......................................................... General Registration
August 23 .......................................................... On Campus First Day of Classes
Late Registration Fee in Effect for All Students
August 27.......................................................... Last Day to Register, Add Courses, Make Changes, Change Pass/Fail and Audit
September 6..................................................... Labor Day Recess
September 9...................................................... Rosh Hashanah (Day of Special Concern)
September 10 .................................................... Eid-al-Adha End of Ramadan (Day of Special Concern)
September 18 .................................................... Eid-al-Adha Day of Special Concern
October 8.......................................................... Mid-Semester
October 14....................................................... Mid-Semester Reports Due
October 29....................................................... Last Day to Drop a Class
November 11..................................................... Veteran's Day (Day of Special Concern)
November 12..................................................... Birth of Baha'Ullah (Day of Special Concern)
November 16..................................................... Yom Kippur (Day of Special Concern)
November 20 thru 26........................................ Thanksgiving Recess
December 9...................................................... Last Day to Withdraw from University
December 10..................................................... Last Day of Classes, ETD Submission Deadline
December 12.................................................... December Convocation
December 13 thru 18........................................... Final Examination Week
December 19..................................................... Winter Break Begins
December 28..................................................... Degree Conferring Date

Spring Semester 2011

January 6.......................................................... New Student Orientation
January 7.......................................................... General Registration
January 10........................................................ On Campus First Day of Classes
January 10........................................................ Late Registration Fee in Effect for All Students
January 14....................................................... Last Day to Register, Add New Courses, Make Section Changes, Change Pass/Fail and Audit
January 17...................................................... Martin Luther King's Birthday Recess
February 3........................................................ Chinese New Year
February 25..................................................... Mid-Semester
March 3........................................................... Mid-Semester Reports Due
March 18.......................................................... Last Day to Drop a Class
March 19 thru 27.............................................. Spring Recess
April 19........................................................... Passover
April 21........................................................... Feast of Rivdan
April 22........................................................... Friday Before Easter Recess
April 28........................................................... Last Day to Withdraw From University
April 29........................................................... Last Day of Classes
April 29........................................................... ETD Submission Deadline
May 2 thru 7...................................................... Final Exams
May 9............................................................. Grade Reports for All Graduates Due in Deans' Office
May 14............................................................ Alumni Day
May 14 and 15................................................... Commencement

*See http://calendar.wvu.edu/ for more calendars.
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West Virginia Higher Education Governance*
Joe Manchin III, Governor

West Virginia Higher Education Policy Commission
David K. Hendrickson, Esq., Charleston, Chairman
Dr. Bruce Berry, Morgantown, Vice Chairman
Kathy G. Eddy, Parkersburg, Secretary
John Estep, Morgantown
Dr. John Leon, Fairmont
David Richard Tyson, Esq., Huntington
Bob Brown, Ex-Officio, Charleston, Chair, WV Council for Community
and Technical College Education
Kay H. Goodwin, Ex-Officio, Secretary of Education the Arts
Dr. Steven L. Paine, Ex-Officio, State Superintendent of Schools

West Virginia University Board of Governors
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Dr. Thomas S. Clark, Bruceton Mills
James W. Dailey II, Martinsburg
Raymond J. Lane, Menlo Park, CA
Diane Lewis, Morgantown
Carolyn Long, Little Birch, Chair
Oliver Luck, Houston, TX
John T. (Ted) Mattern, Fairmont, Secretary
William O. Nutting, Wheeling
Andrew A. (Drew) Payne, III, Charleston, Vice Chairman
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Dr. Charles M. Vest, Washington DC
Jo Y. Morrow, Morgantown, Classified Staff Representative
Nigel N. Clark, Faculty Representative
Robert K. Griffith, Faculty Representative
Jason M. Zuccari, Student Representative

*Current as of March, 2010.

West Virginia University is governed by the West Virginia University Board of Governors and the West Virginia Higher Education Policy Commission. James Clements is the 23rd President of West Virginia University.

West Virginia University is a member of the Higher Learning Commission. The University’s educational programs are accredited by the Higher Learning Commission (NCA) of Colleges and Schools and by the appropriate accreditation agencies for professional programs.

West Virginia University is an Equal Opportunity/Affirmative Action Institution. The University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color, or national origin in the administration of any of its educational programs or activities, or with respect to admission or employment. Further, faculty, staff, students, and applicants are protected from retaliation for filing complaints or assisting in an investigation under the University’s Equal Opportunity/Affirmative Action Plan. Inquiries regarding the University’s non-discrimination policy may be sent to the director, Affirmative Action Office/Equal Employment Opportunity Programs, West Virginia University.— Office of the President.
Frequently Contacted Offices

Academic Programs
Provost and Vice President for Academic Affairs and Research
West Virginia University
P.O. Box 6203
Morgantown, WV 26506-6203
Phone: (304) 293-5701 Fax: (304) 293-7554
http://provost.wvu.edu/

Office of Admissions
West Virginia University
P.O. Box 6009
Morgantown, WV 26506-6009
Phone: (304) 293-2121 or 1-800-344-WVU1
Fax: (304) 293-3080
http://www.arc.wvu.edu

Office of the University Registrar
West Virginia University
P.O. Box 6009
Morgantown, WV 26505-6009
Phone: (304) 293-2121 Fax: (304) 293-8991
http://registrar.wvu.edu/

Graduate Programs
Office of Graduate Education and Life
West Virginia University
P.O. Box 6897
Morgantown, WV 26506-6897
Phone: (304) 293-7173 Fax: (304) 293-8657
http://graduateeducation.wvu.edu/

Housing and University Apartments
West Virginia University
P.O. Box 6430
Morgantown, WV 26506-6430
Phone: (304) 293-4491 Fax: (304) 293-4825
http://housing.wvu.edu

Scholarships, Work-Study, and Veterans Educational Assistance
Student Financial Aid Office
West Virginia University
P.O. Box 6004
Morgantown, WV 26506-6004
Financial Aid Phone: (304) 293-5242 Fax: (304) 293-4890
Scholarships Phone: (304) 293-4126 Fax: (304) 293-4544
http://www.finaid.wvu.edu

Student Life
Dean, Student Life
West Virginia University
P.O. Box 6411
Morgantown, WV 26506-6411
Phone: (304) 293-5611 Fax: (304) 293-7028
http://www.wvu.edu/~studlife
West Virginia University Administration

Senior Administrators
President, James P. Clements
Provost and Vice President for Academic Affairs and Research, Michele Wheatly
Chief of Staff, Jay Cole
Vice President, Administration and Finance, Narvel Weese
Associate Vice President for Planning and Treasury Operations, Liz Reynolds
Vice President, University Relations, Christine M. Martin
Chancellor for Health Sciences, Christopher Colenda
Vice President, Student Affairs, Kenneth D. Gray
Vice President, Human Resources, Margaret Phillips
Vice President for Research and Economic Development, Curt Peterson
Associate VP for Research and Economic Development, Mridul Gautam
Assistant VP, Research Administration and Director of Sponsored Programs, Alan Martin
Vice President, Legal Affairs, William H. Hutchens III
Campus Provost, WVU Potomac State College, Kerry Odell
Campus Provost, WVU Institute of Technology, Scott Hurst
Executive Officer for Social Justice, Jennifer A. McIntosh
Executive Officer for Policy Development, Jennifer Fisher
Senior Associate Provost, Russell K. Dean
Associate Provost for Undergraduate Academic Affairs, Elizabeth Dooley
Associate Provost for Graduate Academic Affairs, Jonathan Cumming
Associate Provost for Academic Personnel, C. B. Wilson
Associate Provost for Extension and Public Service, David Miller
Associate Provost for Information Technology, Rehan Khan
Associate Provost for International Academic Affairs, Michael Lastinger
Special Assistant to the Provost, Jessika Thomas
Associate Vice President for Finance, Dan Durbin
Vice President for Planning and Operations, HSC, Fred R. Butcher, Ph.D.
Chief Financial Officer for Health Sciences, Wendy King
Associate Vice President for Health Sciences—Charleston Division, L. Clark Hansbarger, M.D.
Associate Vice President for Health Sciences—Eastern Division, Mitch Jacques, M.D., Ph.D.
Associate Vice President and Dean of Students, David Stewart
University Registrar, Steve Robinson
Assistant Vice President of Student Affairs and Enrollment Management Services, Brenda Thompson
Assistant Vice President, Student Programs and Development, Barbara Copenhaver Bailey
Assistant Vice President for Student Wellness, Cathy Yura
Assistant Vice President of Student Affairs, Michael Ellington
Associate VP for Integrated Marketing Operations, Tricia Petty
Assistant VP for University Communications, Becky Lofstead
Assistant VP for Branding and Creative Direction, Vincent Vernet
President and CEO, West Virginia University Alumni Association, Steve Douglas
President, West Virginia University Hospitals, Inc, Bruce McOlyphonds
Chair, West Virginia University Faculty Senate, Nigel Clark
Chair, West Virginia University Staff Council, Jo Morrow
President, West Virginia University Student Body, Jason Zuccari
Special Assistant to the Governing Board, Valerie Lopez
Special Assistant to the President, Sara A. Master

Deans
College of Business and Economics, William Trumbull (Interim)
College of Creative Arts, Bernard Schultz
College of Engineering and Mineral Resources, Eugene V. Cilento
College of Human Resources and Education, Dee Hopkins
College of Law, Joyce McConnell
College of Physical Activity and Sport Sciences, Dana D. Brooks
Davis College of Agriculture, Natural Resources, and Design, Cameron R. Hackney
Dean of Students, David Stewart
Eberly College of Arts and Sciences, Rudolph Almasy (Interim)
Extended Learning, Sue Day-Perroots
Honors College, Keith Garbutt
Perley Isaac Reed School of Journalism, Maryanne Reed
School of Dentistry, Louise Veselicky (Interim)
School of Medicine, James Brick (Interim)
School of Nursing, Georgia Narsavage
School of Pharmacy, Patricia A. Chase
University Libraries, Frances O’Brien

Directors
AAO/EEO Program, ADA Compliance, Jennifer McIntosh
Accounting and Financial Systems, Anjali Halabe
Admissions, Marilyn Potts (Interim)
Alumni Association, Stephen L. Douglas
Assistant VP for Facilities Management, Randy Hudak
Athletics, Edward M. Pastilong
Blanchette Rockefeller Institute of Neuroscience, D. Max Francis
Bureau of Business and Economic Research, Tom S. Witt
Career Services Center, David L. Durham
Center for Black Culture and Research, Marjorie Fuller
Center for Chinese Business, William B. Riley Jr.
Center for Women’s Studies, Ann Oberhauser
Center for Writing Excellence, Laura Brady
Center on Aging, Alan M. Ducatman (Interim)
Congressional Relations, Mary Bowman
Creative Design, Angela M. Caudill
Cultural Resource Management Program, Chad Proudfoot
Dining Services, David Friend
Economic Development, Russ Lorince
Environmental Health and Safety Office, Kathy Powell (Interim)
Financial Services, Lisa Lively
Financial Aid, Kaye Widney
Institute for Public Affairs, Kevin Leyden
Institute of Occupational Environmental Health, Christopher Martin
Institutional Research, Roberta Dean
Internal Auditing, William R. Quigley
Mary Babb Randolph Cancer Center, Scot C. Remick
Military Science, Air Force ROTC, Col. Edwin Parks
National Research Center for Coal and Energy, Richard Bajura
News and Information Services, John Bolt (Interim)
Parents Club, Sabrina Cave
Physical Plant HSC, Leonard Lewis
Printing Services, Geraldine M. Ireland
Procurement Services, Philip Charneskie
Public Safety/Police Department, Robert E. Roberts
Regional Research Institute, Randall W. Jackson
Research Compliance, Daniel Vasgird
Research Communication, Gerrill Griffith
Sponsored Programs, Alan B. Martin
Student Health Services, Jan Palmer
Student Recreation Center, David H. Taylor
Technology Transfer, Bruce Sparks
Telecommunications, Timothy P. Williams
Television Productions, John E. Duwall
Undergraduate Academic Services Center, Anita Mayer
University Affiliated Center for Developmental Disabilities, Ashok Dey
Visitors Center, Danica Ann Wilburn
WVU Press, Patrick W. Conner
Distinguished Professors

Katherine Aaslestad, Woodburn Professor of History (ECAS)
Jame Abraham, Bonnie Wells Wilson Eminent Scholar and Distinguished Professorship in Oncology
Gerald G. Ashdown, James H. “Buck” and June M. Harless Professor of Law
Karl Barth, Samples Professorship of Civil and Environmental Engineering
Robert M. Bastress, John W. Fisher II Professor of Law
Chris Bise, Charles T. Holland Professor of Mining Engineering
Robert E. Blobaum, Eberly Family Distinguished Professor of History
Paula F. Bone, Nathan Haddad Professor of Business Administration
Melanie Booth-Butterfield, Peggy Rardin McConnell Chair of Speech Communications
Laura Brady, Eberly Distinguished Professor of Outstanding Teaching (in ECAS)
James E. Brick, Dr. Edmund B. Flink Chair of Internal Medicine
Jim Brown, K-Mart Corporation Chair of Marketing
Jonathan Burton, Woodburn Professor of English (ECAS)
Vincent P. Cardi, Bowles, Rice, McDavid, Graff and Love Professor of Law
Peter Carmichael, Eberly Family Professor of Civil War Studies
Tim Carr, Marshall S. Miller Energy Professor of Geology
Linda M. Carson, Ware Distinguished Professor of Physical Education
William H. Carter, Warren Point Chair of Internal Medicine
Judith Charlton, Jane McDermott Shott Chair of Ophthalmology
Myra Chiang, Distinguished Professorship of Special Care to Children in Pediatric Subspecialty
Patricia Chase, Gates E. Wigner Dean of Pharmacy
Nigel N. Clark, George B. Berry Chair of Engineering
Franklin D. Cleckley, Arthur B. Hodges Professor of Law
Patrick Conner, Eberly College Centennial Professor of English
Robert Dailey, Davis-Michael Professor of Animal and Veterinarian Sciences
Julio Davalos, Claude W. Benedum Professor for Outstanding Teaching
Robert DiClerico, Eberly Family Professor for Outstanding Teaching
Charles R. DiSalvo, Woodrow A. Potesta Professor of Law
Barry A. Edelstein, Eberly Family Distinguished Professor of Clinical Psychology
Boyd Edwards, The Ruth and Russell Bolton WVU Professor of Outstanding Teaching
John Ernest, Eberly Family Distinguished Professor of American Literature
Ali Feliachi, Electric Power Systems Professor of Engineering
Donald C. Fidler, Dana L. and Peggy M. Farnsworth Chair of Educational Psychiatry
John W. Fisher, II, The William J. Maier, Jr. Dean
Melanie Fisher, Martha and Larry Schwab Endowment for International Health
Kenneth Fones-Wolf, The Stuart and Joyce Robbins Chair in History
Mathis P. Frick, O. F. Gabriele Chair of Radiology
James J. Friedberg, Hale J. and Roscoe P. Posen Professor of Law
Takanori Fukushima, Hazel Ruby McQuain Neurosurgery Chair
Frank Gagliano, Claude W. Benedum Professor of Theatre
Keith Garbutt, Eberly Family Professor for Outstanding Teaching
Laura Gibson, Alexander B. Osborn Distinguished Professor in Hematological Malignancies Research
Robert L. Goodman, E. J. Van Liere Professor
Rakesh K. Gupta, George and Carolyn Berry Professor of Chemical Engineering
Ludwig Guttmann, Hazel Ruby McQuain Chair of Neurological Research
Joseph Hagan, Barnette Professor of Political Science (in ECAS)
Donald E. Hall, Jackson Family Distinguished Chair of English
Jack Hammersmith, Eberly Family Professor for Outstanding Public Service
Trevor M. Harris, Eberly Family Professor of Geography
Alison Helm, J. Bernard Schultz Endowed Professor of Art
JoAnn Hornsby, Interim Hazel Ruby McQuain Arthritis/Rheumatic Disease Chair
Timothy Jackson, Charles E. “Jim” Compton Chair of Nutrition
Abnash Jain, Abnash C. Jain Distinguished Professorship in Cardiology
Thomas Kammer, Eberly College Centennial Professor of Geology
Mark Koepke, Robert C. Byrd Professorship
Rodney Kovach, William Welton Dermatology Endowment
Bill Kukendall, Shott Chair of Journalism
Kennon A. Lattal, Eberly College Centennial Professor of Psychology
Richard D. Layne, Grace Kinney Mead Chair of Geriatrics
Ronald L. Lewis, Stuart and Joyce Robbins Chair of History
Huey Hannah Lin, J. Vance and Florence Highland Johnson Teaching Professor of Chinese Studies
John Linberg, Jane McDermott Shott Chair of Ophthalmology
Diana Knott Martinelli, Widmeyer Communications Professor of Public Relations
Robert S. Maust, Louis F. Tanner Distinguished Professor of Public Accounting
Michael Mays, Eberly Distinguished Professor of Outstanding Teaching (in ECAS)
Joyce E. McConnell, Thomas R. Goodwin Professor of Law
Marjorie A. McDiarmid, Steptoe and Johnson Professor of Law and Technology
Patrick C. McGinely, Charles H. Haden, Jr. Professor of Law
Gerald McGonigle, Mabel DeVries Tanner Endowed Professor of Theatre and Dance
James McGraw, Eberly Family Professor of Biology
James A. McLaughlin, Robert L. Shuman Professor of Law
Daniel McNeil, Eberly Family Professor for Outstanding Public Service
Bonnie Morris, The Go-Mart, Inc. Professorship
Keith Morris, Ming Hsieh Distinguished Professor of Forensic and Investigative Science
Tracy Morris, Eberly Family Professorship of Teaching
William Neal, James H. Walker Chair of Pediatric Cardiology
George O’Doherty, Woodburn Professor of Chemistry (ECAS)
John Parker, N. Leroy Lapp Professor of Pulmonary and Critical Care Medicine
Julie Patrick, Woodburn Professor of Psychology (ECAS)
Syd S. Peng, Charles E. Lawall Chair of Energy Resources
William F. Petros, Mylan Chair of Pharmacology
Scot Remick, Laurence and Jean DeLynn Chair of Oncology
Richard A. Riley, Louis F. Tanner Distinguished Professor of Public Accounting
Terry L. Rose, Ernest L. Hogan Chair of Life Insurance
J. Michael Ruppert, Jo and Beth Statler Eminent Scholar and Chair, Breast Cancer Research
Mary Ann Samyn, The Ruth and Russell Bolton Teaching Professorship
Earl Scieme, Eberly Family Distinguished Professor of Physics
Kenneth Showalter, C. Eugene Bennett Chair of Chemistry
Russell S. Sobel, James Clark Coffman Distinguished Chair of Entrepreneurial Studies
Janice Spleth, Armand E. and Mary Singer Professorship of the Humanities (ECAS)
Donley Studlar, Eberly Family Professor of Political Sciences
Michael Vernon, Sanger Chair of Family Planning and Reproductive Physiology
Kung Wang, Eberly Family Professorship of Chemistry
Jeff Wells, Woodburn Professor of Biology (ECAS)
Stephen Wetmore, Romeo Lim and Maria Lim Chair of Otolaryngology
Brian D. Woerner, Stephanie and Raymond J. Lane Endowed Professor
John Zaniewski, Asphalt Technology Professor of Civil and Environmental Engineering
*Forest Bowman, Jackson and Kelly Professor of Law, Emeritus
*Bernard R. Cooper, Claude W. Benedum Professor of Physics, Emeritus
*Hayne W. Reese, Centennial Professor of Psychology Emeritus
*Carl Rotter, Eberly Family Professor for Outstanding Teaching, Emeritus

* = Emeritus Status 11/10/09
Established in 1867, West Virginia University (WVU) is the state’s only research, doctoral degree granting, and land-grant University. WVU provides high-quality programs of instruction, offering over 185 degree programs at the undergraduate, graduate, and first-professional levels. WVU fosters basic and applied research and scholarship and engages in and encourages other creative and artistic work. Health science programs are taught at the WVU Robert C. Byrd Health Sciences Center through schools of medicine, dentistry, nursing, and pharmacy, including allied health programs and graduate programs in basic health sciences. WVU is also home to the state’s only law school.

Only ten other state universities share WVU’s complex mission as a land-grant, research-oriented, public university with a comprehensive health sciences center. The term “land-grant” derives from the congressional Morrill Acts of 1862 and 1890, which gave federally owned land to each state, to be sold for funds to establish colleges offering programs in agriculture and engineering. Since its founding in 1867, WVU has developed into a center of graduate and professional education, research, and extension programs in West Virginia.

WVU combines the breadth of academic opportunities offered by a major research institution with the atmosphere of a small school. Currently, WVU, including the regional campuses of Potomac State College of West Virginia University and West Virginia University Institute of Technology, enrolls approximately 31,952 students, of which more than 7,178 are graduate and professional students. However, the undergraduate student/faculty ratio is 27:1 and enrollment in one of the University’s 15 colleges and schools offers students the warmth and friendliness of a small academic community. The diversity of our student body is evident in its student body, with all 55 counties of West Virginia, 50 states and D.C., and nearly 100 other countries represented. The WVU system has an annual budget in excess of $850 million and a research budget of more than $129 million.

WVU campuses combine traditional and modern architectural styles; nine full buildings, a portion of White Hall on the downtown campus, and two buildings at Coopers Rock are listed on the National Register of Historic Places. Many of these original buildings, including Stalnaker Hall, have been restored and renovated. The downtown campus is linked to the Evansdale campus and the Robert C. Byrd Health Sciences Center by the Personal Rapid Transit (PRT) system, which uses automated, electric-powered cars that operate on a concrete-and-steel guideway. The PRT permits quick and easy access to major locations within the University and downtown Morgantown.

WVU programs and services are accessible throughout West Virginia. Regional campuses include Potomac State College of West Virginia University and West Virginia University Institute of Technology. WVU operates the Charleston Division of the Robert C. Byrd Health Sciences Center and the Wheeling Division of the School of Medicine. In addition, there are several Extended Learning Regional Centers throughout the state.

WVU operates eight experimental farms in Hardy, Jefferson, Monongalia, Monroe, and Preston counties; five experimental forests in Monongalia, Preston, Randolph, and Wetzel counties; a geology camp in Greenbrier County; and the state 4-H Camp and a museum of mid-nineteenth-century life at Jackson’s Mill.

The Graduate Catalog

The policies and rules for graduate education and students’ rights, privileges, obligations, and responsibilities are contained in this graduate catalog. It is essential that all students beginning study at the graduate level become familiar with regulations for graduate study in general, as well as with the requirements of their own programs. Each student beginning graduate study should obtain the latest information by examining the online (coursecatalog.wvu.edu) version of the current graduate catalog. Additional agreements are made between graduate students and their departments and/or colleges through the plan of study (see sections below). The University reserves the right to unilaterally change, delete, supplement, or otherwise amend, without prior notice, the graduate catalog, and any such amendments shall apply to all enrolled students, regardless of when they enrolled.

The Mission of West Virginia University

WVU’s primary mission is to provide high-quality programs of instruction at the undergraduate, graduate, and professional levels, to stimulate and foster both basic and applied research and scholarship, to engage in and encourage creative and artistic work, and to bring
the resources of the University to all segments of society through continuing education, extension, and public service activities.

Opportunities to conduct pioneering research and scholarship help attract high-quality faculty and students. Students and faculty work together to create exciting and productive paths for investigation and development. Through these interactions, WVU nurtures intellectual, social, and economic development for all of West Virginia.

WVU's special responsibility is to seek out, challenge, educate, and help create opportunities for those West Virginia citizens who can benefit from its programs, especially those who have demonstrated high achievement or who possess excellent potential.

West Virginia University recognizes that diversity enriches the institution and the society it serves. The University is committed to social justice and to practicing the principles of equality of opportunity and affirmative action.

Instruction

Degrees are awarded at the baccalaureate, master’s, doctoral, and professional levels. The University offers approximately 140 graduate degree programs as well as 13 graduate certificate programs through the departments/divisions of 15 colleges and schools:

- The College of Business and Economics, which includes: Accounting; Business Management; and Economics and Finance.
- The College of Creative Arts, which includes: Art; Music; Theatre and Dance.
- The College of Engineering and Mineral Resources, which includes Chemical Engineering; Civil and Environmental Engineering; the Lane Department of Computer Science and Electrical Engineering; Industrial and Management Systems Engineering; Mechanical and Aerospace Engineering; Mining Engineering; and Petroleum and Natural Gas Engineering.
- The College of Human Resources and Education, which includes: Counseling; Rehabilitation Counseling; Counseling Psychology; Curriculum and Instruction; Literacy Studies; Educational Leadership Studies; Special Education; Speech Pathology and Audiology; Technology; Learning and Culture.
- The College of Law.
- The Davis College of Agriculture, Natural Resources, and Design, which includes the divisions of: Animal and Nutritional Sciences; Design and Merchandising; Plant and Soil Sciences; Forestry; and Resource Management.
- The Eberly College of Arts and Sciences, which includes: Africana Studies; Biology; Chemistry; Communication Studies; Creative Writing; Cultural Research Management; English; Foreign Languages; Forensic and Investigative Science; Geology and Geography; History; International Studies; Leadership Studies; Mathematics; Multidisciplinary Studies; Native American Studies; Social Work; Sociology and Anthropology; Philosophy; Physics; Political Science; Psychology; Public Administration; Regents; Religious Studies; School of Applied Social Sciences; Slavic and Eastern European Studies; Social Work; Sociology and Anthropology; Statistics; and Teacher Education.
- The Perley Isaac Reed School of Journalism, which includes: Journalism; Advertising; Public Relations; Television; and Integrated Marketing Communications.
- The School of Dentistry, which includes: Dental Hygiene; Endodontics; Orthodontics; Prosthodontics; and Dental Surgery.
- The School of Medicine, which includes: Anesthesiology; Behavioral Medicine and Psychiatry; Community Medicine; Emergency Medicine; Exercise Physiology; Family Medicine; Medicine; Neurology; Neurosurgery; Obstetrics and Gynecology; Occupational Therapy; Ophthalmology (Eye); Orthopedics; Otolaryngology; Pathology; Pediatrics; Physical Therapy; Radiology; Surgery; and the HSC branch campus at Charleston.
- The School of Nursing, which includes: Health Promotion and Risk Reduction; the Department of Health Restoration, and Departments of Nursing at WVU-Charleston and WVU-Tech.

General Information
• The School of Pharmacy, which includes: Basic Pharmaceutical Sciences; Clinical Pharmacy; and Pharmaceutical Systems and Policy.
• The College of Physical Activity and Sport Sciences, which includes the departments of: Coaching and Teaching Studies; and Sport Studies.
• Potomac State College of West Virginia University
• West Virginia University Institute of Technology

The University conducts graduate studies in Morgantown as well as at off-campus centers and online and continues to develop extended learning resources to expand its off-campus graduate instruction.

Research and Scholarship

Research, scholarship, or creative activity of distinction is expected within every school or college of the University. Indeed, most of the advanced research and scholarship carried out in West Virginia find its home at West Virginia University. Advanced study, in the form of research and scholarship, is the cornerstone of the Ph.D. degree and is a component of many master's degrees. Graduate students, by virtue of their involvement in such scholarly activities, are trained to advance knowledge in their respective fields, expand the understanding of society and society’s challenges, and create new artistic endeavors to enlighten humanity. The assessment of the quality of both research and scholarship is given heavy weight in tenure, promotion, and other personnel decisions affecting faculty members.

Research and scholarship occurs throughout all schools and colleges at West Virginia University. Currently, faculty, centers, and institutes across the university support over $150 million in externally-funded sponsored activity including research and public service. Within the university, graduate student research is supported by these grants as well as by research support funds provided by individual schools and colleges. The WVU Research Corporation facilitates and coordinates granting activities and provides research funding options for new research undertakings and centers across the University.

The University supports and is supported by numerous institutes and centers for the promotion of interdisciplinary studies and research. These units include the Advanced Energy Initiative, the WV Nanosciences Initiative, the National Research Center for Coal and Energy, the Regional Research Institute, the Mary Babb Randolph Cancer Center, the Bureau for Business and Economic Research, the Center on Aging, the Institute for Public Affairs, the Center for Women's Studies, the Harley O. Staggers National Transportation Center, the Appalachian Hardwood Center, the Institute of Occupational and Environmental Health, the Center for Black Culture and Research, and others.

Service

By virtue of its service mission as a land-grant institution and its position as the major center of research and development in West Virginia, the University has a responsibility to work with business and government leaders to promote the economic development of West Virginia. Through credit and non-credit educational programs and working partnerships with industry, government, and public schools, the University plays an important role in all geographic regions in West Virginia.

WVU contributes to the development and enhancement of West Virginia's economic, educational, social, and health status through its programs of instruction and research and through its programs of outreach. To serve the State and its people, the University offers instructional and service programs in every county through the West Virginia University Extension Service. Additionally, the West Virginia University Agricultural and Forestry Experiment Station sponsors applied and basic research throughout West Virginia, directly benefiting industries critical to the state. The West Virginia University Health Sciences Center (HSC) serves the people of all 55 counties of West Virginia through direct patient care both at its campuses and at outreach clinics located throughout the state. The HSC maintains a cancer information service, a drug information service, and a poison control center. It provides extensive support services for rural physicians, including a free telephone consultation program, specialty care support, monthly educational opportunities, and computerized access to resources in the Health Sciences Center Library. The health professionals of the HSC conduct basic research focusing on the specific needs of West Virginians.
Government and Organization of WVU

Effective July 1, 2001, the West Virginia Board of Governors was vested by law with the authority for the control and management of the University. The board includes 13 lay members, two faculty members, one staff member, and one student member. The University president, appointed by the Board of Governors, is the chief executive officer of the University.

The West Virginia Higher Education Policy Commission is responsible for policy development and other statewide issues. The Commission consists of seven members appointed by the governor, the secretary of education and the arts, and the state superintendent of schools.

The Faculty Senate is the vehicle for faculty participation in the governance of the University. It is a legislative body with original jurisdiction over all matters of academic interest and educational policy that concern the entire University or affect more than one college or school. The Senate’s decisions are subject to review and approval by the president and the Board of Governors. Senators are elected by members of the University faculty to represent their colleges and other constituencies. The Senate is presided over by an elected chair.

The University Graduate Council is the representative body governing graduate education. The Council consists of elected faculty representatives from the schools and colleges offering graduate programs. This body formulates, reviews, and recommends University-wide graduate education policies and includes oversight of graduate programs both on and off campus.

The president meets regularly with the University’s administrative cabinet and monthly with the Faculty Senate Executive Committee, the Staff Council, and Student Administration. The University Faculty Assembly includes the president as presiding officer, professors, associate professors, assistant professors, instructors holding appointments on a full-time basis, and other persons engaged in full-time professional activities. The assembly meets once a year.

West Virginia University has a tradition of strong student administration, which represents student opinion to the administration and faculty. Student administration has three main units: the executive branch, the board of governors, and the judicial board. Students also serve on University-wide committees and on the Mountainlair Advisory Council.

The Staff Council is an advisory council to the president of the University and a means for all classified employees to express their opinions about job conditions, fringe benefits, employee relations, or other areas that affect their jobs.

Local 814 of the Laborers’ International Union of North America, AFL-CIO, represents employees throughout the University and its affiliates. These employees are in craft/maintenance, service, clerical, and technical job categories, with a wide variety of job classifications. Laborer’s Local 814 is the only recognized union at the University by agreement through the Memorandum of Accord.

Support Services

University Libraries

The West Virginia University Libraries include the Downtown Campus Library, the Charles C. Wise Jr. Library, the Evansdale Library, the Health Sciences Library, located in the Robert C. Byrd Health Sciences Center, and the Law Library, located in the Law School.

The WVU Libraries provide access to electronic resources 24 hours a day at http://www.libraries.wvu.edu. These resources include the online catalog, eBooks, journals, and databases. The WVU Libraries’ collections parallel the University’s academic offerings. Books, periodicals, electronic resources, microforms, government publications, databases, maps, manuscripts, media, and access to information via the Internet provide a major academic resource for students and faculty. Also, library staff members provide a wide range of in-person and online services including reference assistance, circulation, interlibrary loan, and library instruction.

The WVU’s Libraries onsite collections include over 1.6 million books and more than 34,600 current journal subscriptions. In keeping with WVU’s mission of technological excellence, the WVU Libraries offer students high-speed public use computers, Ethernet connections, wireless access points, electronic access to more than 200 networked databases, and more than 30,000 online full-text electronic journals. Through the Libraries’ membership in the Pennsylvania Academic Library Consortium, WVU students and faculty have access to over 36 million books in 75 member libraries. The West Virginia and Regional History Collection houses manuscripts, folk music, newspapers, photographs, and public records, and is the foremost historical library and archive in the state. The Libraries’ Appalachian Collection is one of the nation’s best resources for Appalachian regional culture. The WVU Libraries are a depository library for U.S. government publications, and the Evansdale Library is a patent depository for U.S. patents.
The WVU Libraries are innovators in identifying, acquiring, and making accessible a broad range of electronic library resources. The Libraries constantly update technology and add resources to provide the most current and convenient information resources and services to its users. The Libraries were pioneers in the management of electronic theses and dissertations and in electronic course reserves.

Library hours vary with the academic term and are available online.

**Office of Information Technology**

The vision for WVU-OIT is to empower the University community through information technology, to enrich the academic experience for students, and to strengthen the ability of faculty and staff to teach, conduct research, and to provide public service throughout West Virginia and beyond.

Academic Information Services (http://oit.wvu.edu/labs/) administers public computing facilities used by students, faculty, and staff. AIS provides high technology classrooms that can be reserved for short-term use to support educational activities. In addition to managing the staff, facilities, and the technology available in the computer labs and classrooms, AIS also provides support for the technology used in the campus-wide paid printing system. AIS provides test, quiz, and survey scanning services for faculty members on campus and also developed the technology and services related to the Student Evaluation of Instruction (http://labs.wvu.edu/sei).

The OIT Help Desk provides telephone-based, e-mail, and self-service for a broad range of technical support across campus. A listing of OIT services is available at oit.wvu.edu/helpdesk/.

The Classroom Technologies Group (C-Tec) provides a classroom technologies multimedia system to distribute audio and video to any networked electronic classroom throughout the WVU campus (http://oit.wvu.edu/ctec/).

OIT offers two kinds of Wi-Fi network access (encrypted and unencrypted) at various locations on campus. Access to the networks is free of charge (http://oit.wvu.edu/wireless)/.

Technical Support Services provides free technical training workshops to faculty, staff, and students (http://oit.wvu.edu/tss/).

**Instructional Technology Resource Center**

The Instructional Technology Resource Center (http://itrc.wvu.edu) increases the extent to which technology enhances the quality of teaching and learning at WVU. Our mission is to support, promote, and enhance teaching effectiveness at the University through instructional strategies and faculty development. We promote methods that enable the University to achieve its goals of providing a student-centered, technology-enhanced educational experience for all students. To accomplish this mission we engage in the following activities:

- Provide resources so that faculty can broaden their pedagogical exploration and reflection.
- Provide assistance with course development and integration of technologies into the course curriculum.
- Design, promote, and host faculty development opportunities through collaborative projects, training, and consulting services.

**Office of Social Justice**

West Virginia University's role as the doctoral degree-granting, research, land-grant University gives the institution a special responsibility as a leader in the area of social justice. The pursuit of truth underlying the University's mission focuses attention on issues of diversity, power, and perspective, so that students, faculty, and staff may study and work in a climate of academic freedom and social responsibility, developing the skills, knowledge, and self-esteem necessary for participation as world citizens.

Equal opportunity is a fundamental goal in a democratic society, and WVU shares the responsibility for achieving that equity. The institution is committed, therefore, to ensuring that all persons, including women, people of color, persons with disabilities, veterans, and persons of different religions, sexual orientations, ages, and international, ethnic, and economic backgrounds benefit from the many opportunities the institution provides.

In keeping with this responsibility, members of the academic community are expected to demonstrate civility and mutual respect for all persons, understanding and appreciation for all persons, to express that perspective in every dimension of the institution's life and mission, and to work cooperatively, representing not only the interests of their own groups but also those of the wider community.
Individuals believing they may have been illegally discriminated against by West Virginia University may file a complaint with the President’s Office for Social Justice, B 1 Stewart Hall. Additional information is also available on the WVU website http://socialjustice.wvu.edu/policies_and_training.

The importance of WVU’s social justice program goes beyond the benefits that accrue to any one person or group to strengthening the University itself and enhancing its ability to accomplish the missions entrusted to it by the people and the State of West Virginia.

Disability Services

The Office of Disability Services is located at G30 Mountainlair, phone (304) 293-6700, http://www.wvu.edu/~socjust/disability. The office provides accommodations to qualified students with documented permanent or temporary disabilities as they pursue their academic careers at WVU. Its services and accommodations are in keeping with the WVU commitment to provide both architectural and programmatic accessibility. Accommodations vary from student to student, are based on the functional limitations of each individual student and are provided free of charge.

Accommodations may include:
• priority preregistration,
• arranging for classroom accommodations,
• alternative testing accommodations such as extended time and/or a separate testing environment,
• arranging for class materials in accessible formats,
• providing accessible transportation to and from class,
• providing referrals for assistive technology, and numerous other services.

Any student who requires accommodations must contact the Office of Disability Services as soon as possible, as it takes time to submit and review documentation as well as provide accommodations. Students are responsible for providing appropriate documentation of their disabilities, which usually comes from a physician, psychologist, or other licensed professional. The documentation must clearly state a current diagnosis and specific functional limitations, and provide test data that substantiates a “significant impairment” in functioning.

All information provided about a student’s disability is confidential and is stored separately from other records. Information about a student’s disability will not be disclosed without the written authorization of the student unless required by law or a need-to-know basis.

Prospective students with disabilities should also contact WVU Admissions, (304) 293-2121, or the graduate program of interest for specific information concerning application procedures and admission requirements. All students admitted to WVU are expected to meet current admission requirements.

Graduate Housing – WVU Medical Center Apartments

WVU Graduate Apartment’s mission is to create and maintain a living, as well as learning, environment which is supportive of and responsive to our customers in pursuit of their educational goals. Our primary thrust is to provide well maintained, secure, affordable housing rendered by a dedicated staff and to offer a one-stop service which enhances the individual’s student experience, personal growth, and sense of belonging to the wider University community. WVU Medical Center Apartments have efficiency and one-bedroom apartments. Information about University-owned apartments is available by calling (304) 293-5840 or online at http://housing.wvu.edu/graduate_student_faculty_and_staff_housing.

Branch Campuses

Potomac State College of West Virginia University

Potomac State College of West Virginia University, situated in West Virginia’s Eastern Panhandle in the town of Keyser, provides students with undergraduate liberal arts and sciences and pre-professional studies. See http://www.potomacstatecollege.edu for more information.

West Virginia University Institute of Technology

The West Virginia University Institute of Technology is WVU’s southernmost campus. Located in Montgomery, WVU Tech serves the region and the state by preparing students at the associates’ and baccalaureate levels for careers in the basic and applied sciences. WVUIT addresses the statewide and regional needs for delivery of engineering and technical programs through extension offerings, continuing education, and consultative activities of the faculty.
WVU Tech currently offers certificates and associate’s degrees in 15 fields, and baccalaureate degrees in 26 fields. See http://www.wvutech.edu for more information.

Morgantown Area

Greater Morgantown has 28,000 permanent residents; Monongalia County, 85,000. WVU is the largest single employer in the county. On the east bank of the Monongahela River, which flows north to Pittsburgh, Morgantown is situated on rugged terrain in the Appalachian highlands. The altitude varies from 960 feet above sea level in Morgantown to 2,100 feet at nearby Cooper’s Rock. The area’s temperate climate has four distinct seasons of about equal length. Morgantown averages 40 inches of precipitation a year. A north-south interstate highway (I-79) is one mile west of Morgantown. U.S. 19 and U.S. 119 pass through Morgantown in a north-south direction. Interstate 68, an east-west highway, links I-79 at Morgantown to I-81 in the Cumberland/Hagerstown, Maryland region.

Because of WVU’s resources, the Morgantown area is a major Appalachian research center. Four federal agencies have research facilities in the area: Department of Health and Human Services (National Institute for Occupational Safety and Health), Forest Service (Forestry Sciences Laboratory), National Energy Technology Laboratory of the Department of Energy, and the Natural Resource Conservation Service (West Virginia headquarters).

Graduate Education at West Virginia University

Graduate education at West Virginia University began in the late 1800s, with the awarding of the first master’s degree in 1899 and the first doctoral degrees in 1932. Over the years, graduate education has grown to become a significant enterprise at WVU, with the awarding of approximately 1,500 master’s degrees in 106 major fields and 190 doctorates in 43 major fields annually. These advanced degrees are awarded for specialized training in the full spectrum of academic programs across West Virginia University and reflect the mastery of knowledge, attainment of technical capabilities, and creation of new work needed for students to advance in their careers or practice in their chosen fields of study.

While enrolled in graduate study at WVU, graduate students have the opportunity to work in close collaboration with expert faculty and have access to state-of-the-art facilities needed to excel in the students’ desired field of study. At the same time, graduate students have opportunities for professional and personal growth provided by the greater community of scholars represented by the university. Thus, graduate study at WVU provides a foundation and catalyst for advanced training leading to careers in a broad range of disciplines.

Organization of Graduate Education

West Virginia University is both the comprehensive and the land-grant university in the West Virginia system of higher education. The graduate programs are administered by the Office of Graduate Education and Life, the University Graduate Council, and the 13 schools and colleges of the University. West Virginia University has been designated “Research Activity High” in the Carnegie Classification of Institutions of Higher Education.

Office of Graduate Education and Life

The associate provost for Graduate Academic Affairs oversees the policies governing graduate education, monitors the quality of graduate programs, and sets goals for enhancing graduate education at West Virginia University. The associate provost reports to the provost and oversees program evaluation and policy and procedure issues related to graduate education. Additional information on graduate education governance may be obtained by going to http://graduateeducation.wvu.edu/ or calling (304) 293-7173.

Graduate Council

The University Graduate Council consists of 16 elected faculty representatives from the schools and colleges offering graduate programs and five ex-officio non-voting members representing the provost, the associate provost for Graduate Academic Affairs, the vice president for Health Sciences, and the Senate Executive Committee. The council derives its authority
from the faculty and from the provost and vice president for Academic Affairs and Research. This body formulates, reviews, and recommends University-wide graduate education policies. The council reviews proposals for new graduate programs, evaluates major revisions in graduate curricula, coordinates periodic program reviews, establishes the University criteria for graduate faculty membership, and considers such other matters affecting graduate education as are brought to the council by an administrative officer of the University, a graduate faculty member, or a graduate student. The duties of the University Graduate Council include oversight of graduate programs both on and off campus.

**Schools and Colleges**

Schools, colleges, and their departments manage most of the day-to-day operation of graduate education. They determine the level of participation by individual faculty members, specify requirements for programs under their jurisdiction, and certify students for graduation. Graduate program coordinators in each unit are responsible for graduate assistantship appointments, tracking student progress, academic code issues, and maintaining graduate student academic and personnel files.

**Health Sciences Center**

The Admissions Office at the WVU Health Sciences Center is responsible for admission to the dentistry, medicine, nursing, and pharmacy schools. The WVU Health Sciences Center Catalog contains complete information about these programs. Answers to additional questions may be sought from: Admissions, 1170 Health Sciences Center North, P.O. Box 9815, Morgantown, WV 26506-9815; (304) 293-3521.

**Graduate Degree Programs Offered by WVU**

The schools and colleges of WVU offer graduate programming leading to 15 graduate certificates and degrees in 106 masters' and 70 doctoral major fields. A searchable database for all WVU graduate degree programs is available at http://grad.wvu.edu/. A searchable database for the certificate programs can be viewed at http://grad.wvu.edu/.

**Application for Graduate Study**

**Initial Inquiry**

Prospective graduate students are urged to initially contact individual programs regarding opportunities to pursue graduate study in the program of interest. In addition to obtaining information online or through the mail, students should contact graduate program directors or individual faculty members to ascertain the potential for graduate study in particular academic and research areas.

Students should apply for admission as early as possible to the department, division, school, or college offering the program of interest. Information relevant to the application process can be found on the web at http://grad.wvu.edu/ with additional information regarding the program of interest on the individual program’s website.

**Minimum Admission Standards**

The University Graduate Council establishes the minimum standards for admission to graduate study. Beyond this point, however, faculty members in a given graduate program control who is to be admitted to graduate study under their supervision. While a student may be admitted to the University to enroll in advanced coursework, only the specific program faculty may grant permission for the pursuit of a graduate degree.

**Forms and Application Fees**

Application for admission to graduate study must be made online or on standard forms provided online at http://admissions.wvu.edu/graduate. If using a paper application, the completed form may be returned to the Office of Admissions, P.O. Box 6009, West Virginia University, Morgantown, WV 26506, and must be accompanied by payment of a nonrefundable special service fee.
Transcripts
Applicants must arrange for official transcripts to be sent directly to the Office of Admissions by the Office of the University Registrar or records office of their previous institutions. Transcripts should be requested from all institutions attended in the course of undergraduate or graduate study. Transcripts received by the Office of Admissions become the property of WVU.

GRE/GMAT
Many programs at WVU require graduate record examination (GRE or GMAT) scores from all applicants, but in no program is an examination score the sole criterion for admission. Some programs require both the general and the appropriate advanced tests before considering an applicant for admission. Other programs require different tests, such as the Miller Analogies. Specific admission requirements are found in the program sections of the online catalog (http://coursecatalog.wvu.edu). If GRE or GMAT tests are required, the applicant should request the Educational Testing Service to forward scores to the WVU Office of Admissions. (The code identifying WVU to the GRE is 5904.) In addition, students are encouraged to send a machine-reproduced copy of GRE or GMAT scores, if available, along with the initial application to the Office of Admissions in order to facilitate the WVU evaluation process.

Information on the GRE may be obtained at http://www.ets.org/gre and for the GMAT at http://www.gmac.com/gmac/thegmat. Information about the Miller Analogies Test may be obtained from the psychology department or the counseling service of the applicant’s undergraduate institution. At WVU, call the University Testing Center at (304) 293-0699.

Admission Acceptance
Once a complete application and required documents are received, the Office of Admissions forwards a copy of the application packet to the faculty of the program of interest. Any graduate degree program is permitted to set admission requirements beyond the minimum admission standards of the University. No one may pursue an advanced degree at WVU unless admitted to the appropriate degree program. A student who wishes to take courses after completing a degree must submit a new application and pay the nonrefundable service fee. Any applicant who fails to enroll within a year after acceptance must reapply.

Admission Denial
If an application for admission into a graduate program is denied, the applicant may request the reasons for refusal of admission by writing to the graduate program coordinator. It should be noted that meeting the minimum requirements for admission into a graduate program does not ensure admission. Many programs, due to resource limitations, restrict the number of admissions by selecting the top candidates among the qualified applicants. An applicant may appeal to the program for reconsideration if he/she can document factual errors in processing the application or if the decision was deemed arbitrary and capricious or discriminatory in nature.

If the matter is not resolved satisfactorily within 30 calendar days of the receipt of the appeal by the program, the applicant may appeal to the dean of the college or school. The decision of the dean, as the provost’s designee, shall be rendered within 20 calendar days of the receipt of the appeal and is final.

Graduate Credit via Senior Petition
Undergraduate students wishing to obtain graduate credit by senior petition must obtain the standardized permission form from the Office of Admissions. This form requires the signature of the student’s undergraduate advisor and the dean of the college granting the undergraduate degree and the dean of the college of the intended graduate degree (if different). The policies regulating an undergraduate’s enrollment in the graduate-level course for graduate credit are:

- Enrollment is permitted only in courses numbered 400–599.
- Undergraduates must be within 12 credit hours of their baccalaureate degrees and have a grade point average of 3.0 on a 4.0 scale.
- The maximum number of hours of graduate credit permitted by senior petition is 12 credit hours.
- The senior petition must be approved prior to or at the time of enrollment.
• No more than 20 percent of the total enrollment in any 500-level course may consist of undergraduate students.

Approved senior petitions are returned to the Office of Admissions so that a notation of graduate credit may be placed on the student’s transcript. Any exceptions to the regulations must be approved by the dean of the school or college in which the student seeks graduate credit. Note: Students receiving graduate credit for a course do not receive credit toward their undergraduate degree with the same course.

**Transfer Students**

A student wishing to transfer to WVU from another accredited institution should follow the same application procedures as those outlined for other new students.

A student wishing to apply credit earned at another accredited institution of higher education to a degree program at WVU must obtain a transfer of graduate credit form available at http://adm.wvu.edu/home/downloadable_forms. This form requires the signature of the student’s unit chairperson or designee. The student must also have an official transcript from the other institution sent to the Office of Admissions. Only credit earned at institutions accredited regionally at the graduate level may be transferred. Students should have transfer credit approved prior to enrolling in coursework. Non-degree graduate students are not permitted to transfer credit to WVU from another institution.

Graduate programs may accept up to a maximum of 40 percent of their required coursework as transfer graduate credit. Individual graduate units may require higher percentages to be earned under their direction.

**Transfer to Another Program**

A student may initiate a transfer to another program within WVU by contacting the dean’s office of the school or college where enrolled. Following the student’s request, the dean’s office will send the student’s record to the school or college that the student wishes to enter. The school or college receiving the record is required to acknowledge receipt of the record and notify the Office of University Registrar of the status of the student’s application within 30 days. If a student is accepted by the new school or college, the school or college retains the student’s record and notifies the student of acceptance. If a student is rejected, he or she is notified and the student’s record is returned to the original school or college. The Office of the University Registrar is responsible for updating students’ records to reflect new majors and new advisors.

When a student transfers from one unit or program to another unit or program within the University, the faculty of the new unit determines if any credit earned under the guidance of the prior unit may be applied to a degree, certificate, or other educational offering of the new unit.

Programs may establish admission requirements in addition to those set by the University Graduate Council, such as a higher grade point average, the submission of scores on standardized tests, and the receipt of letters of recommendation.

**International Student Admission**

West Virginia University is authorized under federal law to enroll non-immigrant foreign nationals as students. International students wishing to enroll for graduate work at WVU must comply with the stated academic requirements for admission and with certain additional academic and nonacademic requirements.

International applicants should forward a letter of inquiry one year before they intend to begin study in the United States. The University receives a large number of applications from international students. For this reason and because of the time required for the student to make visa and financial arrangements, April 1 has been established as a deadline after which applications cannot be guaranteed consideration for fall admission. International students applying for admission to West Virginia University must submit the following:

• A completed international student admission application.
• Application service fee.
• The official results of the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) sent directly to WVU by the testing service.
Original or certified copies of the applicant’s official academic record in the original language of issue. Applicants who have studied in the United States are required to have the institutions send an official transcript directly to WVU.

Original or certified copy of all certificates or diplomas in the original language of issue.

Official English translations of the academic record and certificates/diplomas.

The items above should be sent to the Office of Admissions, West Virginia University, P.O. Box 6009, Morgantown, West Virginia 26506-6009. All material must be received by the application deadline. If possible, all application materials should be submitted at one time (TOEFL or IELTS scores and official transcripts from United States institutions should be requested so that all material arrives at WVU close to the same date). Incomplete applications cannot be guaranteed consideration for the desired semester. Applicants are encouraged to contact the academic program of interest for information about requirements other than those listed above.

International students seeking financial support as graduate teaching assistants (GTAs) are required to pass the WVU SPEAK test (see English Language Proficiency and Graduate Teaching Assistants).

Required Academic Credentials

Applicants for graduate programs must submit academic records from all post-secondary education. In some cases, it may be necessary for graduate applicants to submit records from the secondary school.

West Virginia University requires that original academic documents or certified copies of the original academic documents from non-United States institutions be submitted. The required documents include the official academic record (showing course titles, dates taken, and grades received), and diploma(s) or certificate(s) showing the degree awarded. These documents must be in the original language of issue. Official English translations must be included. Translations must be literal, word-for-word translations and must indicate actual grades received, not an interpretation of the grades.

Documents received by WVU become the property of WVU and cannot be returned to the applicant. It is therefore recommended that students who receive only one original copy of credentials submit certified copies with the application.

Applicants who are currently enrolled in an institution and who cannot submit the final academic record and certification of degree may be granted admission if the incomplete record indicates that the applicant will unquestionably meet WVU admission standards. Final admission, however, cannot be approved until the complete academic record and certification of degree have been received and evaluated by the Office of Admissions.

English Language Proficiency

All applicants whose first language is not English must provide proof of English language proficiency. WVU uses the Test of English as a Foreign Language (TOEFL) and the International English Language Testing System (IELTS) as measures of English language proficiency. A score of 213 on the computer-based TOEFL, 550 on the paper-based TOEFL, or 79 on the internet-based TOEFL, or 6.5 on the IELTS is the minimum required of all such applicants. Applicants must make arrangements to take the TOEFL/IELTS well in advance of the desired date of enrollment at WVU. Information about registration for the TOEFL can be obtained by writing to: Educational Testing Service, P.O. Box 6154, Princeton, NJ 08541-6154, USA, or by contacting the local office of the United States Information Service (USIS).

Applicants who have received a high school diploma or a bachelor's degree in the United States, UK, Canada, NZ, or Australia need not submit TOEFL/IELTS results. However, applicants having only a master's degree from an accredited U.S. college or university must still provide acceptable TOEFL or IELTS scores.

Financial Documents and Student Visa

International students requiring a form I-20 or DS-2019 for student or exchange visa must provide certification of adequate financial resources in U.S. dollars. Generally, the student must provide an official bank statement showing the availability of the appropriate funds. If a private sponsor will be the student's source of support, the sponsor must submit a letter showing intent to sponsor and an official bank statement showing the availability of the appropriate funds.
Other forms of support could include sponsorship certifications from the student’s government or other sponsoring agency. In all cases, original or certified copies of financial/sponsorship documents must be submitted before the I-20 or DS-2019 can be issued.

**Intensive English Program**

In some cases, it may be possible to consider applications for students who lack adequate TOEFL/IELTS scores and will enroll in the West Virginia University Intensive English Program. Such applicants must contact the Intensive English Program directly and notify the Office of Admissions of their intentions. Applicants for graduate programs should also notify the academic department of interest of their intentions. Admission to the Intensive English Program does not guarantee admission to the University or to a specific program of study. In general, students with low TOEFL/IELTS scores are almost never permitted to enroll in a full nine hours of graduate courses in their first semester, but must take sufficient ESL courses to give them some chance of succeeding in their coursework. Their subsequent performance in ESL courses will largely determine whether or not they can be accepted with regular graduate student status. Applicants admitted to an academic program under the condition of successful completion of the Intensive English Program will be required to meet a certain level of English language proficiency before being permitted to begin the academic portion of their studies, e.g., a grade of B or better in ESL courses or a TOEFL score above 550 or its new TOEFL equivalent or an IELTS score of 6.5. Inquiries about the Intensive English Program should be directed to the Intensive English Program, Department of Foreign Languages, West Virginia University, P.O. Box 6298, Morgantown, WV 26506-6298.

**Transferring Within the USA**

International students applying to transfer from accredited schools within the United States are not permitted to register at WVU until they have complied with all transfer procedures as required by the United States Bureau of Citizenship and Immigration Services DS-2019.

Upon arrival on the campus, the student must be prepared to present the I-20 or IAP 66 to the international student advisor for formal processing. No student should move to Morgantown without having received an assurance of admission and immigration documents from WVU.

**Non-degree Applicants**

Students not wishing to pursue an advanced degree may apply for admission as non-degree graduate students. Applicants must complete the standard application form, pay the nonrefundable special service fee, state the area of intended study, and present an official transcript with a baccalaureate degree indicated.

**Reapplication**

When students graduate or complete the program for which they applied, they must reapply and be readmitted before taking further coursework at WVU. This policy assures that the University is informed of students’ objectives and assigns them an appropriate advisor. Students are assessed a service fee for each new application.

**Readmission**

Degree students who have been inactive for two or more years must reapply for admission by completing the graduate application process.

**Academic Common Market**

West Virginia provides its residents the opportunity through the Academic Common Market (ACM) and through contract programs to pursue selected academic programs not available within the state. Both programs permit West Virginians to enter out-of-state institutions at reduced tuition rates. Contract programs have been established for study in optometry, podiatry, and veterinary medicine. ACM programs are restricted to West Virginia residents who have been accepted for admission to one of the specific programs at designated out-of-state institutions see http://www.sreb.org. Through reciprocal agreement, WVU allows residents of states within the ACM to enroll in graduate programs on a resident tuition basis.
Further information may be obtained from the Associate Provost for Graduate Academic Affairs, 249 Mountainlair, West Virginia University, P.O. Box 6897, Morgantown, WV 26506-6897; or by calling (304) 293-7173. Application must be made through the higher education authority of the state of residence. West Virginia residents should apply through the Higher Education Policy Commission, 1018 Kanawha Blvd E Suite 700, Charleston, WV 25301-2800.

Admission to Graduate Study

Classifications

Regular Graduate Student — Regular graduate students are degree-seeking students who meet all the criteria for regular admission to a program of their choice. The student must possess a baccalaureate degree from an accredited college or university, must have at least a grade point average of 2.75 on a 4.0 scale, have met all the criteria established by the degree program, and be under no requirements to make up deficiencies.

Provisional Graduate Students — A student may be admitted as provisional by any unit when the student possesses a baccalaureate degree from an accredited college or university, but clearly does not meet the criteria for regular admission. The student may have incomplete credentials, deficiencies to make up, or an undergraduate scholastic record that shows promise, but less than the 2.75 grade point average required for regular admission. The letter of acceptance from the graduate program should outline the steps necessary for the graduate student to be re-classified as a regular graduate student.

Non-Degree Students — A non-degree student is a student not admitted to a program. Admission as a non-degree student does not guarantee admission to any course or program. The reasons for non-degree admission may be late application, incomplete credentials, scholarship deficiencies, or lack of a degree objective. Even though a non-degree student has not been admitted to a graduate program, a unit may allow a non-degree student to enroll in its courses. To be admitted as a non-degree student, a student must only present evidence of a baccalaureate degree from an accredited college or university and a 2.5 grade point average. The student must obtain a 2.5 grade point average on the first 12 credit hours of coursework taken at WVU and maintain this average as long as enrolled. (See Previous Graduate Study for an exception to this rule.) To be eligible to enter a degree program, the student must maintain a minimum of a 2.75 grade point average on all coursework taken since admission as a graduate student.

The standards cited are the minimum standards established by the University. Individual academic units or graduate programs may establish higher standards.

Academic Standards

The minimum academic standards for the different classifications are as follows. To be in good standing, regular students must obtain a 2.75 grade point average in the first 12 hours of graduate study and maintain this average throughout the time they are enrolled in graduate work. A student failing to achieve this standard will be placed on probation and must achieve a cumulative grade point average of 2.75 by the end of the next enrollment at West Virginia University. Part-time graduate students must obtain a 2.75 cumulative grade point average in the next nine hours of graduate study. A student who cannot earn the required average will be suspended.

A provisional student has been admitted to the University with one or more deficiencies. Consequently, by completion of 18 credit hours, the student must meet the provisions stated by the department and attain a minimum grade point average of 2.75. A student who fails to meet the provisions of admission or who fails to achieve the required grade point average will be suspended. Students who meet the provisions of admission and the required grade point average will be reclassified as regular students, and the regulations governing good standing for regular students will apply.

To be in good standing, a non-degree student must obtain a 2.5 grade point average in the first 12 hours of graduate study and maintain this average throughout the time enrolled in graduate work. A student failing to achieve this standard will be placed on probation and must achieve a cumulative grade point average of 2.5 by the end of the next enrollment (or nine credit hours for part-time students) at West Virginia University. Students who do not earn
the required average will be suspended. A non-degree student who later wishes to apply for admission to a degree program must have achieved a minimum grade point average of 2.75 on all coursework taken since admission as a graduate student in order to be considered.

Reclassification of Provisional Students
The provisions of a student’s provisional status are specified by the graduate department or program, but also may include satisfactory performance in ESL courses. To be reclassified as a regular student, a student must meet the provisions stated by the department and achieve a minimum grade point average of 2.75 on all coursework. Individual degree programs may set higher grade point average requirements.

A unit must review the student’s record and make a final decision on the student’s admission. No later than the completion of 18 credit hours, a student who has met the provisions of admission and achieved the required grade point average will be reclassified as a regular student. A student who fails to meet the provisions of admission or who fails to achieve the required grade point average will be suspended, but may be reinstated in order to transfer to another program or to non-degree status. The academic unit must notify the student and the Office of Admissions of its decision.

Upon notification by the appropriate academic unit, the Office of Admissions will prohibit the registration of all provisional graduate students who have reached the maximum of 18 credit hours. Registration will not be permitted until the student is reclassified as a regular student, an exception is granted by an academic dean, or the student is transferred. A student may be admitted as a provisional graduate student more than one time, but not by the same graduate program.

All credit hours taken since admission as a provisional graduate student or those to be applied to a degree count in the 18 credit-hour limit, i.e., undergraduate or graduate credit, P/F, S/U, graded courses, credit by senior petition, and transfer credit.

Other Reclassifications
Regular and provisional students may become non-degree students by choice. This includes students who fail to meet admission or academic standards or who withdraw voluntarily. To change a student to non-degree status, the advisor must process an Academic Status Change Form through the school or college dean’s office.

Non-degree students who later wish to become degree students must present all the credentials required by the degree program and process an Academic Status Change Form by the student’s their advisor and the Office of Admissions. For admission to a degree program, a non-degree student must have achieved a minimum grade point average of 2.75 on all coursework taken since admission as a graduate student.

Classification and Previous Graduate Study
The same three admission classifications (regular, provisional, non-degree) apply to those applicants who have undertaken previous graduate study. In general, the cumulative grade point average regulations apply to any transfer student who has not completed a graduate degree. However, an applicant who has received a master’s degree from an accredited college or university may be admitted to whatever category is deemed most appropriate by the faculty of the program of interest.

Enrollment and Registration
Official Program Designations
Degree Program. A degree program is an area of study approved as such by the West Virginia University Board of Governors and the Higher Education Policy Commission (HEPC) and listed on the official HEPC inventory of degree programs, e.g., English, social work, and physical education. The degree is represented by the official degree designation, e.g., master of arts (M.A.), master of science (M.S.), and doctor of philosophy (Ph.D.). The degree program completed would be listed on the student’s diploma.

Major. A major is a field of study within an approved degree program, having its own curriculum. A degree program may have more than one major. The major may be included on the student’s transcript.
Area of Emphasis. An area of emphasis is a specific subject area of study that has defined course offerings within an approved degree program and major. Normally, a minimum of six and no more than 12 credit hours would be expected for an area of emphasis within a graduate degree. Areas of emphasis completed would appear on the student’s transcript, but would not be included on the diploma.

Certificate Program. A certificate program is a coherent, specialized curriculum designed for students in search of a specific body of knowledge for personal/career development or professional continuing education. The certificate program is not attached to a degree program, although credit hours earned in a certificate program may be applied to a degree if they are deemed appropriate by the degree program. The awarding of a certificate upon completion of the program is not contingent upon completion of a degree program. The certificate would appear on the student’s transcript and the University may issue an official certificate of completion.

Credit Limitations
Credit toward a graduate degree may be obtained only for courses listed in the graduate catalog and numbered 400–799. No more than 40 percent of course credits counted toward any graduate degree may be at the 400-level. No residence credit is allowed for special field assignments or other work taken off the WVU campus without prior approval. Graduate credit is obtained only for courses in which the grade earned is A, B, C, or S. Courses taken as audits or courses in which the grade earned is D, P, F, or U may not count toward a graduate degree.

Credit Loads
Graduate students are strongly recommended to limit their credit loads if they are also involved in extensive research, teaching, or service activities or who hold outside employment. Nine credit hours per semester is the minimum load to be considered a full-time graduate student. In general, persons working full-time for the University or another employer are advised to enroll for no more than six hours of coursework in any one term. Recommended credit loads may be lower for employed graduate students in some academic colleges, schools, and departments.

Graduate students are not permitted to take more than 16 hours in any one term and no more than 12 hours during the summer term. Credit overloads must be approved for students by their college and by the Office of Graduate Education and Life. Some school or college dean’s offices may also choose to monitor overloads in their academic units.

Degree Progress
Students seeking master’s or doctoral degrees are expected to enroll regularly and make steady progress toward their degree objectives.

Master’s degree students are permitted to continue in a program for a maximum of eight years under their original application. Students who have been inactive for two or more years are required to apply for, and be accepted for readmission. The application fee is assessed for reapplication.

At the doctoral level, the number of years involved in attaining or retaining competency cannot be readily specified. The doctoral student’s competency is generally assessed and verified through the qualifying examination in a reasonable period of time after acceptance into a program. Because the qualifying examination attests to the academic competence of the student and is the formal mechanism for admitting the student to candidacy, it cannot precede the conferring of the degree by too long a period of time. In general, doctoral candidates are allowed no more than five years in which to complete the remaining requirements after being admitted to candidacy.

Required Student Information
The University must have current information (name, address, telephone number, email, major, and advisor) about students enrolling for classes in order to communicate with students and maintain permanent records. When individuals do not enroll in classes for substantial periods of time, it is costly and time-consuming to continue to maintain their records on active status. For these reasons, the Office of Admissions and the Office of the University Registrar periodically deletes degree and non-degree student records from active status. Students who return after this deletion must reactivate their records by reapplying.
Advising

Academic and scholarly advising varies by graduate program across the University. Each graduate academic unit has one or more graduate advisors, and every graduate student is assigned an advisor at the time of admission or shortly thereafter. This advisor may be the student’s thesis or dissertation advisor. The advisor and student typically meet before the first semester of enrollment to formulate a plan of study and to form a graduate advisory committee as appropriate.

Records

The Office of the University Registrar maintains the official records of grades earned and degrees awarded. The schools and colleges maintain records for monitoring student progress and are responsible for certifying students for graduation. Among the records maintained by the academic units are plans of study (subject to the school/college dean’s approval), graduate committees (subject to the school/college dean’s approval), etc.

Required Minimum Enrollment

If a graduate student is using University libraries, research facilities, or consulting with graduate committee members, the student must enroll for at least one hour of graduate credit so that the University can receive credit for its contribution to graduate study, attest to student status, and guarantee the protection to which the student is entitled. Students who take courses intermittently may be excused from such continuous enrollment if they are not using University facilities or consulting with faculty while they are not enrolled. However, students formally admitted to candidacy for graduate degrees are required to register for at least one credit hour each semester as a condition of their continued candidacy. By pursuing a degree, such persons by definition are utilizing University services, facilities, and other resources, including faculty expertise; this situation continues in cases where students have completed all required coursework and are working on a thesis or dissertation. Candidates for graduate degrees who fail to maintain continuity of enrollment may be dropped from candidacy. Registration for one credit of 799 Graduate Colloquium will satisfy this University requirement.

Extended Learning/Off-Campus Study

West Virginia University Extended Learning hosts off-campus and online courses at the undergraduate, graduate, professional development, and non-credit levels, and provides information on academic program outreach.

Twice annually, Extended Learning sponsors information sessions in Charleston, Clarksburg, Martinsburg, Morgantown, and Parkersburg. Faculty and staff visit the regions to discuss academic programs, financial aid, WVU student identification cards, library research, STAR online registration and payment, etc. Extended Learning professionals are located in these cities to serve southern West Virginia, central West Virginia, the eastern Panhandle, and Ohio Valley regions. The Extended Learning website and distance education coordinators provide detailed information to students wanting the convenience and access of online learning. WVU Extended Learning coordinates WVU’s Interactive Video Network (IViN), which delivers interactive video to classrooms around the state and the globe.

Students planning to enroll in graduate off-campus or online programs must be admitted as graduate students using the same procedures as on-campus students (see http://adm.wvu.edu/graduate). Specific requirements for degree candidacy are available from the college providing the academic credits. Advising and scholarship standards are governed by individual academic units.

Professional development credit is available for professionals seeking graduate credits, but not pursuing a degree. Professional development is also available for senior citizens with bachelor’s degrees who are interested in personal and intellectual enrichment. Professional development credit is designated by a 900–950 course level and cannot be applied to a graduate degree.

For more information about online and off-campus courses: http://elearn.wvu.edu, 1-800-253-2762, or WVU Extended Learning, P.O. Box 6800, West Everly Street, Morgantown, WV 26506-6800.
Enrollment During Final Term

All graduate students must enroll for at least one credit hour (e.g., 799 Graduate Colloquium) during the term (or summer) of graduation. Graduate students who are on campus will be required to register by the normal registration deadlines.

Full-Time and Part-Time Classification

A student is classified as full-time or part-time for any given enrollment period. A graduate student is classified as full-time if enrolled for nine or more hours in the fall or spring terms or six or more hours altogether in the summer.

Enrollment Regulations of Non-Degree Students

Non-degree students are normally adults taking classes for enrichment purposes, public school teachers taking classes for certification renewal, or students taking classes as prerequisites for admission to degree programs. Since these students have not made a commitment to a degree program, are not subject to time limits, and may enroll on an irregular basis, the University policies concerning active/inactive status are more liberal than those for degree students. Non-degree students may enroll in any course in the University for which they have the prerequisites and permission from the academic unit. However, some departments that cannot accommodate non-degree students may restrict enrollments to majors only or require permits.

A non-degree graduate student may accumulate unlimited graduate credit hours. If the student is later admitted to a degree program, the faculty of that program will decide whether any credit earned as a non-degree student may be applied to the degree. Under no circumstances may a non-degree student apply more than 12 hours of previously earned credit toward a degree.

Advising of Non-Degree Students

Each dean establishes a mechanism to advise non-degree graduate students who intend to take the majority of their coursework in the dean’s school or college. The mechanism may be the designation of a faculty member to advise non-degree students or the assignment of non-degree students to an advising office or center. Non-degree students who express an interest in programs in two colleges may be assigned to either by the Office of Admissions. It is expected that the assigned advisor will consult the other unit for information to assist the student. Students with no specific interest should not be admitted to graduate study. Courses taken under the audit option are counted toward attaining full-time enrollment status.

Auditors

Students may enroll in courses without working for a grade or for credit by registering as auditors. Change in status from audit to credit or from credit to audit may be made during the registration period. Attendance requirements for auditors are determined by the instructor of the course being audited. It is the prerogative of the instructor to strike the name of any auditor from grade report forms and to instruct the Office of the University Registrar to withdraw the auditor from the class if attendance requirements are not met. Auditors are required to follow the same admission procedures as students taking the course for credit.

Absences

Importance of Class Attendance — At WVU, class attendance contributes significantly to academic success. Students who attend classes regularly tend to earn higher course grades. Excessive absences may jeopardize students’ grades or even their ability to continue their courses.

Attendance Policies — Instructors must set attendance policies that are appropriate for the goals and instructional strategies of their courses. Instructors may include attendance records in determining the final course grade. All attendance policies that affect students’ grades must be announced in writing within the first week of class. Moreover, instructors are responsible for keeping accurate enrollment records, and for keeping accurate attendance records when attendance is used in grading. Attendance policies thought to violate the statement on student attendance should be discussed with the instructor, then with the department chair, and finally the college dean, if necessary.
Class Absences — Students who are absent from class for any reason are responsible for all missed work and for contacting their instructors promptly, unless the instructors’ policies require otherwise. However, instructors cannot require documentation of student illness from any medical provider as part of an attendance policy, since medical conditions are confidential and frequently not verifiable.

Degree Requirements — Master’s Degrees

Graduate Committee

General requirements for all graduate committees — The majority of the members of any graduate committee must be members of the graduate faculty, including the chair of the committee. No more than one person may be a nonmember of the graduate faculty. No family member may serve on the graduate committee of his or her relative. All graduate committees are subject to the approval of the chairperson or designee of the department/division and the dean or designee of the college/school. Once a graduate committee has been officially established, it will not be necessary to alter it if the graduate faculty status of member(s) of the committee is downgraded.

Master’s committees consist of no fewer than three members. It is recommended that at least one member of the committee be from outside the student’s department. Master’s committees of students choosing a thesis option must be chaired by a regular graduate faculty member and the majority of the committee must have regular graduate faculty status. Master’s committees of programs not requiring a thesis generally consist of no fewer than three members, one of whom must be a regular graduate faculty member. No more than one person may be a non-member, and the non-member cannot chair or advise.

Plan of Study

Shortly after entrance into a degree program and usually before nine to 12 hours of graduate coursework have been completed, the student, the advisor, and the committee (if appointed) draw up a plan of study (or prospectus). Depending on the degree sought and the field of study, the plan may also contain an outline of the research problem to be undertaken. In some graduate programs, the student and committee meet at a later date to delineate the research project more formally. The plan of study is subject to approval and becomes a formal agreement between student and program faculty regarding the conditions to be met to complete the degree. Any subsequent changes in the plan of study or prospectus can be made only through mutual agreement because of the binding nature of these documents. Should a disagreement arise at any time, the responsibility for arbitration rests with the dean of the school or college.

Master’s Degree Coursework Requirements

Students in a master’s program must complete a minimum of 24 hours of coursework other than thesis credit. A minimum of 30 total hours is also considered standard.

Master’s Degree Time Limit

Graduate work planned with the student’s advisory committee (e.g., plan of study) must be satisfactorily completed within a period of eight years immediately preceding the conferring of the degree. A course taken more than eight years previously must be revalidated if it is to be used towards meeting degree requirements. Revalidation can be accomplished by submitting the following information for approval to the Office of Graduate Education and Life:

- A letter from the course instructor listing the criteria used to revalidate the course material;
- A copy of the student’s performance on the student’s revalidation examination; and
- A letter from the college/school graduate coordinator and/or dean supporting the revalidation.

Thesis Research

Many master’s degrees require the completion of a research project under the direction of the faculty of the University on some topic in the field of the major subject. The thesis must present the results of the master’s degrees candidate’s investigation.
Thesis Defense
In cases where a thesis is a component of the master’s student’s plan of study, the student must present the thesis to the committee for evaluation. After the committee has tentatively approved the student’s written thesis, the final presentation and defense of the thesis can be scheduled. This presentation is not given until the term in which all other requirements for the degree are to be met. The student’s committee chairperson must indicate in advance the time, place, and committee members and receive clearance from the office of the school or college dean before the thesis is presented. Such notifications of thesis presentations must be received at least three weeks before the defense date.

The student cannot be considered as having satisfactorily passed their master’s program if there is more than one unfavorable vote among members of the thesis committee. Results of each defense must be reported to the school or college dean within 24 hours. Re-examination may not be scheduled without approval of the request by the school or college dean. All committee members are to be present for the thesis defense. One committee member (but not the chair) may attend by audio or videoconference, but should be available electronically during the entire time of the defense. If an examination cannot be scheduled at a time convenient to all committee members, the dean or designee may permit another faculty member to substitute for the original committee member, provided that the original committee member was not the chair. There can be no substitute for the chair. Only one substitute is allowed, and the request for a substitute must be made in writing prior to the examination. The request for a substitute should be signed by the committee chair, the student, and both the original faculty member and the substitute faculty member. A substitute faculty member must have the same or higher graduate faculty status as the original faculty member and represent the same academic discipline or specialization.

Thesis Submission
The requirements for a master’s degree include acceptance of the thesis defense and submission of the electronic thesis (as noted below). If there is a substitute faculty member scheduled for the defense, the substitute signs the shuttle sheet; however, the original committee member is to sign printed copies of the thesis if generated. The electronic thesis must be presented to the University not later than the last day of classes of the semester or summer session in which the degree is expected to be granted.

Additional Master’s Degrees
University policy permits students to obtain more than one master’s degree. In these cases, a separate application is required for each program. Each application must be accompanied by payment of a nonrefundable application fee.

A student desiring to obtain more than one master’s degree must successfully complete sufficient additional credit hours to constitute 75 percent of the credit hours required by each additional master’s degree program as well as any specific program requirements. Individual graduate units may require higher percentages to be earned under their direction.

Concurrent Master’s Degree Programs
West Virginia University offers several concurrent or dual master’s degree programs. Concurrent degree programs are programs in which courses between collaborating units are accepted for credit by each unit. Total coursework credit requirements for the concurrent degrees must be at least 75 percent of the summation of the separate degree programs. Students in such programs must also successfully complete any specific program requirements. Individual graduate units may require higher percentages of credit to be earned under their direction. Students should inquire of the individual units regarding admission and academic requirements and regulations for these concurrent degree programs.
Combined Undergraduate and Master's Degree Programs —
Accelerated Master's Degree Programs (4+1, 3+2 Programs)

The purpose of the Accelerated Master’s Degree (AMD) program is to allow academically
talented students the opportunity to obtain both a bachelor’s and master’s degree from West
Virginia University. In many cases, this option might be selected early in a student’s academic
career as an opportunity to gain an advanced degree through a guiding curriculum designed
to accelerate degree completion. Students may apply to departments/academic programs off-
ering AMD programs for admission after having completed a minimum of two semesters as
a full-time student at WVU, with a minimum of 24 credit hours, provided they have a minimum
3.0 GPA. Individual units may establish more stringent requirements.

Accelerated Master’s Degree students are permitted to take graduate courses leading to
the master’s degree when prerequisites for such courses have been fulfilled. Up to 12 credit
hours of graduate coursework may be applied towards the requirements for the bachelor’s
degree. The bachelor’s degree is awarded at the end of the normal senior year (determined
by program specific credit hours). During the remaining period of study, accelerated degree
students complete the remaining courses and any other degree requirements needed to com-
plete the master’s degree and must maintain satisfactory academic standing at the graduate
level determined by the individual academic units.

Degree Requirements — Doctoral Degrees

The program of doctoral study is planned with the student’s graduate advisor and com-
mittee to combine any or all of the following: graduate courses of instruction, special seminars,
independent study, supervised research, and supervised training designed to promote a broad
and systematic knowledge of the major field and to prepare the student for the comprehensive
qualifying and final examinations and writing of the dissertation.

Graduate Committee

General requirements for all graduate committees — The majority of the members of
any graduate committee must be members of the graduate faculty, including the chair of the
committee. No more than one person may be a nonmember of the graduate faculty. No family
member may serve on the graduate committee of his or her relative. All graduate committees
are subject to the approval of the chairperson or designee of the department/division and
the dean or designee of the college/school. Once a graduate committee has been officially
established, it will not be necessary to alter it if the graduate faculty status of member(s) of
the committee is downgraded.

Doctoral dissertation committees consist of no fewer than five members, the majority of
whom must be regular graduate faculty, including the chairperson. At least one member of
the committee must be from a department other than the one in which the student is seeking
a degree.

Plan of Study

Shortly after entrance into a degree program and usually before nine to 12 hours of
graduate coursework have been completed, the student, the advisor, and the committee (if
appointed) draw up a plan of study (or prospectus). Depending on the degree sought and the
field of study, the plan may also contain an outline of the research problem to be undertaken.
In some graduate programs, the student and committee meet at a later date to delineate
the research project more formally. The plan of study is subject to approval and becomes a
formal agreement between student and program faculty regarding the conditions to be met
to complete the degree. Any subsequent changes in the plan of study or prospectus can be
made only through mutual agreement because of the binding nature of these documents. The
responsibility for arbitration rests with the dean of the school or college should a disagreement
arise at any time.

Doctoral Degree Coursework Requirements

The doctorate is a research or performance degree and does not depend on the accu-
mulation of credit hours. The three requirements of the degree are admission to candidacy,
residency, and completion and defense of a dissertation. The degree signifies that the holder
has the competence to function independently at the highest level of endeavor in the chosen
profession. Hence, the number of years involved in attaining or retaining competency cannot be readily specified. Rather, it is important that the doctoral student’s competency be assessed and verified in a reasonable period of time prior to conferral of the degree, generally five years from the admission to candidacy.

Graduate education, especially at the doctoral level, involves many learning experiences that take place outside the formal classroom setting. These involve observing and participating in activities conducted by the graduate faculty, using departmental and University libraries, attending lectures presented by visiting scholars, informally debating other students, and similar activities. To insure that graduate students experience these kinds of informal learning, doctoral programs at WVU generally require one year in residence in full-time graduate study. However, because of the contractual nature of graduate study, an individual student or graduate committee may propose an alternative plan by which the student can gain equivalent educational experience. For example, the plan of study may require the student to spend time in residence at a national or foreign laboratory, institute, archive, or research center as partial fulfillment of the residency requirement.

Regulations described in the preceding sections governing admission, registration, scholarship, etc., must be followed. In addition, the student must satisfy requirements specified by the faculty responsible for the major field. Students applying for admission to a doctoral program, after having received a master’s degree at WVU, must file a new application for graduate work with the Office of Admissions.

Competence in one or more foreign languages may be a requirement in some graduate degree programs. The faculty in the program specifies the language or languages and the level of competence to be demonstrated. Language examinations are arranged by the Department of Foreign Languages. Students should contact the graduate program coordinator or chair in that department for more information.

When only reading competence is required, the foreign language examiner may waive the examination in those cases where the student’s transcript shows, at a date that falls no earlier than seven years before promotion to doctoral candidacy, either completion of 12 semester hours or equivalent coursework in an approved foreign language with a grade of B or better in the last three hours or completion of one course at the 300-level with a grade of B or better at WVU.

**Promotion to Candidacy**

Admission to graduate study and enrollment in graduate courses do not in themselves imply acceptance of the student as a candidate for a doctoral degree. This is accomplished only by satisfactorily passing a comprehensive or qualifying examination (either oral, written, or both) and by meeting specified language and/or other requirements.

A student will be given a comprehensive examination to demonstrate knowledge of the important issues in the field of study, their relation to other fields, and the ability to employ the instruments of research. The examination is intended to determine whether the student has the academic competence to undertake independent research in the discipline and to insure that the student possesses a thorough grasp of the fields outlined in the plan of study. The exam is generally taken as soon as a student has completed the major portion of the course requirement. Successful passage of this examination is the University-wide minimal determination of acceptance to candidacy: it is at this point that the five-year to completion rule begins. Individual degree programs may require additional requirements such as the acceptance of a prospectus, a grant exercise, or other form of student evaluation.

It must be the consensus of the doctoral committee that the student has passed the examination, although the committee may permit one dissenting vote. A single portion of the examination may be repeated at the discretion of the committee, but, if two or more members are dissatisfied, the entire qualifying examination must be repeated. The student must petition through the doctoral committee in order to be permitted to repeat a qualifying examination. Academic tradition does not allow a qualifying examination to be administered more than three times; many units limit administration to two times.

**Doctoral Degree Time Limit**

Because the qualifying examination attests to the academic competence of the student who will become an independent researcher or practitioner, the examination cannot precede the conferring of the degree by an extended period. Consequently, doctoral candidates are
allowed no more than five years in which to complete remaining degree requirements. In the event a student fails to complete the doctorate within five years after admission to candidacy, an extension that may be obtained only by repeating the qualifying examination and meeting any other requirements specified by the student’s committee, including the setting of deadlines by which all degree requirements must be completed. A request for an extension of time in order to complete degree requirements should include the following:

- A statement documenting the circumstances that justify the request;
- A statement of the impact the proposed extension would have on the validity of the student’s coursework and program; and
- Evidence of endorsement of the request from the student’s advisory committee and the office of the dean. Extension requests are made to the Associate Provost for Graduate Academic Affairs, 249 Mountainlair, P.O. Box 6897.

**Dissertation Research**

The candidate must submit a dissertation pursued under the direction of the faculty of the University on some topic in the field of the major subject. The dissertation must present the results of the candidate’s individual investigation and must embody a definite contribution to knowledge. While conducting research or writing a dissertation, the student must register at the beginning of each term or summer during which credit is being earned. No residence credit will be allowed for special field assignments or other work taken off the University campus without prior approval by the associate provost for Graduate Academic Affairs.

**Final Examination/Dissertation Defense**

The final examination/dissertation defense is not given until the term in which all other requirements for the degree are to be met. After the candidate’s dissertation has been tentatively approved, the final oral defense of the dissertation may be scheduled. At the option of the faculty responsible for the degree program, a comprehensive final written examination also may be required. The student’s committee chairperson must indicate in advance the time, place, and recommended examining committee members, and receive clearance from the office of the school or college dean before the examination can be given. Such notifications of doctoral examinations/defenses must be received at least three weeks before the examination date. All doctoral final examinations and dissertation defenses are to the public and the university community.

The student cannot be considered as having satisfactorily passed the final examination/dissertation defense if there is more than one unfavorable vote among members of the examining committee. Results of each examination/defense must be reported to the school or college dean within 24 hours. Re-examination may not be scheduled without approval of the request by the school or college dean. All committee members are to be present for the final examination/dissertation defense. One committee member (but not the chair) may attend by audio or videoconference, but should be available electronically during the entire time of the defense. If an examination cannot be scheduled at a time convenient to all committee members, the dean or designee may permit another faculty member to substitute for the original committee member, provided that the original committee member was not the chair. There can be no substitute for the chair. Only one substitute is allowed, and the request for a substitute must be made in writing prior to the examination/defense. The request for a substitute should be signed by the committee chair, the student, and both the original faculty member and the substitute faculty member. A substitute faculty member must have the same or higher graduate faculty status as the original faculty member and represent the same academic discipline or specialization.

**Dissertation Submission**

The requirements for a doctorate include acceptance of the dissertation and submission of the electronic dissertation. If there is a substitute faculty member scheduled for the final examination, the substitute signs the shuttle sheet; however, the original committee member is to sign printed copies of the dissertation. The dissertation must be presented to the University not later than the last day of classes of the semester or summer session in which the degree is expected to be granted.

The candidate is required to maintain close contact with the supervisor or chairperson of the graduate committee on these matters in developing a dissertation so as to incorporate the special requirements of the subject discipline.
Preparation of Master’s Theses and Doctoral Dissertations

Format
The Office of Graduate Education and Life and the University Libraries have combined their efforts to create The West Virginia University Guide to the Preparation of Master’s Theses and Doctoral Dissertations (http://www.libraries.wvu.edu/theses/index.htm). The guide describes the regulations under which master’s theses and doctoral dissertations are to be submitted to WVU. It gives the general requirements applicable to all fields of study and provides guidance on the arrangement and format of the student’s manuscript. Since practices vary greatly in different disciplines, students should learn the styles of their respective field and are advised to follow the recommendations of their advisor and committee members on all matters not covered in the guide. A master’s thesis and a doctoral dissertation checklist is provided in the guide to aid students in properly depositing material in the university libraries.

Electronic Theses and Dissertations
Since West Virginia University is a charter member of the Networked Digital Library of Theses and Dissertations, it has been agreed that all dissertations written in partial fulfillment of the requirements for any doctorate degree conferred by the University as well as all theses written in partial fulfillment of the requirements of an master’s degree must be filed electronically with the WVU Library system according to its procedures for such filing. Candidates are to follow the WVU Guide to the Preparation of Master’s Theses and Doctoral Dissertations as well as general electronic thesis and dissertation (ETD) policy guidelines regarding format and organization of the thesis or dissertation. Complete program policy and collection access information is available online at http://www.libraries.wvu.edu/theses/index.htm. Exceptions to filing electronically must be approved by the Office of Graduate Education and Life. Copyright to electronic theses and dissertations is subject to the appropriate provisions of the WVU Copyright Policy (http://osp.research.wvu.edu/policies_and_regulations).

WVU electronic theses and dissertations are made available online and through the University Libraries. Various Web access levels are available to accommodate students’ needs. Comprehensive technical assistance for the development and conversion of electronic documents is available from the Office of Information Technology Customer Support. All theses and dissertations will be microfilmed and their abstracts published through Pro-Quest of Ann Arbor, Michigan. This requirement will not be satisfied by any other publication, but does not preclude publication elsewhere, which is both permitted and encouraged.

ETD Submission
The following must be completed by the student no later than one week before the close of the period in which the degree is expected to be completed (one week before the end of the summer term, by the last day of the final examination period at the end of the first semester, or one week before commencement day at the end of the second semester).
2. Deliver a completed ETD submission packet with original signatures and required fee(s) in person or by mail to the Charles C. Wise Jr. Library (downtown campus), Acquisitions Department, P.O. Box 6069. Download, print, and complete the ETD submission packet, available online at the above-mentioned checklist. Print copies are available from the University Libraries or your college graduate coordinator. The completed packet includes:
   • Completed and signed ETD submission signature form.
   • Submission fees: dissertations $80.00; theses $70.00. Cash, check, or money order payable to West Virginia University Libraries.
   • Completed and signed ProQuest master’s thesis or doctoral dissertation agreement form.
   • Printed copy of title page.
   • Printed copy of abstract (dissertations: 350-word limit, theses: 150-word limit).
   • Copyright fee: $45.00 check or money order payable to West Virginia University Libraries (copyright is optional, but recommended).
• Completed and signed Survey of Earned Doctorates (doctoral students only).
• Problem reports may be submitted for a $15.00 fee (ProQuest submission is optional, fees apply as indicated above).
• Fees may be subject to change.

ETD Contact Information
WVU Libraries, Acquisitions Department, P.O. Box 6069, 1549 University Avenue, Morgantown, WV 26506-6069, (304) 293-4040 x4025, or by e-mail at John.Hagen@mail.wvu.edu.

ETD Approval
Upon submission, the University Libraries will review the ETD. Committee chairs are included in all e-mail communications with the student and have the opportunity to review the document online as well. If the ETD is acceptable and the ETD submission packet is complete, the University Libraries will approve the submission electronically, indicating that all obligations regarding submission of the dissertation to the University Libraries have been fulfilled. An official e-mail notification will be sent to the student, the committee chair, and to the appropriate office in the college, school, or department granting the degree. The ETD will be cataloged and distributed on the World Wide Web according to the distribution option the student and committee have chosen.

Request for Degree
At the time of registration for the enrollment period in which all degree requirements are expected to be met, or at the latest within two weeks after such registration, each candidate is to submit an Application for Graduation and Diploma Form obtainable from the school or college dean’s office. The candidate must complete all requirements at least one week before the end of that enrollment period. If the degree is not actually earned during that term, the student must submit a new Application for Graduation and the graduation fee when registering for the term in which completion is again anticipated.

Colleges and schools are responsible for seeing that master’s and doctoral students meet the minimum requirements of the University as well as any additional college or school requirements. Deans’ offices are responsible for maintaining all student records necessary to certify students for graduation. Attendance at the spring commencement is voluntary. Anyone not planning to attend should leave a complete mailing address with the Office of the University Registrar so that the diploma can be mailed.

Summary of Master’s Degree Requirements
1. Shortly after admission to the program (usually within the first nine to 12 semester hours of coursework), an advisory committee is formed, and the committee and the student produce a plan of study.
2. The student completes requisite coursework and other program requirements.
3. The student confers with the advisor and, if applicable, the chairperson of the thesis committee to see if all requirements can be met by the end of the semester in which he or she plans to graduate. This should be done no later than the beginning of the final semester.
4. The student registers for at least one credit hour. No one may graduate who is not registered as a student during the term of graduation.
5. The student checks with the University to insure that there is concordance between departmental and University records and that there are no remaining deficiencies.
6. The student completes an Application for Graduation and Diploma and pays appropriate fee. This should be done no later than two weeks after registration.
7. The student presents a printed draft of the thesis to each committee member (if applicable).
8. The student should remind the committee chairperson to request clearance from the school or college dean’s office at least two weeks before the date of the final examination (or thesis defense).
9. Results of the final examination (or thesis defense) must be reported to the dean’s office by the graduate advisor or the committee chairperson not later than one week before the end of the semester or summer session in which the degree is expected to be granted.
10. If the requirements for the master’s degree include a thesis, the printed copies of the thesis must bear the original signatures of at least all but one of the committee members. If more than one member of the committee, whatever the size of the committee, dissents from approving the thesis, the degree cannot be recommended. If a substitute faculty member attends the final examination, the substitute signs the shuttle sheet; however, the original committee member signs printed copies of the thesis.

11. One electronic copy of the thesis in approved computer-generated form must be submitted online to the WVU ETD archive and a completed ETD submission packet with original signatures and required fee(s) must be delivered to the Charles C. Wise Jr. Library no later than one week before the close of the period in which the degree is expected to be completed.

**Summary of Doctoral Degree Requirements**

1. Shortly after admission to the program (usually within the first nine to 12 semester hours of coursework), an advisory committee is formed and the committee and the student produce a plan of study.

2. The student completes requisite coursework and other program requirements, satisfying also the stipulated residency requirement.

3. The student takes the language examination (if applicable).

4. The student takes the written and/or oral comprehensive (qualifying) examination for admission to candidacy. The results are communicated to the appropriate office by the student’s graduate program advisor.

5. The student undertakes a doctoral dissertation under the guidance of a dissertation committee. The dissertation phase begins with approval of a dissertation prospectus by the dissertation committee, the department chairperson, and the school or college dean.

6. A copy of the preliminary draft of the dissertation is given to each committee member at least one month prior to the final oral examination.

7. The dissertation advisor (committee chairperson) requests a clearance for the final examination from the school or college dean’s office no later than three weeks before the scheduled examination date.

8. The time and place of the examination is announced.

9. The student defends the dissertation in an oral defense.

10. One electronic copy of the thesis in approved computer-generated form must be submitted online to the WVU ETD archive and a completed ETD submission packet with original signatures and required fee(s) must be delivered to the Charles C. Wise Jr. Library no later than one week before the close of the period in which the degree is expected to be completed.

**Grades**

Letter grades are assigned in many graduate courses, however, better than average performance is expected of graduate students. They are enrolled for fewer credit hours than they were as undergraduates, nine to 12 hours being the norm for a full-time graduate student, and are expected to spend more time on each course and achieve above-average mastery of the material. A few grades of C may be tolerated in graduate programs if there are higher grades in other courses compensate for them. Although a grade of C is considered average performance for an undergraduate student, it is unacceptable for graduate study.
Grading System

A Excellent (given only to students of superior ability and attainment)
B Good (given only to students who are well above average, but not in the highest group)
C Fair (substandard for graduate students)
D Poor but passing (cannot be counted for graduate degree credit)
F Failure
I Incomplete
W Withdrawal from a course before the date specified in the University calendar
P Pass (cannot be counted for graduate degree credit—see below)
X Auditor (no grade and no credit)
S Satisfactory
U Un satisfactory (computed as an F)
INC permanent incomplete
IF Incomplete grade not removed by next regular term (computed as an F)
UF Unforgivable F

** Grades that are not reported by faculty at the end of a term will be designated with an NR on the official transcript. Grades that are not reported will become an F at the conclusion of the next semester if a final grade is not submitted.

Pass-Fail Grading

Pass-fail grading is not applicable to the coursework for a graduate degree. A graduate student may register for any course (400–799) on a pass-fail basis only if the course involved is not included in the student’s plan of study and does not count toward a graduate degree. The selection of a course for pass-fail grading must be made at registration and may not be changed after the close of the registration period. A student who, having taken a course on a pass-fail basis, later decides to include the course as part of a degree program must reregister for the course on a graded basis.

Satisfactory- Unsatisfactory Grading

Courses graded satisfactory or unsatisfactory (S/U) are approved by the associate provost for academic programs. Approved requests are forwarded to the Office of Graduate Education and Life and the Office of the University Registrar.

Grade Point Average Calculations

The grade point average listed on the student’s official transcript will be computed from all work (including any undergraduate courses taken) for which the student has registered while a graduate student, except for courses with grades of I, W, WU, P, and X. The GPA is based on the following grade point values: A = 4, B = 3, C = 2, D = 1, F = 0, and U = 0. Faculty have the option of adding +/- scales to the letter grades but the +/- scales are not used in figuring the grade point average. In order to determine whether a student meets the program’s stated minimum GPA to remain in good academic standing, a given program may, for its own internal purposes, calculate the student’s graduate GPA solely from the courses listed in the student’s plan of study. However, on the official transcript, the GPA will be calculated as indicated above.

Incompletes

The grade of “I” is given when the instructor believes that the coursework is unavoidably incomplete or that a supplementary examination is justifiable. Before any graduate degree can be awarded, the grade of “I” must be removed either by finishing the incomplete sometime or by having it recorded as a permanent incomplete. Only the instructor who recorded the “I” or, if the instructor is no longer at WVU, the chairperson of the unit in which the course was given may initiate either of these actions. When a student receives a grade of incomplete and later removes that grade, the grade point average is recalculated on the basis of the new grade. If you do not remove the “I” grade within the next semester, the grade of “I” is treated as an “IF” (failure). The Academic Standards Committee of the appropriate college or school may allow you to postpone removal of the “I” grade if you can justify a delay.
Grades Lower Than C
Credit hours for courses in which the grade is lower than C will not be counted toward satisfying graduate degree requirements.

Official Transcripts
When applying for a transcript, students must furnish their last date of attendance, student number, and the full name under which they were enrolled. Requests for transcripts must be made in writing to the Office of The University Registrar. Cost of a transcript, methods of payment, and a request form can be found at http://registrar.wvu.edu/. WVU cannot accept telephone requests.

Because of demand, it may take two to three weeks to process an application for a regular transcript at the close of a semester or summer session. At other times, it is the policy of WVU to process all regular transcript requests within 48 hours of receipt of the request.

If students owe money or have some other financial obligation to any unit of the University, they forfeit their right to claim a transcript or diploma until these financial obligations have been met.

Withdrawals
There are two types of withdrawals: withdrawal from some part of the work for which a student has registered and a complete withdrawal from the University. Deadlines for each semester are available at http://registrar.wvu.edu/. If students follow all established University procedures and withdraw before the published deadline, they will receive a W on their transcript. The grade point average is not affected in any way by this mark. Unless the formal withdrawal procedures are completed, failing grades are recorded. Withdrawals from some part of the work must have the initial approval of the student’s advisor. Graduate students should not independently withdraw from a class electronically without prior approval of their advisor. It is the student’s responsibility to see that all forms are properly executed and delivered to the appropriate authorities for recording.

Withdrawal/Drop From Individual Classes
Until the Friday of the tenth week of class (or Friday of the fourth week in a six-week summer class, or Friday of the second week of a three-week summer class), students may withdraw from individual courses.

Students must obtain their advisor’s approval before withdrawing from classes. Students, with the help of their academic advisors, are responsible for determining:
- If their course load would be reduced below the minimum requirement set by their program;
- If their course load would be reduced below the minimum hours required to qualify for a graduate assistantship, financial aid, or international full-time student status;
- If the course to be dropped is a co-requisite for another course the student is taking or a prerequisite for a course required the following semester. If so, the student may be required to drop the co-requisite course or asked to take a substitute course the following semester.

Withdrawal From All Classes for the Term

Deadlines
Students may withdraw from WVU for the term in which they are enrolled at anytime before the last day of classes of the term on which regular classes are scheduled to meet. Students will receive grades of W in all classes for that term.

Procedures
To withdraw from all classes through the last day to drop a class with a “W”, a student would log on to their MIX account and drop their classes through STAR.

To withdraw from the TERM after the last day to drop a class with a “W”, you may do any of the following:
- Visit the Office of the University Registrar.
• Send an e-mail from your MIX Account only to webregistration@mail.wvu.edu. Please include your full name, last 4 digits of your student identification number, reason for your withdrawal, address, telephone number.
• Mail a request and include your full name, student identification number, reason for your withdrawal, address, telephone number, and signature to the following address: ATTN: Registration Unit, Office of University Registrar, West Virginia University, P.O. Box 6009, Morgantown, WV 26506.
• Fax a request and include your full name, student identification, reason for your withdrawal, address, telephone number, and signature to the Office of the University Registrar.

Importance Notice:
Financial aid recipients who withdraw from ALL classes before 60 percent of the term is completed may be required to return a portion of any financial aid which was received for the term. Students who do not receive at least one passing grade for classes in a term must provide documentation which verifies continued participation in educational activities. If documentation cannot be provided, those students are considered to have informally withdrawn from WVU prior to 60 percent of the term and may be required to return a portion of any financial aid which was received. This review and return of financial aid is done in accordance with federal regulations.

Re-Enrollment After Withdrawal
After a student withdraws from WVU in two consecutive semesters (excluding summer sessions), a student may not register for further work without approval of the dean of the college or school in which the student wants to register, subject to conditions set by that dean.

Graduate Education Expenses

Cost of an Academic Year’s Work
The WVU Financial Aid Office makes available to students with an estimate of the total cost of attendance for an academic year through the Admissions Department. This estimate includes tuition/fees, books/supplies, off campus room/board, transportation, and personal expenses in amounts designed to provide a modest, but adequate, lifestyle for students. The cost of attendance for the 2009–2010 academic year for resident students is $17,492; for non-resident students the current cost is $28,574. Figures are updated annually and you are encouraged to contact the Financial Aid Office for the most recent information at http://adm.wvu.edu/home/cost_of_attendance.

Many students attending WVU use graduate student graduate teaching assistantships (GTAs), graduate research assistantships (GRAs), or other graduate assistantships offered by many academic and non-academic units across campus. In addition to the waiver of tuition, these assistantships also provide stipends that range in value according to the college, program, or work to be undertaken (see Graduate Assistantships, Fellowships, and Waivers, on page 41).

Tuition and Fees
The WVU Office of Admission assigns enrolling students a residency classification for admission, fee, and tuition purposes. Students who are legal residents of West Virginia pay “resident” tuition at WVU; students who are residents of other states and nations pay “non-resident” tuition.

Tuition and fee structures additionally vary by academic program at WVU. Current tuition and fee costs can be found at http://adm.wvu.edu/home/cost_of_attendance.
SREB Academic Common Market

Through the Southern Regional Education Board (SREB) Academic Common Market, WVU allows students from SREB member states to enroll in certain WVU programs at in-state tuition rates. Typically these degree programs are not available to students in their home state. In addition to West Virginia, SREB member states are Alabama, Arkansas, Delaware, Florida (graduate only), Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina (graduate only), Oklahoma, South Carolina, Tennessee, Texas (graduate only), and Virginia. Please refer to the SREB website for the most current information about programs offered to residents of your state.

Extended Learning

The cost of courses offered through Extended Learning varies according to program. The most recent tuition for online programs at WVU can be found at http://elearn.wvu.edu/Registration/tuitionFees.html.

Fee Regulations

All West Virginia University fees are subject to change without notice. A nonrefundable service fee of $50 must accompany the application for admission to graduate studies. All fees are payable to the Office of Student Accounts at registration. Arrangements with the Office of Student Accounts for payment from officially accepted scholarships, loan funds, grants, or contracts shall be considered sufficient for acceptance of registration. All students should register on days scheduled for registration at the beginning of each semester or summer session. No student will be permitted to register at the University after the eighth day of a semester or the fourth calendar day of the summer sessions or a single summer session. Days are counted from the first day of registration. Any student failing to complete registration on regular registration days is subject to a late registration fee.

Registering students pay the fees shown in the fee charts, plus special fees and deposits as required.

WVU places restrictions on students who have outstanding debts to a unit or units of the University. The restriction may include, but is not limited to, the withholding of a student’s registration, diploma, or transcript. No degree is conferred and no transcripts are issued to any student before payment is made of all tuition, fees, and other indebtedness to any unit of the University.

Types of Fees

Special Fees A, Library Fee, and Technology Fee

Special Fees provides students with access to the WVU Mountainlair Student Center, the Daily Athenaeum newspaper, University Radio Station, Student Recreation Center, and Student Health Services, Athletics (student admission to WVU football, basketball, and other sporting events), student affairs activities, and the Personal Rapid Transit (PRT) system. The Library Fee provides students with access to and support from the University Libraries. The Technology Fee supports University computer centers and campus technology development. All students, regardless of whether or not they have been granted a tuition waiver must pay these mandatory fees.

Laboratory Fees

Many departments assess laboratory or other equipment fees to provide availability to consult specific departments concerning nonrefundable equipment deposits and laboratory fees.

Music Fees

All music majors must pay a fee that entitles them to assigned practice space daily. Band and orchestra instruments may be rented by the semester. Contact the College of Creative Arts for details regarding these fees.
Extended Learning Fees

Fees for credit hours for Extended Learning courses vary by program. Students should inquire of individual programs and view fee schedules at http://elearn.wvu.edu/registration/tuitionFees.html.

Other Fees*

There are other fees for certain services and functions provided by the University. Check with the University office providing the service or function in question to find out the current fee. Also, individual programs may have additional fees.

Remission of Fees

Students appointed as graduate assistants are eligible for remission of tuition and certain fees (see Graduate Assistantships, Fellowships, and Waivers, p. 41).

Refund of Tuition and Fees

Current information on refunding can be found on the WVU Finance Division’s webpage http://finance.wvu.edu/osa/refunds.cfm

Non-Sufficient Funds Check Policy

Payments of tuition, fees, and other charges by check, draft, or money order are subject to WVU’s Non-Sufficient Funds Check Policy. A copy of the policy is available in the Office of Student Accounts. A service charge of $25.00 is collected on each check returned unpaid by the bank upon which it was drawn. The service charge on unpaid, returned check(s) is subject to change in accordance with state law.

Identification Card

Students registered for the current semester are eligible for an identification card (Mountaineer Card). The Mountaineer Card gives access to certain activities and privileges depending on fees assessed. Students assessed the on-campus fees have free access to Student Recreation Center, the PRT, Student Health, athletic events and may ride the local bus system (MountainLine) by using their ID card. On and off-campus students have access to the WVU Libraries and the Mountainlair’s WVU Up-All Night activities. Students taking Extended Learning classes may opt to pay the on-campus fees to participate in the other activities. WVU reserves the right to refuse issuance of an Identification card and misuse may result in confiscation of the card. For more information about the Mountaineer Card visit http://www.wvu.edu/~wvucard/ or contact them at wvucard@mail.wvu.edu.

Financial Aid

Students interested in applying for financial aid must complete a Free Application for Federal Student Aid (FAFSA). This form is the application for all major federal student aid programs, including student loans. Graduate students should submit the FAFSA at least six weeks prior to the date of tuition payment. Students may submit the FAFSA online at http://www.fafsa.ed.gov.

For the summer session(s), a separate WVU Summer Financial Aid application is also required. These summer forms are available in the Financial Aid Offices located in the Mountainlair, Health Science Center, law school, and online at http://www.finaid.wvu.edu.

Loans and Employment

Information and guidance on loans for graduate students is available in the Student Financial Aid Office in the Mountainlair. On-campus employment opportunities can be investigated at the Student Financial Aid Office in the Mountainlair and the Student Employment Office in the Mountainlair.

Veterans Educational Assistance

The educational assistance program administered by the federal Department of Veteran Affairs, under which a potentially eligible veteran may be entitled to benefits, is dependent upon when the individual served on active duty. The DVA administers 11 educational assistance
programs whose basic eligibility criteria may vary. Only the DVA can determine an applicant’s eligibility for educational assistance. For more information, contact the nearest DVA office. In West Virginia, the DVA is located at 640 4th Avenue, Huntington, WV 25701; telephone 1-800-827-1000.

Financial Aid Refund and Repayment Policy

Federal regulations require that West Virginia University recalculate eligibility for financial assistance for students who completely withdraw, drop out, or are dismissed before completing the enrollment period. Students who receive all unsatisfactory grades (F) at the end of the grading period will be considered as unofficially withdrawn at the semester mid-point unless documentation is available that demonstrates continued class participation. Application of this policy may result in the necessity for a student to return financial aid funds to various Title IV federal aid programs, including William D. Ford Federal Direct Student Loans.

A student earns Title IV federal aid based upon the length of time the student remains enrolled during the enrollment period. Students who withdraw on or before completing 60 percent of the semester may be required to return a portion of federal financial assistance. The determination of 60 percent of the term is computed by dividing the total number of calendar days in the term into the number of calendar days completed as of the date of student withdrawal. Scheduled breaks of five consecutive days or more are excluded. The percentage of Title IV assistance that the student has earned is equal to this percentage of the term completed. If the withdrawal occurs after 60 percent of the term is completed, the percentage earned is considered to be 100 percent.

If more Title IV aid was disbursed than was earned by the student, WVU is required to return the lesser of (1) the unearned aid percentage applied to institutional charges or (2) the unearned aid percentage applied to the total Title IV aid received. The student must return unearned aid for which s/he is responsible after subtracting the amount the school will return. Funds are returned in the following priority:

1. Unsubsidized Federal Direct Loan,
2. Subsidized Federal Direct Loan,
3. Federal Perkins Loan,
4. Other Title IV assistance,
5. Other federal, state, private, or institutional aid, and
6. The student.

If less Title IV aid was disbursed than was earned by the student, the student is entitled to a post-withdrawal disbursement within 30 days of withdrawal.

The return of financial aid may result in unpaid charges to West Virginia University for tuition/fees. West Virginia University will bill the student for any balance due. Students who owe a repayment to any federal financial aid program are no longer eligible for financial aid at any post-secondary institution. Eligibility may be regained after repayment is satisfied.

Standards of Satisfactory Academic Progress for Financial Aid

To receive funds administered by the Financial Aid Office at West Virginia University, students must be making measurable academic progress toward completion of an eligible degree. Federal regulations require evaluation of both quantitative and qualitative academic progress. The policy is used to evaluate student progress at the conclusion of each spring semester. Graduate students must maintain a minimum overall GPA of 2.75 and successfully complete 70 percent of attempted credit hours. Graduate students in a master’s degree program have a maximum of 54 attempted credit hours to obtain the degree objective. Students pursuing a second master's degree have a maximum of 54 attempted credit hours to obtain the second degree objective. Doctoral students have a maximum of 108 attempted credit hours (including master’s degree work). Financial aid eligibility is limited at each level to no more than two master’s degrees and one doctorate. Students who wish to pursue additional degrees beyond these limits may do so, but without federal financial assistance.

Financial aid recipients/applicants who are not meeting standards of academic progress may appeal to the Financial Aid Appeals Committee. Appeals may be granted due to hardship based on extenuating circumstances such as death of an immediate family member, personal injury or illness of the student, or other documented circumstances as explained by the student and approved by the Financial Aid Appeals Committee.

See http://www.finaid.wvu.edu for complete information of the standards of satisfactory academic progress for financial aid.
Graduate Assistantships, Fellowships, and Waivers

Graduate Assistantships
West Virginia University annually awards about 1,800 graduate assistantships supported from state appropriations, federal funds, private grants, and contracts as well as approximately 200 fellowships and traineeships derived from federal agencies and from industries and private foundations. Fellowships are awarded on the basis of academic merit and require no service in return. Graduate fellows are expected to be engaged full-time in their studies, but may teach to the extent that the particular degree program requires. Most traineeships, provided through institutional grants, are also for full-time study without scheduled duties.

All graduate assistants and fellows must be accepted into a graduate degree program and are required to be full-time (nine hours or more) graduate students. The individual is primarily a student and secondarily an employee. Tuition and some fees are remitted (see below). Awards are made by degree programs or by the nonacademic unit where service is to be rendered. Applications should be made to the dean or director concerned or to the chairperson of the program in which the graduate work will be pursued. Early application is strongly recommended.

Graduate assistantships and fellowships at WVU are accompanied by a waiver of tuition. These waivers cover the cost of coursework required by the students’ Plan of Study. Students covered by assistantships or fellowships during the academic year may also qualify for summer tuition waivers through their departments. Some programs may limit the number of credit hours that can be taken under a waiver in a given semester. In addition, programs and departments are allocated “meritorious waiver hours,” which can be used at the discretion of the departments for recruiting and/or retaining students in their degree programs. Students should inquire of their departments whether such waivers are available. In general, online programs and summer courses are not covered by tuition waivers.

Graduate Teaching Assistant
A person who holds a graduate teaching assistance (GTA) is obligated to teach two three-hour courses per semester, the equivalent in laboratory classes, or, for other forms of departmental assistance, except research assistance, the equivalent of a minimum of 15 hours and no more than 20 hours per week. The terms of employment would be stated in the letter of appointment. These assistantships are generally available only through the academic units. No graduate student can be appointed to a GTA position after the second week of the semester.

English Language Proficiency and Graduate Teaching Assistantships
To be considered for a graduate teaching assistantship (GTA), students must complete GTA Application Forms for the department in which they seek the GTA. Students must be accepted into a graduate program within the university and be registered as full-time students to receive a GTA.

International students whose native language is not English must score a 50 on the WVU SPEAK test in order to qualify for a GTA. Students who do not score a 50 on the SPEAK test should take ESL 350 (English as a Second Language offered by the Department of Foreign Languages) to improve their speaking skills and retake the SPEAK test in order to qualify for university graduate teaching assistantships. Students with speak scores below 45 should sign up for ESL 250.

Those who are seeking to teach English as a Second Language in the Intensive English Program must present a minimum TOEFL score of 600 (paper version)/250 (computer version)/100 (Internet version) and a minimum SPEAK test score of 60.

More information on the SPEAK test, see http://www.wvu.edu/~iep/esl/index.htm

Graduate Research Assistants
A graduate research assistant (GRA) is a graduate student whose duties consist of assisting in the research of a faculty member with an obligation of not fewer than 15 or more than 20 hours per week in any semester. No graduate student can be appointed to a GRA position after the fifth week of the semester.
Graduate Administrative Assistants
A student employed as a graduate administrative assistant (GA) works part-time in one of the administrative offices of WVU. Assistantships obligate the student to no fewer than 15 or more than 20 hours of work per week in any semester. The terms of employment should be stated in the letter of appointment at the time of assigning the assistantship.

Graduate Residence Assistants
Resident assistant (RA) positions are available for single undergraduate and graduate students. The University-supervised residence halls house approximately 4,500 undergraduate residents. Resident assistants are required to provide educational, cultural, recreational, and social opportunities and programs for their residents. Remuneration for resident assistant positions is room, board, and monthly stipend. Graduate students may also receive a tuition waiver for a few specialized, live-in positions.

To obtain further information about the resident assistant recruitment and selection process, contact the Associate Dean of Residential Education, P.O. Box 5430, West Virginia University, Morgantown, WV 26506–6430.

Graduate Advising Assistants
Graduate assistantships are available through the Undergraduate Academic Services Center (UASC) for students who have been admitted to a graduate program. Those awarded a UASC assistantship will provide academic advising services to undergraduate students. A tuition waiver is provided and a stipend is paid and the graduate student. Contact the UASC for information and applications.

Graduate Fellowships
Teaching Fellows
A teaching fellow is an advanced graduate student, usually in a doctoral program, who would qualify for a junior faculty position if he or she were not a graduate student at WVU. A teaching fellow may be given major responsibilities for the design and/or operation of a course.

Swiger Fellowships
Arlen G. and Louise Stone Swiger are special benefactors who have established this fellowship program through the West Virginia University Foundation, Inc. Both were WVU graduates. Arlen G. Swiger, a successful New York attorney, bequeathed to the University half of his estate, which became available to the WVU Foundation upon the death of his widow, Louise Stone Swiger. These fellowships are open to doctoral students only. The stipend amount is $22,000 for 12 months, and the award requires some teaching or other academic service obligation. Selection is competitive on the basis of academic merit. Application should be made early in the year proceeding the year of anticipated enrollment in a doctoral program. Inquiries should be directed to the graduate program of choice or the Office of Graduate Education and Life. Application materials can be found at http://graduateeducation.wvu.edu/financing_your_education/fellowships.

W. E. B. Du Bois Fellowships
Dr. William Edward Burghardt Du Bois, born in 1868, was educated at Fisk University and received his Ph.D. from Harvard University in 1896. Dr. Du Bois was one of the founders of the National Association for the Advancement of Colored People and the Pan-African Congress Movement. The author of many historical and analytical studies of American and African society, Du Bois provides a standard of excellence for scholarship in any discipline and an especially inspiring model for black scholars. Because of the achievements of Dr. Du Bois, West Virginia University has named this fellowship program in his honor. The fellowships are open to African American graduate and professional students, excluding those in the Health Sciences, who are native or naturalized U.S. citizens. The stipend amount is $18,000 for 12 months, and requires some service obligation. Selection is competitive on the basis of academic merit and potential for success in graduate or professional study. Inquiries should be directed to the graduate or professional program of choice or to the Office of Graduate Education and Life. Application materials can be found at http://grad.wvu.edu/.
**WVU University Fellowships**

The WVU University Fellowship Program consists of three fellowship opportunities that support doctoral or terminal degree students within the general university. Provost Fellowships are first year awards designed to attract highly competitive students to WVU and to provide them with support for the first year to concentrate on establishing their programs of study. A $16,000 stipend and waiver of tuition accompany the Provost Fellowships. The Enrichment Fellowships are designed to attract doctoral students who contribute to the diversity of the campus community in the broadest sense. Students may be underrepresented minorities, students with unique experiences within their fields, or students who in some other way enhance the cultural experience of the WVU academic community. A $16,000 stipend and waiver of tuition accompany the Enrichment Fellowships. Dissertation Fellowships are provided to students in their last semester of dissertation writing to facilitate timely completion of students’ doctoral programs. A $8,000 stipend and waiver of tuition accompany the Dissertation Fellowships, which support students for one semester. Application materials can be found at http://grad.wvu.edu/.

**WVU Foundation Fellowships**

To commemorate its 50th anniversary in 2005, the West Virginia University Foundation established the WVU Foundation Distinguished Doctoral Fellowships. Each year, the University awards four $5,000 fellowships to exceptional doctoral students in the humanities, social sciences, life sciences, and physical sciences and technology. The award may be used to defray expenses of travel, supplies, and other costs that may be incurred in the final stages of completing a dissertation. Nominees for the WVU Foundation Distinguished Doctoral Fellowships must be absolutely excellent students with academic records to match. Moreover, nominees must contribute to the teaching mission of the institution by serving as teaching assistants. Research assistants are not eligible. Inquiries should be directed to the graduate or professional program of choice or to the Office of Graduate Education and Life.

**Other Fellowships Within the United States and Abroad**

Students are encouraged to submit applications to outside agencies that support graduate-level study and research. Among the opportunities available are programs sponsored by the Fulbright-Hays Training Grants, the National Science Foundation, the Marshall Scholarship Program, the National Institutes of Health, the Oak Ridge Associated Universities, and the Rhodes Scholarships. Several national agencies publish information about fellowships and financial aid opportunities for graduate students. Individuals interested in reviewing this information should consult the reference personnel at the Charles C. Wise Jr. Library as well as the Office of Fellowships and Graduate School Advising at http://honors.wvu.edu.

**Terms of Graduate Assistant Employment**

**Remission of Tuition and Fees**

Students appointed as GAs or as University fellows or trainees are eligible for remission of tuition and certain fees. Some colleges have non-waivable college-specific fees that are the responsibility of students. All students must pay Special Fees, i.e., the Mountainlair, radio station, student health service, recreation center, athletic, technology, library, and Daily Athenaeum fees.

**Terms of Employment**

The terms of employment for GAs should be explicitly stated in the GA letter of appointment. This should include the title of the position (e.g., teaching assistant, research assistant), department and college of appointment, term of appointment, salary, and provision of injury insurance. The total hours of work, as well as the particular days of service (e.g., weekends and/or holidays) required, must be made clear to the student by the appropriate graduate department at the time of assigning the assistantship.

Federal law requires that all employees, including graduate assistants, must complete an Employment Eligibility Verification (I-9) on or before the day they begin work for the University. It is important that GA’s not be given a work assignment until they are formally processed as an employee. Violation of this rule places the University in a situation where substantial fines may be imposed against it.
Stipends for graduate assistantships are generally stated in terms of nine or 12-month appointments, although single term appointments are acceptable. The term of assistantships normally runs from August 16 to May 15 for nine-month appointments, or from August 16 to December 31 for the fall semester, or January 1 until May 15 for the spring semester.

Students may not hold more than the total equivalent of one assistantship. This rule applies even if the appointment comes from several sources (e.g., graduate teaching assistantship, graduate research assistantship, graduate administrative assistantship, graduate residence hall assistantship, and/or teaching fellowship).

Graduate teaching assistants, in order to fulfill their teaching obligations, must be appointed by no later than the end of the second week of classes. Since graduate research assistantships are primarily funded by grants and other third party sources, and since the arrival of these funds at the University often does not coincide with the beginning of an academic semester, University policy is that the deadline for GRA appointments is no later than the end of the fifth week of classes. Exceptions to these deadlines generally will not be made unless extenuating circumstances exist. Requests for late appointments must be made in writing from the hiring unit, signed by the college/school dean, and sent to the assistant vice president for Graduate Education.

Any student who has a full-time graduate assistantship may not be employed at the University for more than 100 hours per regular semester beyond the assistantship without the permission of the Office of Graduate Education and Life. The 100-hour rule allows units to hire a graduate student for incidental hourly work that is not normally associated with the assistantship, such as tutoring, grading, ticket collections at sports events, etc., without seeking permission prior to hiring the student. In cases where a unit wishes to hire a graduate assistant in an hourly position beyond the 100 hours during a regular semester, written permission must be sought from the student’s home academic unit(s) (department, college) and the Associate Provost for Graduate Academic Affairs. The memo should describe why the hiring is critical for the individual involved and how the assignment will reinforce that student’s academic program. Termination of a GA’s employment at a time other than at then end of the stated contract period must follow the standard procedure for termination of any university employee. This includes initial verbal counseling, written warnings, etc. Such a termination will generally result in the immediate suspension of the GA’s pay and tuition waiver.

**Policy on Remuneration**

The following principles apply to remuneration for duties performed by graduate assistants.

1. Graduate assistant (other than GRHA) salaries must meet or exceed the University minimum on a nine-month equated basis as set by the Office of the Provost, with the minimum salary for doctoral (post-master’s) students set higher than the minimum for master’s-level students. The University mandated minimum stipend in effect for 2010–2011 is $10,000 for nine months. Many academic units provide substantial salary caps augmenting this minimum stipend.

2. Academic and other units are required to establish discipline-based salary ranges by student level (i.e., master’s, doctoral, first-professional) for graduate assistants funded in their units.

3. International students must meet financial support criteria for 12 months (includes tuition and fee charges, living expenses, etc.) from an assistantship and/or other sources in order to qualify for a Certificate of Eligibility (I-20 or IAP-66) and, subsequently, a student visa.

4. Graduate assistants who have worked for academic and non-academic units in both the fall and spring semesters may have their summer session tuition waived. This policy is college specific.

5. Graduate assistants are salaried, not hourly, employees and are not eligible for over time.
Final Grade Appeals

Students have the right to appeal final course grades that they believe reflect a capricious, arbitrary, or prejudiced academic evaluation, or reflect discrimination based on race, gender, age, handicap, veteran status, religion or creed, sexual orientation, color, or national origin. The grade appealed shall remain in effect until the appeal procedure is completed or the problem resolved. The primary intent of this procedure is to provide a mechanism whereby a student might appeal a failing grade or a grade low enough to cause the student to be eliminated from some program or to require the repetition of a course. Grade appeals that do not meet this classification are not precluded.

Final Grade Appeal Procedures (Not Involving Charges of Academic Dishonesty), including Dismissal from an Academic Program

Students have the right to appeal final course grades which they believe reflect a capricious, arbitrary, or prejudiced academic evaluation, or reflect discrimination based on race, sex, age, handicap, veteran status, religion or creed, sexual orientation, color, or national origin. The grade appealed shall remain in effect until the appeal procedure is completed or the problem resolved. This procedure provides a mechanism whereby a student may appeal a failing grade or a grade low enough to cause the student to be dismissed from some program or to require the repetition of a course. Grade appeals that do not meet this classification are not precluded.

Procedure

Step 1 - The student shall discuss the complaint with the instructor involved prior to the mid-semester of the succeeding regular semester, whether the student is enrolled or not. If the two parties are unable to resolve the matter satisfactorily, if the instructor is not available, or if the nature of the complaint makes discussion with the instructor inappropriate, the student shall notify the chairperson of the instructor’s department or division (or, if none, the dean). The chairperson or dean shall assume the role of an informal facilitator and assist in their resolution attempts. If the problem is not resolved within five academic days from when the complaint is first lodged, the student may proceed directly to Step 2.

Step 2 - The student must prepare and sign a document that states the facts constituting the basis for the appeal within five academic days from when the original complaint was lodged. Copies of this document shall be given to the instructor and to the instructor’s chairperson (or, if none, to the dean). If, within five academic days of receipt of the student’s signed document, the chairperson does not resolve the problem to the satisfaction of the student, the student will forward the complaint to the instructor’s dean (see Step 3).

Step 3 - Within five academic days of receipt of the complaint, the instructor’s dean shall make a determination regarding the grade, making any recommendation for a grade change to the instructor involved. If the instructor involved does not act on the dean’s recommendation, or if the student disagrees with the decision of the dean, the dean will refer the case to a representative committee, appointed by the dean, for final resolution. This committee shall consist of three or more faculty members, including at least one person outside the instructor’s department.

1. Upon receiving an appeal, the committee will notify in writing the faculty member involved of the grade challenge, which shall include a statement of the facts and evidence to be presented by the student.
2. The committee shall provide to the faculty member involved and the student making the appeal written notification of their right to appear at a hearing to be held before the department, college, or school representative committee, together with the notice of the date, time, and place of the hearing.
3. The administrative procedure is not adversarial in nature; the formal rules of evidence do not apply.
4. The final decision of this committee shall be forwarded to the instructor and to the dean involved. If the decision requires a change of grade, the instructor shall take action in accordance with the committee’s decision.
5. If the instructor does not act within five academic days, the dean shall make any necessary grade adjustment.
6. In the case of grade appeals, the dean functions as the president’s designee; therefore, implementation of this decision shall end the appeal procedure.
Probation, Suspension, Readmission, and Dismissal Policy

Academic Probation—GPA
Graduate students with a cumulative grade point average below 2.75 may be subject to probation by the dean of their college or school. Individual academic units may designate an even higher GPA for students to remain in good standing. The College of Law maintains specific policies for academic standing in the Student Handbook available at http://law.wvu.edu/academics.

A letter of probation delivered by the graduate program to the student should outline the reason for the sanction as well as delineate academic benchmarks for the student to attain in order to have the probation sanction removed. Students may request review of the sanction of academic probation by the academic official who imposed it at any point in a semester. Academic probation, which is not recorded on a student’s permanent record, constitutes a warning to the student that standards are not being met. If academic progress or benchmarks are not attained in accordance with the letter of probation, the student may be suspended by the program (see below).

Academic Probation—Other
Graduate students may also be placed on probation by the dean of the college or school by failing to maintain acceptable performance beyond the GPA, for example, through unacceptable research progress. A letter of probation delivered by the graduate program to the student should outline the reason for the sanction as well as delineate performance benchmarks for the student to attain in order to have the probation sanction removed. Students may request review of the sanction of academic probation by the academic official who imposed it at any point in a semester.

Academic probation, which is not recorded on a student’s permanent record, constitutes a warning to the student that standards are not being met. If academic progress or benchmarks are not attained in accordance with the letter of probation, the student may be suspended by the program (see below).

Removal of Academic Probation
At the conclusion of the semester in which a student was placed on probation, the academic program shall review the academic record of the student and the probation letter. If the stipulations set forth in the letter of probation have been met, the student is removed from probation. If the stipulations have not been met, student standing is reassessed by the program and the student may be suspended by the academic unit.

Uniform Academic Suspension Regulations
Students failing to maintain satisfactory academic standing or progress towards their degree as delineated by the letter of probation may be suspended from their degree program. Academic suspension normally follows a sanction of probation, above, in cases where students have been counseled regarding academic stipulations and fail to attain those stipulations. Normally, students are suspended at the end of a semester or summer school session and are notified formally by the department and/or the dean of the college or school of academic suspension.

Academic suspension identifies the status of a student who has failed to meet the departmental minimum standards and who has been notified formally by the department and/or the dean of the college or school of academic suspension. Suspension from the University means that a student will not be permitted to register for any classes, including those in summer sessions, offered by the University for academic credit until the student has been officially reinstated. The normal period of suspension is a minimum of one academic semester, but will not exceed one calendar year from the date of a student’s first suspension. A student who has been suspended for academic deficiencies and who takes courses at other institutions during the period of suspension cannot automatically transfer such credit toward a degree at WVU upon readmission. Students are not eligible for readmission if they earn lower than a 2.75 at other institutions while on suspension from WVU. After one semester of satisfactory performance, the appropriate transfer credit will be entered into the student’s record and certification that the conditions of suspension have been met; a student who has pre-registered and is subsequently suspended shall have his or her registration automatically cancelled.
**Reinstatement After Suspension**

During the semester immediately following the effective date of suspension, suspended students may petition in writing for reinstatement. The college or school petitioned shall establish the terms of reinstatement for successful student petitions. After one calendar year from the effective date of suspension, any student who has been suspended once shall, upon written application, be reinstated to the University and to the college or school in which the student was previously enrolled, unless the student petitions for admission to another college or school. The college that reinstates the student removes the student’s suspension restriction in the Office of the University Registrar and accepts the student.

A suspended student who is reinstated under the provisions above will be placed on academic probation. Each college or school shall have the right to establish requirements or performance expectations.

After the second or any subsequent suspension, a student may be reinstated to the University provided that a college or school agrees to reinstate the student. After a student has been reinstated, he or she must apply for readmission through the Office of Admissions.

**Appeal of Suspension—Failure to Meet Academic Standards**

Imposition of academic suspension based on grade point average, failure to meet the conditions previously specified for removal of academic probation, or failure to meet the conditions of admission may be appealed under the following conditions.

- The student may appeal individual final course grades and, if successful, may be reinstated;
- The student may make an appeal to the appropriate dean based on erroneous calculation of the grade point average or on erroneous calculation of the time period within which a grade point average must be achieved. The decision of the dean, as the president’s designee, is final.

Students have the right to appeal academic suspensions based on requirements or standards other than grades or grade point average that they believe reflect capricious, arbitrary, or prejudiced academic evaluation, or reflect discrimination based on race or color, gender, sexual orientation, veteran status, religion, age, disability, ethnicity, or political affiliation (procedure, above). At the dean’s discretion, suspensions may remain in effect until appeal procedures are completed. The student shall discuss the complaint with the dean within 30 calendar days of the action taken.

**Academic Dismissal Regulations**

Academic dismissal can result from repeated failure to make academic progress and/or to meet probationary terms set forth in writing by the student’s college or school. A student who is academically dismissed from the University will not be permitted to register for any classes, including those in summer sessions.

After five calendar years from the effective date of academic dismissal, any student who has been dismissed shall, upon written application, be considered for reinstatement to the University, with the terms of reinstatement to be established by the college or school entered. Failure to meet these terms will result in permanent academic dismissal.

Students returning to a graduate program may need to have their coursework re-validated by the program if courses were taken more than eight years prior to the planned date of graduation after re-instatement.

**Appeal of Dismissal—Failure to Meet Academic Standards**

A decision to dismiss a student for failure to meet academic standards (as distinguished from academic dishonesty) may be made only after the student has been counseled by the appropriate departmental committee or representative, with counseling to take place as soon as possible after discovery of the problem. After the student is given a reasonable opportunity to correct deficiencies, formal review of the student’s status by the appropriate departmental or program committee will be held to determine whether the student shall be retained or dismissed. The student may provide the committee written documentation of his or her efforts to correct deficiencies.

**Academic Integrity and Dishonesty**

The academic development of students and the overall integrity of the institution are primary responsibilities of WVU. Academic dishonesty is condemned at all levels of life, indicating an inability to meet and face issues and creating an atmosphere of mistrust, disrespect, and insecurity. In addition, it is essential in an academic community that grades accurately reflect
the attainment of the individual student. Faculty, students, and administrators have shared responsibilities in maintaining the academic integrity essential for the University to accomplish its mission.

For the detailed policy of West Virginia University regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see Board of Governors Policy 31 at bog.wvu.edu/policies and the Student Conduct Code at http://www.arc.wvu.edu/rightsfa.html. Note: The University is evaluating the process of academic dishonesty prosecution and appeal and students should contact the Office of Student Life/Student Judicial Affairs for current procedures at http://www.studentlife.wvu.edu/judicial.html.

Responsibilities

The integrity of the classes offered and research and scholarship undertaken by any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Students should act to prevent opportunities for academic dishonesty to occur and in such a manner to discourage any type of academic dishonesty. Faculty members are expected to remove opportunities for cheating, whether related to test construction, test confidentiality, test administration, or test grading. This same professional care should be exercised with regard to oral and written reports, laboratory assignments, and grade books.

Deans and department chairpersons are expected to acquaint all faculty with expected professional behavior regarding academic integrity, and to continue to remind them of their responsibility. Deans and department chairpersons shall assist faculty members and students in handling first-offense cheating allegations at the lowest possible level in the University, and with discretion to prevent damage to the reputation of any person who has not been found guilty in the prescribed manner.

Each member of the teaching faculty and all other WVU employees, including but not limited to assistants, proctors, office personnel, custodians, and public safety officers, shall promptly report cases of academic dishonesty to the appropriate supervisor, department chairperson, or dean of the college or school concerned, and to the Office of Judicial Affairs, Office of Student Life.

Academic Dishonesty Defined

WVU expects that every member of its academic community shares the historic and traditional commitment to honesty and integrity. Academic dishonesty is defined to include, but is not limited to, any of the following:

1. Plagiarism is defined in terms of proscribed acts. Students are expected to understand that such practices constitute academic dishonesty regardless of motive. Those who deny deceitful intent, claim not to have known that the act constituted plagiarism, or maintain that what they did was inadvertent are nevertheless subject to penalties when plagiarism has been confirmed. Plagiarism includes, but is not limited to, submitting, without appropriate acknowledgment, a report, notebook, speech, outline, theme, thesis, dissertation, or other written, electronic, visual, or oral material that has been copied in whole or in part from the work of others, whether such source is published or not, including, but not limited to, another individual’s academic composition, compilation, or other product, or commercially prepared paper.

2. Cheating and dishonest practices in connection with examinations, papers, and projects, include, but are not limited to:
   a. Obtaining help from another student during examinations.
   b. Knowingly giving help to another student during examinations, taking an examination or doing academic work for another student, or providing one’s own work for another student to copy and submit as his or her own.
   c. The unauthorized use of notes, books, or other sources of information during examinations.
   d. Obtaining an examination or any part thereof without authorization.

3. Forgery, misrepresentation, or fraud includes, but is not limited to:
   a. Forging or altering, or causing to be altered, the record of any grade in a grade book or other educational record.
   b. Use of University documents or instruments of identification with intent to defraud.
   c. Presenting false data or intentionally misrepresenting one’s records for admission, registration, or withdrawal from the University or from a University course.
   d. Knowingly presenting false data or intentionally misrepresenting one’s records for personal gain.
e. Knowingly furnishing the results of research projects or experiments for the inclusion in another’s work without proper citation.

f. Knowingly furnishing false statements in any University academic proceeding.

**Appeal Procedures for Cases Involving Academic Dishonesty, i.e., Plagiarism, Cheating, and Academic Fraud, Including the Grade of Unforgiveable F (UF)**

Academic dishonesty includes plagiarism, cheating, and dishonest practices in connection with examinations, papers, and projects, as well as forgery, misrepresentation, and fraud. Some cases of forgery, misrepresentation, or fraud that occur outside the context of courses or academic requirements may be referred directly to the Office of Student Life/Judicial Affairs by any member of the University community. In such cases, the Office of Student Life/Judicial Affairs will arrange a hearing following the procedures outlined in the BOG Policy 31.

An Unforgiveable F (UF) is a University sanction levied as a result of a violation of the Student Conduct Code Article III (B) 1. Thus, the appeal process for a UF as well as for other cases involving academic dishonesty is different than a standard grade appeal (see above), which follows academic channels that end with a decision by the dean of the college involved. This sanction can be given only after a student has gone through the University student conduct process.

**Process to Initiate a Charge of Academic Dishonesty**

To initiate and process a charge of academic dishonesty, including plagiarism, cheating, and academic fraud, and/or to begin the process of issuing an Unforgiveable F, the instructor must do the following:

1. Notify the student in writing of the charge and the penalty and schedule a conference within five academic days of discovering the infraction. West Virginia University Undergraduate Catalog

2. Meet with the student to discuss the issue, to review all relevant materials, and to complete the Notification of Academic Misconduct (NAM) form (http://facultysenate.wvu.edu) as soon as possible but no longer than five academic days following the discovery of the violation.

3. **Responsibility/Resolution**

   a. If the student accepts responsibility for both the charge and the sanctions, he or she signs the NAM, and the case is closed. Within five academic days of resolution of the case, faculty should make three copies of the NAM form: one for the student, one for faculty records, and one for the Office of Student Judicial Affairs (84 Boreman North, P.O. Box 6430).

   b. If the student does not accept responsibility as charged, he or she may appeal to the chair of the department. If the student and chair reach a resolution, the chair should make three copies of the NAM form: one for the student, one for departmental records, and one for the Office of Student Judicial Affairs (84 Boreman North, P.O. Box 6430). These copies should be distributed within five academic days of resolution of the case.

   c. If the student and the chair do not reach a resolution, the student may appeal to the Student Conduct Board, which is comprised of members of the University Committee on Students Rights and Responsibilities. This appeal must be initiated within five academic days of the student’s meeting with the chair.

4. If the student appeals to the Student Conduct Board, a panel of three faculty and two students or any odd number with faculty comprising the majority will be convened, the case will be examined, and a decision will be reached.

5. If the student disagrees with the decision of the Student Conduct Board, he or she may appeal to the provost, whose decision is final.
Other Relevant University Policies and Regulations

West Virginia University Policy on the Family Educational Rights and Privacy Act
The Family Educational Rights and Privacy Act (FERPA) of 1974 is a federal law that states that: (a) a written institutional policy must be established and (b) a statement of adopted procedures covering the privacy rights of students be made available. The law provides that the institution maintain the confidentiality of student educational records.

West Virginia University accords all the rights under the law to students who are declared independent. No one outside WVU shall have access to nor will WVU disclose any information from students’ educational records without the written consent of students, except to personnel within WVU and the West Virginia Higher Education Policy Commission, persons or organizations providing students’ financial aid, accrediting agencies carrying out their accreditation function, persons in compliance with judicial order, organizations conducting studies for, or on behalf of, education agencies or institutions for the purpose of developing, validating, or administering predictive testing student aid programs, and improving instruction, and persons in an emergency in order to protect the health or safety of students and/or other persons. All these exceptions are permitted under the act.

FERPA also permits disclosure of information from students’ educational records, without the written consent of students, to parents of a dependent student of such parents, as defined in Section 152 of the Internal Revenue Code of 1954, as amended. West Virginia University considers all students as “dependent” for purposes or disclosure of information to parents unless the students specifically notify in writing the WVU Office of The University Registrar that they are not a dependent of their parents for federal income tax purposes. Students need to give such written notification only once.

The West Virginia University Policy on the Family Educational Rights and Privacy Act explains in detail the procedures to be used for compliance with the provisions of the act. Copies of the policy can be found in the offices of all deans and directors. The offices of the deans and directors can inform students as to the locations of all education records maintained on students by West Virginia University.

Research Policy Guidelines

Research Involving Animals or Human Subjects
Any graduate student who conducts research with experiments using animals must have a protocol approved by the Animal Care and Use Committee before starting the research. Information about procedures and protocol forms may be obtained from the Office of Sponsored Programs.

Any graduate student who conducts research involving human subjects must have the approval of the Institutional Review Board for the Protection of Human Subjects before starting the research. Information about procedures and approval forms may be obtained from the Office of Sponsored Programs, 886 Chestnut Ridge Road, Morgantown, WV 26505-6845, (304) 293-3998.

Research Integrity at West Virginia University
Integrity in research and scholarship is an obligation of all who engage in the acquisition, application, and dissemination of knowledge. Research and scholarly work by West Virginia University faculty, staff, and students are governed by Policy and Procedures for Responding to Allegations of Misconduct in Research and Scholarship at West Virginia University. This policy can be found at osp.research.wvu.edu/policies_and_regulations/institutional_policies/misconduct.

All members of the University community are obligated to report observed, suspected, or apparent misconduct in research. Reports should be made to the University’s research integrity officer, WVU Office of Research (304) 293-2867. Regular reviews of the status of research integrity at WVU are conducted by the Research Integrity Policy Committee.
**University Patent Policy**

West Virginia University is committed to supporting faculty members and staff in all matters related to patents based on discoveries and inventions created solely or jointly by them. This policy encourages and aids research at the University, provides financial compensation and professional recognition to inventors, and protects and serves the public interest.

The University recognizes that discoveries and inventions may, and frequently do, include equities. The use of University facilities, equipment, personnel, supplies, or services, the particular assignment of duties or conditions of employment, the possible claims of a cooperating agency, as in research supported from extramural funds, and other situations may give rise to complex rights involving the inventor, the University, and a sponsoring agency. Such rights must be evaluated and an agreement reached on their appropriate disposition. Policies and procedures involving the rights and obligations of the University, its sponsors, and its inventors with respect to inventions resulting from research, development, or other work performed at the University are overseen by the Office of Technology Transfer and can be obtained at http://http://www.wvu.edu/~research/techtransfer/policy.

**Residency Policy**

Residency policy is establish by the WV Higher Education Policy Commission Series 25 and is posted at http://adm.wvu.edu/home/residency_classification. Section 1 of the residency policy bulletin contains general information regarding its scope and dates of adoption. Remaining sections are excerpted below.

**Higher Education Policy Commission Series 25**

**Section 2. Classification for Admission and Fee Purposes**

2.1 Students enrolling in a West Virginia public institution of higher education shall be assigned a residency status for admission, tuition, and fee purposes by the institutional officer designated by the president. In determining residency classification, the issue is essentially one of domicile. In general, the domicile of a person is that person's true, fixed, permanent home and place of habitation. The decision shall be based upon information furnished by the student and all other relevant information. The designated officer is authorized to require such written documents, affidavits, verifications, or other evidence as is deemed necessary to establish the domicile of a student. The burden of establishing domicile for admission, tuition, and fee purposes is upon the student.

2.2 If there is a question as to domicile, the matter must be brought to the attention of the designated officer at least two weeks prior to the deadline for the payment of tuition and fees. Any student found to have made a false or misleading statement concerning domicile shall be subject to institutional disciplinary action and will be charged the nonresident fees for each academic term theretofore attended.

2.3 The previous determination of a student's domiciliary status by one institution is not conclusive or binding when subsequently considered by another institution; however, assuming no change of facts, the prior judgment should be given strong consideration in the interest of consistency. Out-of-state students being assessed resident tuition and fees as a result of a reciprocity agreement may not transfer said reciprocity status to another public institution in West Virginia.

**Section 3. Residence Determined by Domicile**

3.1 Domicile within the state means adoption of the state as the fixed, permanent home and involves personal presence within the state with no intent on the part of the applicant or, in the case of a dependent student, the applicant’s parent(s) to return to another state or country. Residing with relatives (other than parent(s)/legal guardian) does not, in and of itself, cause the student to attain domicile in this state for admission or fee payment purposes. West Virginia domicile may be established upon the completion of at least 12 months of continued presence within the state prior to the date of registration, provided that such 12 months' presence is not primarily for the purpose of attendance at any institution of higher education in West Virginia.
3.2 Establishment of West Virginia domicile with less than 12 months’ presence prior to the date of registration must be supported by evidence of positive and unequivocal action. In determining domicile, institutional officials should give consideration to such factors as the ownership or lease of a permanently occupied home in West Virginia, full-time employment within the state, paying West Virginia property tax, filing West Virginia income tax returns, registering of motor vehicles in West Virginia, possessing a valid West Virginia driver’s license, and marriage to a person already domiciled in West Virginia. Proof of a number of these actions shall be considered only as evidence which may be used in determining whether or not a domicile has been established.

3.3 Factors militating against the establishment of West Virginia domicile might include such considerations as the student not being self-supporting, being claimed as a dependent on federal or state income tax returns or the parents’ health insurance policy if the parents reside out of state, receiving financial assistance from state student aid programs in other states, and leaving the state when school is not in session.

Section 4. Dependency Status

4.1 A dependent student is one who is listed as a dependent on the federal or state income tax return of his or her parent(s) or legal guardian or who receives major financial support from that person. Such a student maintains the same domicile as that of the parent(s) or legal guardian. In the event the parents are divorced or legally separated, the dependent student takes the domicile of the parent with whom he or she lives or to whom he or she has been assigned by court order. However, a dependent student who enrolls and is properly classified as an in-state student maintains that classification as long as the enrollment is continuous and that student does not attain independence and establish domicile in another state.

4.2 A non-resident student who becomes independent while a student at an institution of higher education in West Virginia does not, by reason of such independence alone, attain domicile in this state for admission or fee payment purposes.

Section 5. Change of Residence

5.1 A person who has been classified as an out-of-state student and who seeks resident status in West Virginia must assume the burden of providing conclusive evidence that he or she has established domicile in West Virginia with the intention of making the permanent home in this state. The intent to remain indefinitely in West Virginia is evidenced not only by a person’s statements, but also by that person’s actions. In making a determination regarding a request for change in residency status, the designated institutional officer shall consider those actions referenced in Section 2. The change in classification, if deemed to be warranted, shall be effective for the academic term or semester next following the date of the application for reclassification.

Section 6. Military

6.1 An individual who is on full-time active military service in another state or foreign country or is an employee of the federal government shall be classified as an in-state student for the purpose of payment of tuition and fees, provided that the person established a domicile in West Virginia prior to entrance into federal service, entered the federal service from West Virginia, and has at no time while in federal service claimed or established a domicile in another state. Sworn statements attesting to these conditions may be required. The spouse and dependent children of such individuals shall also be classified as in-state students for tuition and fee purposes.

6.2 Persons assigned to full-time active military service in West Virginia and residing in the state shall be classified as in-state students for tuition and fee purposes. The spouse and dependent children of such individuals shall also be classified as in-state students for tuition and fee purposes.

Section 7. Aliens

7.1 An alien who is in the United States on a resident visa or who has filed a petition for naturalization in the naturalization court, and who has established a bona fide domicile in West Virginia as defined in Section 3, may be eligible for in-state residency classification, provided that person is in the state for purposes other than to attempt to qualify for residency status as a student. Political refugees admitted into the United States for an indefinite period of time and without restriction on the maintenance of a foreign domicile may be eligible for an in-state classification as defined in Section 3. Any person holding a student or other temporary visa cannot be classified as an in-state student.
Section 8. Former Domicile

8.1 A person who was formerly domiciled in the state of West Virginia and who would have been eligible for an in-state residency classification at the time of his or her departure from the state may be immediately eligible for classification as a West Virginia resident provided such person returns to West Virginia within a one-year period of time and satisfies the conditions of Section 3 regarding proof of domicile and intent to remain permanently in West Virginia.

Section 9. Residency Decisions/Appeals

Following is the process for initially determining residency for tuition purposes and how students appeal if they disagree with those decisions. Initial residency decisions are made at the admission level. Any questionable decisions are referred to the designated institutional official who determines whether the student meets the residency requirements or additional information is needed to make the decision. If additional information is needed, the student is requested to submit further documentation. If a student feels he or she has been improperly classified as a non-resident for tuition purposes, he or she should request an application for classification as a resident student at West Virginia University. To request this application write: Residency Officer, Office of Admissions, P.O. Box 6009, Morgantown, WV 26506-6009, or call (304) 293-2121.

Once this application and supporting documents are received, a decision is made by the designated institutional official. If the student meets the requirements as outlined by the Board of Governors Policy Bulletin #34, the student is granted residency for the upcoming semester. If the student does not meet the necessary requirements, the student is denied in-state residency. If denied, the student has the option of appealing the decision to the WVU Council on Residency. The council consists of faculty and student representatives, whose number shall be at least three. The student representative(s) shall be appointed by the president of West Virginia University Student Administration while the faculty representative(s) shall be selected by the University Faculty Senate. The student contesting a residency decision shall be given the opportunity to appear before the institutional committee on residency appeals.

If the council overturns the initial denial, the student becomes a resident for the semester in question. Should the council uphold the original denial, the student has the option of appealing to the president of WVU. The president, again, may either uphold the original denial or overturn the decision of the council.

Residency appeals shall end at the institutional level.

Programs and Courses

Schedule of Courses

Before the opening of each term, a Schedule of Courses is posted to http://courses.wvu.edu/ announcing the courses that will be offered by the colleges and schools of WVU.

Plan for Numbering Courses

For convenience, each course of study is designated by the name of the department in which it is given and by the number of that course. The plan for numbering courses is as follows:

Courses 1–99 Developmental and community college certificate courses (does not require WVU Faculty Senate approval) and undergraduate professional development courses (courses that are designed for professional development and require students to possess a high school diploma but the course would not count toward graduation).

Courses 100 Freshman/Lower Division: Intended primarily for freshmen, although by upper-division students may take them if needed to complete degree requirements.

Courses 200 Sophomore/Lower Division: Intended primarily for sophomores. These courses may have 100 or 200-level prerequisites.

Courses 300 Juniors/Upper Division: Intended primarily for juniors. These courses may have extensive prerequisites or be limited to specific majors.

Courses 400 Seniors/Upper Division: Intended primarily for seniors and selected graduate students. These courses are typically limited to advanced undergraduates within a particular major or degree program and selected graduate students. No more than 40 percent of the credits counted for meeting requirements for a graduate degree can be at the 400-level.
Courses 500 Undergraduate Seniors and Master’s Level: Courses intended for advanced undergraduate and graduate students. Seniors may enter via petition/special permission. Undergraduates in any class carrying a 500-level course number must have a 3.0 cumulative grade point average and written approval on special forms from the course instructor and the student's advisor.

Courses 600 Master’s Level: Courses intended for master’s degree students (no undergraduates permitted).

Courses 700 Master’s and Doctoral Degree Level: Courses intended for doctoral students, and advanced master’s students (no undergraduates permitted).

Courses 900 Professional Development: Courses intended for professional development and require students to possess a bachelor’s degree; these courses do not count toward graduation and are not applicable towards a graduate degree. Grading is S/U only.

Note: Graduate degree credit-hour requirements must include at least 60 percent at the 500-level and above.

Abbreviations Used in Course Listings

I  a course given in the first (fall) semester
II  a course given in the second (spring) semester
I, II  a course given each semester
I and II  a course given throughout the year
Yr  a course continued through two semesters
S  a course given in the summer
Hr  credit hours per course
Lec  lecture period
Rec  recitation period
Lab  laboratory period
GLAB  graded lab
WEB  Web-based course
Conc  must register prior to or at the same time
PR  prerequisite
Coreq  corequisite
Consent  consent of instructor required
CR  credit but no grade

An asterisk (*) following credit hours listed as variable indicates that the course normally carries three credit hours. Exceptions are made only in emergencies and must be approved by the departmental chair and by the professor teaching the course.

Graduate Level Common Course Numbers and Descriptions

590/690/790. Teaching Practicum. I, II, S. 1-3 hr. PR: Consent. Supervised practice in college teaching of ________. (Subject matter determined by department/division/college/school offering the course).

Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

591/691/791. Advanced Topics. I, II, S. 1-6 hr. PR: Consent. Investigation in advanced topics that are not covered in regularly scheduled courses.

592/692/792. Directed Study. I, II, S. 1-6 hr. Directed study, reading, and/or research.

593/693/793. Special Topics. I, II, S. 1-6 hr. A study of contemporary topics selected from recent developments in the field.

594/694/794. Seminar. I, II, S. 1-6 hr. Special seminars arranged for advanced graduate students.

595/695/795. Independent Study. I, II, S. 1-6 hr. Faculty-supervised study of topics not available through regular course offerings.

696/796. Graduate Seminar. I, II, S. 1 hr. PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.
697/797. Research. I, II, S. 1-15 hr. PR: Consent. Research activities leading to thesis (697), problem report (697), research paper or equivalent scholarly project (697), or a dissertation (797). (Grading may be S/U.)

698/798. Thesis or Dissertation. 2-4 hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of students’ reports (698), theses (698), or dissertations (798). (Grading may be S/U.)

699/799. Graduate Colloquium. I, II, S. 1-6 hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residency requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students who are not actively involved in coursework or research are entitled, through enrollment in their department’s 699/799 Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by their program, and retain all of the rights and privileges of duly enrolled students. Grading is S/U; colloquium credit may not be counted against credit requirements for masters programs. Registration for one credit of 699/799 graduate colloquium satisfies the University requirement of registration in the semester in which graduation occurs.
Degrees Offered
- Master of Business Administration
- Doctor of Philosophy in Economics
- Master of Arts in Economics
- Master of Science in Finance
- Master of Science in Industrial Relations
- Master of Professional Accountancy
- Doctorate in Business Administration

The College of Business and Economics was founded in November of 1951 and graduated its first class in the spring of 1953. Since that time, the College of Business and Economics has become one of the largest colleges at West Virginia University. In 1954, the college became fully accredited by the AACSB International (http://www.aacsb.edu), the highest level of business accreditation.

In 1990, the new College of Business and Economics building was completed on the site of Old Mountaineer Stadium on the downtown campus adjacent to historic Woodburn Hall. The four-story facility houses modern classrooms, two auditoriums, state-of-the-art computer laboratories, and space for the college’s research and service centers.

Overview of Programs
The doctor of philosophy and master of arts degrees in economics prepare students for careers in business, government, and higher education. Students receive in-depth education in the concepts and methods of economic analysis and econometrics; and specialize in two fields of study from financial, international, monetary, public, regional, and urban economics, and resource economics. These programs are well-suited to students with undergraduate degrees in economics, finance, mathematics, statistics, public policy, history, and other humanities majors.

The master of business administration (M.B.A.) program is especially attractive for the student with a non-business undergraduate major since no previous business courses are required for admission. Coursework includes an even exposure to all of the functional areas of business and provides a broad general management orientation. The M.B.A. program is offered during the day for full-time students in Morgantown. The M.B.A. program is also offered for working professionals online and in the evenings at various locations throughout West Virginia and is referred to as the executive M.B.A.

The master of science in industrial relations (M.S.I.R.) provides a flexible, interdisciplinary education for the student desiring a career in human resources management and industrial relations. All undergraduate majors are acceptable. Elective areas of study may include the functional areas of business, counseling, law, safety, and others.

The master of professional accountancy (M.P.A.) program is available to students with undergraduate degrees in accounting. Students without accounting undergraduate degrees can fulfill specific accounting prerequisites and be admitted to the program. The program follows the AICPA’s recommendations for a five-year accounting education and meets the requirements of most states with 150-hour requirements for CPA certification. The division of accounting also offers a graduate certificate in forensic accounting and fraud investigation.

The master’s programs can be completed by a full-time student in one to one-and-a-half years. Specific information about graduate programs in the College of Business and Economics may be obtained from Office of Graduate Programs, 340 Business and Economics Building, P.O. Box 6027, West Virginia University, Morgantown, WV 26506-6027, Telephone (304) 293-5408.
Special Requirements
Admissions to the M.B.A., M.P.A., M.S. in finance, and M.S. in industrial relations and the M.A. and Ph.D. in economics programs require a bachelor's degree from an accredited institution. The D.B.A. requires a master of business administration degree. Overall grade point average is considered, with additional attention given to the grade point average achieved in the last 60 hours of coursework. The Graduate Management Admissions Test (GMAT) is required for all of the business graduate programs. For the M.S.I.R. program, the Graduate Record Examination (GRE) may be substituted for the GMAT. The economics programs require the GRE. A resume is a requirement of the admission process for all programs. Under certain circumstances the GRE may substitute for the GMAT for the M.P.A. program.

Graduate Faculty
† Indicates regular membership in the graduate faculty.
* Indicates associate membership in the graduate faculty.

Accounting Professors
Barbara Apostolou, Ph.D. (L.S.U.) C.P.A. Auditing, Assurance services, Fraud and forensic accounting.

Associate Professors
Bonnie W. Morris, Ph.D. (U. Pitt.). C.P.A. Accounting information systems, Information technology, Expert systems and artificial intelligence, Internal auditing.

Assistant Professors
Jack Dorminey, Ph.D. (VCU). Intermediate financial accounting, regulatory accounting
Scott Fleming, Ph.D. (VPI). C.P.A. Auditing, IT auditing, Accounting information systems, Managerial cost accounting.
Christian Schaupp, Ph.D. (VPI). IT auditing, Accounting information systems.

Professor Emerita
Ann B. Pushkin, Ph.D. (VPI&SU). C.P.A. Auditing, E.D.P. auditing, Accounting information systems, Microcomputer applications

Visiting Professor

Economics Professors
†Ronald J. Balvers, Ph.D. (U. Pitt.). Financial economics, Macroeconomic theory.
*Clifford B. Hawley, Ph.D. (Duke U.). Labor economics, Microeconomic theory.
†Ming-jeng Hwang, Ph.D. (Tex. A&M). General theory, Urban and regional economics, Mathematical economics.
†William S. Reece, Ph.D. (Wash. U., St. Louis). Public economics.
†Tom S. Witt, Ph.D. (Wash. U., St. Louis). Econometrics, Energy economics, Regional economics.

Associate Professors
†Aranbinda Basistha, Ph.D. (U. of Wash.). Monetary.
†George Hammond, Ph.D. (Ind. U.). Regional economics, economic forecasting.
†Santiago Pinto, Ph.D. (U. of Ill.). Public economics, Urban economics, Regional economics.
Assistant Professors
†Christopher Coyne, Ph.D. (George Mason U.). Development.
* Eran Guse, Ph.D. (U. of Ore.). Macroeconomics, Monetary economics.
* Andrew Young, Ph.D. (Emory U.) Macroeconomics, Economic growth, Money and banking.

Finance
Professors
Victor Chow, Ph.D. (U. Ala.). Corporate finance, Portfolio management.

Associate Professors
Ashok Abbott, Ph.D. (VPI&SU). Financial institutions, Corporate finance, Mergers and acquisitions.
Terry L. Rose, Ph.D. (U. of Ill.). Insurance, Risk management.

Assistant Professors
Alex Kurov, Ph.D. (SUNY-Binghamton). Financial market microstructure, Futures markets.

Management and Industrial Relations
Professors
Jack A. Fuller, Ph.D. (U. Ark.). Heuristic decision making, Production planning and control, Systems analysis and design.

Associate Professors
David Dawley, Ph.D. (Fla. St.). Strategic management.
James Denton, Ph.D. (Kent St. U.). Decision science, Operations management.
Virginia Franke Kleist, Ph.D. (U. of Pitt.). Management information systems.
Nancy McIntyre, Ph.D. (U. of Rhode Island). Organizational behavior, Leadership.
Abhishek Srivastiva, Ph.D. (U. of Md.). Organizational behavior.

Assistant Professors
Joyce Heames, Ph.D. (U. of Miss.). Human resource management, Organizational behavior.
Timothy P. Munyon, Ph.D. (Fla. St.). Organizational behavior, Human resource management.

Marketing
Professors
James Brown, Ph.D. (Ind. U.) Retailing, Marketing channels, Supply chain management.
Cyril M. Logar, D.B.A. (Kent St. U.). Health-care marketing, Strategic marketing and planning, Marketing research.

Associate Professors
Karen R. France, Ph.D. (U. Pitt.). Health care and service marketing, Consumer research, Advertising strategy.
Assistant Professors
Jody Crosno, Ph.D. (U. Ky.). Product and price policies, Retail management.
Annie Cui, Ph.D. (Kent St. U.). Consumer behavior.
Mike Walsh, Ph.D. (U. Pitt.). Integrated promotions, Services marketing.

Lecturer

Accountancy, Professional
Timothy A. Pearson, Director, Division of Accounting
300 Business and Economics Building
e-mail: timothy.pearson@mail.wvu.edu
http://www.be.wvu.edu/M.P.A./index.htm

Degree Offered
Master of Professional Accountancy

Given the changing environment in both the public and private sectors of the economy, many accountants will need an educational background that goes beyond that obtained in an undergraduate degree program. Accountants must be proficient in applying professional concepts and principles to a wide variety of existing and emerging situations as an effective member of a team and also have the ability to adapt to new standards and methods of doing business. Competing in such an environment requires a solid technical foundation, adeptness in analyzing complex business situations, and the ability to effectively communicate recommended solutions and conclusions. Thus, the objectives of the M.P.A. program include the integration of financial and nonfinancial data in problem-solving and decision-making; the application of relevant research techniques and information technologies; the integration of varying viewpoints and techniques of conflict resolution; and the importance of adhering to a strong ethical code.

The accounting programs at WVU, both undergraduate and graduate, have separate accounting accreditation by the AACSB International—The Association to Advance Collegiate Schools of Business. At the date of this printing, there are relatively few colleges and universities in the nation that have achieved this status at both the undergraduate and graduate levels.

Program
The M.P.A. program is a 30-credit-hour program, which can be completed in approximately ten months of full-time study or 22 months half-time. The program requires that the student have the equivalent of an undergraduate degree in accounting and meet very specific accounting and business course prerequisites. Work experience is not a requirement for admission. Students may enter the program on either a full-time or halftime basis. Fall is the preferred starting date. Careful selection of degree candidates limits the size of classes, leads to high-quality efforts in the program, and permits frequent and direct contact between students and faculty. The full-time program consists of two 12-hour semesters and one four-week summer session. Half of the courses each term are taught in the evening and the other half in the afternoon to provide the opportunity for part-time employment for full-time students and part-time study for full-time employees. The afternoons and evening time slots are rotated so that all courses are provided in the evenings every other year for the benefit of half-time students.

No thesis is required in the program, but communication skills are emphasized in all courses. Extensive use is made of information technology in accounting applications.

Admission to Program
Admission to the M.P.A. program is determined by a committee of accounting faculty members. The committee acts upon individual applications within a short period of time after receipt of the completed application.

The Admission Committee will consider applicants who possess a 3.0 cumulative grade point average or higher (calculated on all college courses completed or the last 60 hours); an accounting grade point average of 3.0 or higher (calculated exclusive of principles, proctoring, internship, and independent study courses); and GMAT scores at the 50th percentile or higher.
Applicants who have passed the Certified Public Accountant examination are exempt from the GMAT requirement. Candidates who meet most of the above requirements will still be considered. Other factors such as work experience and other graduate degree work may also be a part of the committee’s decision-making.

The above requirements apply to both full and half-time student applicants. As an AACSB-accredited program in accounting, these requirements must also be met by non-degree students who desire to take any of the graduate courses required by the M.P.A. program.

Students who possess appropriate GMAT scores and grade point averages but do not possess a bachelor’s degree with a major in accounting (or equivalent) may apply for non-degree or provisional status while they are taking undergraduate prerequisite courses in accounting and business. Provisional students must complete the prerequisite courses before enrolling in M.P.A. courses. Applicants with accounting undergraduate degrees must also satisfy all the prerequisite courses for the M.P.A. program.

Students receiving provisional admission to the M.P.A. degree will meet with the M.P.A. coordinator to develop a written plan for the completion of the prerequisite courses. Failure to satisfactorily complete the plan will result in the cancellation of the applicant’s provisional M.P.A. graduate student status.

Provisional students may not enroll in any graduate accounting courses until prerequisite courses have been successfully completed. After completing prerequisite coursework the student must request a change from provisional to regular M.P.A. status which is subject to approval by the M.P.A. Admission Committee. The M.P.A. degree is designed to follow an undergraduate degree in business. Students without a bachelor’s degree with a major in accounting (or equivalent) will be required to take additional business and accounting courses.

International students should note that the College of Business and Economics TOEFL requirement is higher than the University’s. Applicants must have a TOEFL score of 580 (paper), or 237 (computer), or 92 (internet-based). If applicants have taken the IELTS instead of the TOEFL, the minimum score must be 7.0. International students who do not meet the College of Business and Economics TOEFL or IELTS requirement may be admitted conditionally provided that they enroll in the University’s Intensive English Program.

**Prerequisites**

To assure that all students in the program have the same foundation in business, the following prerequisite courses, or their equivalent, must be completed before enrolling in M.P.A. graduate courses: principles of accounting (six hours), intermediate accounting (six hours), cost accounting, income tax accounting, auditing, principles of microeconomics, principles of marketing, principles of management, principles of finance, statistics, business law (six hours, three of which may be taken concurrently with graduate courses), and computer science. A student without the necessary prerequisite courses may be approved to enter the M.P.A. program as a provisional graduate student.

**Master of Professional Accountancy**

Courses will be offered in Morgantown in the College of Business and Economics Building.

<table>
<thead>
<tr>
<th>M.P.A. Course Offerings</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>ACCT 511 Financial Accounting Theory and Practice..................</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 473 Personal Financial Advising..................................................</td>
<td>3</td>
</tr>
<tr>
<td>or ACCT 561 Governmental and Not-for-profit Accounting..................</td>
<td>3</td>
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<tr>
<td>(Whichever topic was not studied at undergraduate level)</td>
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<tr>
<td>ACCT 512 Mergers and Acquisitions..................................................</td>
<td>3</td>
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<tr>
<td>ACCT 521 Information Technology Auditing.................................</td>
<td>3</td>
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<tr>
<td>ACCT 522 Electronic Commerce and Internet Security......................</td>
<td>3</td>
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<tr>
<td>ACCT 541 Income Taxes and Business Decisions...............................</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 551 Assurance Services and Professional Standards...............</td>
<td>3</td>
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<tr>
<td>ACCT 556 Fraud Detection and Deterrence..........................................</td>
<td>3</td>
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<tr>
<td>ACCT 571 Accounting/Business Consulting.........................................</td>
<td>3</td>
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<tr>
<td>ECON 501 Economics Decision Making.............................................</td>
<td>3</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>
Note: Students who have not completed Accounting Systems (ACCT 322, three hours) and Law for the CPA (BLAW 420, three hours) as part of their undergraduate program must also take these two courses in addition to the above 30 hours. These courses may be taken concurrently with the graduate courses.

Academic Standards
The M.P.A. program requires that the student maintain a grade point average of at least 3.0 on all work taken as a graduate student while enrolled in the College of Business and Economics, including prescribed work taken to remove undergraduate deficiencies. A student whose cumulative grade point average falls below 2.75 will be placed on probation. If the average is not brought up to 2.75 by the end of the following semester, the student will be suspended from the program. A grade below C in more than one course taken while enrolled as a graduate student will result in suspension from the graduate program. Complete information about the M.P.A. program may be obtained from http://www.be.wvu.edu/M.P.A./index.htm.

Requirements to Sit for CPA Examination
The specific requirements to sit for the Uniform CPA Examination vary with each state board of accountancy. Some states require candidates to have a bachelor’s degree with a specified distribution of accounting and business courses as the minimum educational requirement to take the examination, whereas others require a bachelor’s degree and the completion of 150 semester hours of academic credit (including a specified distribution of courses) as the minimum. These standards are subject to change. Thus, students should occasionally review the requirements (including the distribution of courses) of the board in the jurisdiction in which they plan to sit for the examination. Incidentally, these are the requirements to sit for the examination, not to be certified. Most boards of accountancy require 150 semester hours of academic credit for certification.

The West Virginia Board of Accountancy requires a bachelor’s degree with a specified distribution of coursework as the minimum qualification to sit for the CPA examination. This includes 27 semester hours of accounting (excluding principles), six hours of business law, and 27 hours of related business courses. West Virginia will require a three credit-hour ethics course for all individuals applying to sit for the exam for the first time after June 30, 2011. This course may be counted as either an accounting or a business elective. West Virginia also requires 150 semester hours of academic credit to be completed prior to certification.

For the specific requirements to sit for the CPA examination in West Virginia, go to the Board’s Web site at http://www.wvboacc.org or call (304) 558-3557. For requirements in other jurisdictions, go to the National Association of State Boards of Accountancy’s website at http://www.nasba.org and use the links to the web pages for all boards of accountancy under the “Members” section.

Content specification of the CPA examination and related information may be found at http://www.cpa-exam.org and using the “Prepare for the Exam” and then “How to Prepare” links.

Financial Assistance
WVU has a strong comprehensive financial aid program to help you finance your education. Although the cost to attend WVU is relatively low, more than half of our students qualify for financial aid awarded on the basis of need, merit, or a combination of the two. The free application for Federal Student Aid (FAFSA) must be completed before March 1. Contact the Student Financial Aid Office at (304) 293-5242 or at finaid@mail.wvu.edu for more information or go to the website at http://adm.wvu.edu/.

The Division of Accounting in the College of Business and Economics has a very limited number of graduate assistantships and tuition waivers for M.P.A. students. This is common among many master’s degree programs in accounting and business at public universities. Applicants are encouraged to note that the WVU M.P.A. program is a quality, but relatively short (30 credits over 10 ½ months) master’s program of only two semesters and one summer session.
Graduate Certificate in Forensic Accounting and Fraud Investigation (FAFI)

Forensic Accountants in Demand
The widespread growth in white-collar crime and the increased need for homeland security have greatly raised the demand for forensic accountants and fraud investigators. Federal, state, and local governmental agencies, such as the Securities and Exchange Commission, the Internal Revenue Service, and the Offices of Inspector General all need accountants with forensic investigation skills. In the private sector, recent legislation (Sarbanes-Oxley Act of 2002) and auditing standards (Statement on Auditing Standard No. 99) require companies and their auditors to be more aggressive in detecting and preventing fraud.

The Division of Accounting has responded to this demand by developing a unique academic program designed to prepare entry-level accountants and others for forensic accounting and fraud investigative careers. Although many schools have added a single graduate or undergraduate course to their curricula, very few offer a multi-course graduate certificate program that we do. WVU offers a 12-credit graduate Certificate in Forensic Accounting and Fraud Investigation during summer sessions. Students may take two paths to earn this certificate:
- Option 1: Complete a four-course-stand-alone, non-degree certificate program
- Option 2: Complete a master of professional accountancy (M.P.A.) degree plus two additional certificate courses.

WVU set the national standards
The forensic accounting faculties have solidified WVU's reputation as a leader in forensic curricula. Drs. Richard Riley and Bonnie Morris led the effort to develop national curriculum guidelines for fraud and forensic accounting programs for the National Institute of Justice.

For admittance to the Graduate Certificate program, you may qualify under one of the following criteria:
- a) Have a bachelor's degree with an overall GPA of 2.9 or above, and a score of 500 or above on the Graduate Management Admission Test (GMAT). In some instances a score of 1,000 or above on the Graduate Record Examination (GRE) may be accepted in lieu of a GMAT score. Entrance criteria provide some flexibility so that a higher GPA may offset a lower GMAT score and vice versa.
- b) Hold a certified public accountant certificate, law degree, or be admitted to an accredited law school.

If appropriate, you should have your GMAT score sent to the Division of Accounting, 300 Business and Economics Bldg., West Virginia University, Morgantown, WV 26506-6025.

Option One Details
Students will complete four courses during summer sessions. All four courses are taught using actual and simulated case materials. Students are required to perform actual investigative tasks and report their findings. Accordingly, with this type of hands-on course, students are required to attend class and complete assignments in Morgantown on campus.

The four courses are:
- ACCT 581 Fraud Investigation - Types of fraud, documents, sources of evidence, and analysis of internal and external fraud schemes with an emphasis on the skills needed to identify and investigate fraud.
- ACCT 582 Fraud Data Analysis - Computer-aided data analysis techniques for detecting and investigating fraud cases, issues related to the collection and use of digital evidence and collection of data from electronic devices.
- ACCT 583 Fraud: Criminology/Legal Issues - Sociological and psychological theories of criminal behavior, laws, rules of evidence, the rights of persons under investigation, interrogation and interviewing, report writing, and ethics, as these topics relate to forensic accounting.
- ACCT 584 Advanced Fraud Investigation - Major fraud case investigation with an emphasis on forensic and litigation support aspects, including presentation of cases in a moot court setting. This course also contains the capstone experience as explained below.
Capstone Experience

Advanced fraud investigation includes an integrative capstone experience using three case presentations/projects over the course of the session or term. In order to complete the assignments in this course, students must integrate and draw upon the knowledge and skills developed in the other courses in the forensic accounting and fraud investigation curriculum.

The purpose is to provide students with experience in performing complex investigative tasks and analyses. These projects will involve analyzing real-world "case" information as well as corporate and business records to determine if fraud has occurred. Students mimic investigative processes found in practice by conducting analytical reviews, soliciting information from clients, and reporting suspicious activity for a fictitious client company. Finally, the capstone experience culminates when students testify to their findings in a moot court scenario.

Forensic accounting and fraud investigation professionals such as certified public accountants and FBI personnel mentor students in their preparation for the moot court presentations. Legal professionals such as trial judges, prosecuting attorneys, and defense attorneys serve as moot court judges.

The moot court experience provides an excellent evaluation mechanism of the knowledge and skills developed by students. Based on their mentoring of students in preparing for the moot court and their observation of the presentations before the court, the professionals are asked to assess the overall effectiveness of the program and to provide recommendations for strengthening the curriculum.

Additionally, ACCT 581 and ACCT 582 must be completed before taking ACCT 584 Advanced Fraud Investigation.

Part-time Students under Option 1 - The program may be completed on a part-time basis.

Students participating on a part-time basis will require two summers. In session one of the first summer, the student may take either ACCT 581 or ACCT 582. In session two of the first summer, the student must take ACCT 583. The second summer, students participating on a part-time basis will take ACCT 581 or ACCT 582, whichever was not completed in the previous summer and ACCT 584 in session two of the second summer.

Option Two Details

Revisions have been made to the M.P.A. curriculum such that all M.P.A. students will be exposed to essentially all of the material covered in ACCT 581 and ACCT 582. Various fraud related topics are covered in several M.P.A. courses, but the primary overlap with ACCT 581 and ACCT 582 is in ACCT 556 Fraud Detection and Deterrence and ACCT 521 Information Technology Auditing. ACCT 556 is a new required course that has been added to the M.P.A. curriculum in response to changing demands of the accounting profession. ACCT 521 is an existing required course that covers data analysis techniques.

As part of their degree requirements, M.P.A. students will complete:

ACCT 521 Information Technology Auditing - Information technology auditing techniques, issues, and current topics, including risk assessment, general and application control testing, computer assisted audit tools and techniques, and testing of databases and local area networks.

ACCT 556 Fraud Detection and Deterrence - The auditor’s responsibility with respect to fraud detection and investigation and management’s responsibility for fraud deterrence and implementation of effective prevention measures. Identification, analysis, and examination of fraud using actual and simulated data.

To earn the Certificate in Forensic Accounting and Fraud Investigation, M.P.A. students must also complete the following summer courses, which are described above:

ACCT 583 Fraud: Criminology/Legal Issues ACCT 584 Advanced Fraud Investigation
Business Administration
Gary S. Insch, Ph.D., Director of M.B.A. Programs
358 Business and Economics Building
http://www.be.wvu.edu/M.B.A./

Degree Offered

Master of Business Administration

The master of business administration program is accredited by the AACSB. It is offered as a full-time, day-class program in Morgantown and requires 13 ½ months to complete. It is also offered in the evening via distance learning in Beckley, Charleston, Elkins, Keyser, Lewisburg, Martinsburg, Morgantown, Parkersburg, and Princeton and online. The evening and online program, referred to as the Executive M.B.A. Program, is designed for working professionals and requires two years to complete. The standards of excellence that support accreditation by the AACSB are maintained at all instructional sites.

The M.B.A. degree program recognizes the need for future managers to be able to anticipate and recognize change and then to manage resources advantageously in that environment. Thus, the curriculum emphasizes a general, broad-based approach to graduate education in management which provides the student with the qualitative and quantitative skills necessary for a manager to succeed in such an environment. The program develops a managerial perspective that is primarily line oriented as opposed to staff oriented and is relevant to those in both private and public organizations.

Credit Hours

The full-time M.B.A. plan of study requires a total of 51 credit hours of graduate credit; the Executive M.B.A. plan of study requires a total of 47 credit hours of graduate study. The program is designed for individuals with varying educational and professional backgrounds. No prior coursework in business administration is required as a condition of admission to the program. No master’s thesis is required for completion of the degree.

The full-time M.B.A. degree program is completed on the Morgantown campus. A full-time student can enter the program only in June of each year and graduate in mid-August of the following year. Students may enter the executive M.B.A. program at the start of either the Fall or Spring semester and complete the program two years later.

Admission

Full-time Program To gain admission to the full-time M.B.A. program, an applicant must have a bachelor’s degree from an accredited institution. Admissions decisions are based on an assessment of expected success in the program shown by the application materials and on space available. The Admissions Committee considers grade point average in all previous college-level work and also the grade-point average in the last 60 hours of coursework. The Graduate Management Admissions Test (GMAT) is required and the Admissions Committee takes no action on an application for admission to the full-time program until the applicant submits a GMAT score. Each applicant must submit a resume with the application. For applicants with master’s or doctoral degrees, the Admissions Committee may waive the GMAT requirement. Additionally, applicants are encouraged to submit a statement of purpose and no more than three letters of reference.

Executive Program

To gain admission to the executive M.B.A. program, an applicant must have a bachelor’s degree from an accredited institution. Admissions decisions are based on an assessment of expected success in the program shown by the application materials and on space available. The Graduate Management Admissions Test (GMAT) is required and the Admissions Committee takes no action on an application for admission to the program until the applicant submits a GMAT score. Each applicant must submit a resume showing prior work experience. A minimum of two years work experience post bachelor’s degree is required for admission into this program. For applicants with less than five years of work experience, the GMAT and the undergraduate record provide the strongest indicators of...
success. For applicants with five or more years of experience, the Admissions Committee will place greater emphasis on the work history. For applicants with terminal degrees, the Admissions Committee may waive the GMAT requirement. Additionally, applicants are encouraged to submit a statement of purpose and no more than three letters of reference.

**Transcripts and Deadlines**

Applications for admission to the M.B.A. program and official transcripts of all prior academic work should be submitted to the WVU Office of Admissions as early as possible. Applicants who have attended institutions other than WVU must request the registrar or records office of those institutions to forward a complete official transcript directly to the WVU Office of Admissions. For the full-time program, the deadline for receipt of applications and transcripts in the College’s Office of Graduate Programs is March 1. For the executive program, preference will be given to applications received one month prior to the starting date requested. Admission to the program is competitive and subject to space being available.

**Financial Aid**

Scholarships are available on a competitive basis. Additional information and application forms can be obtained from the director of graduate programs.

**Academic Standards**

The M.B.A. requires that the candidate achieve a cumulative grade point average of at least 3.0 on all work counting toward the graduate degree. A regular graduate student whose cumulative grade point average falls below 2.75 will be placed on probation. If the average is not brought up to 2.75 by the end of the following semester, the student will be suspended from the program. A grade below C in more than one course taken while enrolled as a graduate student will result in suspension from the program. In addition, the student must maintain a 3.0 average in all work counting toward the graduate degree.

**M.B.A. Program**

The M.B.A. degree program requires 51 hours of graduate credit, presented in the following format.

- **BADM 631**  *Economic and Business Environment* 3 Hr.
- **BADM 512**  *Law, Ethics and Diversity* 3 Hr.
- **BADM 591J**  *Organizational Behavior* 3 Hr.
- **BADM 621**  *Business Research and Statistics* 3 Hr.
- **BADM 633**  *Leadership* 3 Hr.
- **BADM 591L**  *Macro Economics* 3 Hr.
- **BADM 523**  *Management Science* 3 Hr.
- **BADM 622**  *Financial Accounting* 3 Hr.
- **BADM 636**  *Managerial Accounting* 3 Hr.
- **BADM 591K**  *Operations/Supply Chain Management* 3 Hr.
- **BADM 562**  *International Business* 3 Hr.
- **FIN 500**  *Corporate Finance* 3 Hr.
- **BADM 534**  *Information Systems* 3 Hr.
- **BADM 591M**  *Marketing Management* 3 Hr.
- Elective (ILR 543 *Negotiations*, MKTG 440 *Export Management*, or FIN 510 *Investments*) 3 Hr.
- **BADM 591N**  *Human Resource Management* 3 Hr.
- **BADM 591O**  *Global Strategic Management* 3 Hr.
The executive M.B.A. program requires 47 hours of graduate credit, presented in the following format.

- **BADM 612** Managerial and Team Skills 3 Hr.
- **BADM 621** Business Research 3 Hr.
- **BADM 622** Financial Statement Analysis 3 Hr.
- **BADM 631** Managerial Economics 3 Hr.
- **BADM 695** Independent Study 1 Hr.
- **BADM 613** Business Strategic Environment 3 Hr.
- **BADM 636** Managerial Accounting 3 Hr.
- **BADM 512** Law, Ethics, and Diversity 3 Hr.
- **BADM 691** Marketing Management 3 Hr.
- **BADM 523** Management Science and Operations 3 Hr.
- **BADM 611** Information Technology 2 Hr.
- **BADM 691** The Executive Project 1 Hr.
- **FIN 500** Corporate Finance 3 Hr.
- **BADM 691** Elective 3 Hr.
- **BADM 691** Global Strategic Management 3 Hr.
- **BADM 691** Capstone 3 Hr.
- **BADM 691** The Executive Project 2 Hr.
- Elective 3 Hr.

**Economics**

Clifford Hawley, Acting Director,
Division of Economics and Finance
420 Business and Economics Building
http://www.be.wvu.edu/phd_economics/index.htm

**Degrees Offered**

- Master of Arts
- Doctor of Philosophy

The master of arts and doctor of philosophy degrees in economics enable students to broaden and refine their knowledge of the concepts and methods of economic analysis. These programs are designed to prepare students for careers in higher education, government, and business. Student programs are planned with the assistance of a faculty advisor and approval of the director of graduate programs. Additional information about the graduate programs in economics, and the regulations and requirements pertaining to them, is available at http://www.be.wvu.edu/phd_economics/index.htm. Students are bound by these regulations and requirements, as well as those of the College of Business and Economics.

**Prerequisites**

Applicants with a bachelor’s degree may apply directly to the Ph.D. program. To be admitted as a regular M.A. or Ph.D. student, applicants must have a grade point average of 3.0 or better for all undergraduate work completed. Applicants must also complete the general aptitude portion of the Graduate Record Examination (GRE) and receive a minimum combined score of 1,000 for the verbal and quantitative sections and a minimum score of 3.0 for the analytical writing section. International students must submit their scores on the Test of English as a Foreign Language (TOEFL) or, alternatively, the scores on the International English Language Testing System (IELTS). In addition, applicants must have completed at least one semester of each of the following courses: intermediate microeconomic theory, intermediate macroeconomic theory, calculus, and statistics. Applicants not meeting these entrance requirements may be admitted on a provisional and/or deficiency basis, subject to certain performance conditions during their first semester in residence.

**Assistantships**

A limited number of graduate assistantships and tuition scholarships are available on a competitive basis to full-time Ph.D. students. Major selection criteria include prior academic
performance and GRE scores. Graduate assistants receive a cash stipend that is comparable in amount to that offered at other universities. Graduate assistants engage in research and/or teaching activities. The faculty of the Department of Economics also nominates outstanding applicants for University fellowships. Special scholarships are available on a competitive basis to minority students. For further information see http://www.be.wvu.edu/phd_economics/prospective.htm.

**Academic Standards**

To qualify for a graduate degree in economics, students must earn a cumulative grade point average (GPA) of 3.0 or better for all courses completed as a graduate student at WVU. A regular graduate student in economics whose cumulative GPA falls below 3.0 (B) upon completion of the first nine hours of graduate study is not in good standing and will be placed on probation at the end of the semester in which the GPA fell below 3.0. Such a student, placed on probation, who fails to raise his or her cumulative GPA to 3.0 by the end of the semester succeeding that in which his or her GPA fell below 3.0 is subject to suspension from the program at the end of that probationary semester.

Other academic reasons for suspension from the program include failing grades on more than 50 percent of the coursework taken in any semester, a third failure on either a microeconomic theory or macroeconomic theory comprehensive examination, a fourth failure on comprehensive field examinations, or failure to complete all degree requirements within the specified time limits.

**Master of Arts Program**

The master of arts program requires a total of 37 hours of graduate credit, including 22 hours of economics. At least 25 hours of coursework completed must be at the 700 level. To qualify for the M.A. degree, graduate students in economics must earn a grade of B- or better in economics 701 and 702, and a grade point average of 3.0 in all courses attempted as a graduate student at WVU. The M.A. program has a thesis and a non-thesis option. Specific course requirements include:

<table>
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<tr>
<th>Hrs.</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>4</td>
<td>ECON 701 Advanced Microeconomic Theory 1</td>
</tr>
<tr>
<td>3</td>
<td>ECON 702 Advanced Macroeconomic Theory 1</td>
</tr>
<tr>
<td>3</td>
<td>ECON 721 Mathematical Economics</td>
</tr>
<tr>
<td>3</td>
<td>Statistics Requirement STAT 331 Sampling Methods</td>
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<tr>
<td>3</td>
<td>ECON 425 Applied Econometrics</td>
</tr>
</tbody>
</table>

or for students who consider going into the Ph.D. program, these two courses may be replaced by:

<table>
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<tr>
<th>Hrs.</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>3</td>
<td>ECON 725 Econometrics 1</td>
</tr>
</tbody>
</table>

The student must also select either the thesis or the non-thesis alternative:

- **Thesis alternative:** An acceptable thesis for six hours is required and the student must pass a final oral examination.
- **Non-thesis alternative:** In lieu of a thesis, the requirements for the M.A. are met by completion of two 700-level courses in one field of concentration in economics and submission of a research paper that gives evidence of substantial ability to conduct scholarly research.

**Doctor of Philosophy**

At least four years of full-time graduate work beyond the baccalaureate degree are usually required to complete the doctorate. A minimum of two consecutive semesters in actual residence as a full-time graduate student is required. To qualify for the doctor of philosophy degree in economics, a student must earn a cumulative grade point average of 3.0 in courses completed as a graduate student at WVU.
The Ph.D. degree is not awarded for the mere accumulation of course credits nor for the completion of the specified residence requirements. All students are required to complete the graduate core curriculum, prepare themselves in two fields of concentration, and pass at least two additional 700-level economics courses with grades of B or better. Each student must also submit an acceptable dissertation. A minimum of 45 hours of graduate work in economics at the 700 level is required for all candidates for the Ph.D. degree in economics.

**Core Courses**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>ECON 701</td>
<td>Advanced Microeconomic Theory 1</td>
<td>4</td>
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<tr>
<td>ECON 702</td>
<td>Advanced Macroeconomic Theory 1</td>
<td>3</td>
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<tr>
<td>ECON 709</td>
<td>Research Design and Methodology</td>
<td>1</td>
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<tr>
<td>ECON 711</td>
<td>Advanced Microeconomic Theory 2</td>
<td>4</td>
</tr>
<tr>
<td>ECON 712</td>
<td>Advanced Macroeconomic Theory 2</td>
<td>3</td>
</tr>
<tr>
<td>ECON 721</td>
<td>Mathematical Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 723</td>
<td>Dynamic Methods in Economics</td>
<td>1</td>
</tr>
<tr>
<td>ECON 725</td>
<td>Econometrics 1</td>
<td>3</td>
</tr>
<tr>
<td>ECON 726</td>
<td>Econometrics 2</td>
<td>3</td>
</tr>
<tr>
<td>ECON 727</td>
<td>Seminar in Econometrics</td>
<td>3</td>
</tr>
</tbody>
</table>

Six semester hours (or the equivalent) must be taken in each of the student’s two fields of concentration. Areas of concentration include financial economics, international economics, monetary economics, public economics, regional and urban economics, and resource economics. Other fields, including emphases in industrial relations and mathematical economics to be conducted in cooperation with other units on campus, may also be approved. Only one of the fields of concentration may be in an outside area; selection must be approved by the graduate economics faculty.

**Comprehensive Examinations** Students must pass written comprehensive examinations in microeconomic theory, in macroeconomic theory, and in two fields. For detailed rules, see [http://www.be.wvu.edu/phd_economics/rulesregulations.htm](http://www.be.wvu.edu/phd_economics/rulesregulations.htm).

**Candidacy and Dissertation** When an applicant has passed the written comprehensive examinations, the applicant will be formally promoted to candidacy for the Ph.D. degree. The candidate must submit a dissertation pursued under the supervision of a member of the graduate faculty in economics on some problem in the area of the candidate’s major interest. The dissertation must present the results of the candidate’s individual investigation and must embody a definite contribution to knowledge. It must be approved by a committee of the graduate faculty in economics. After approval of the candidate’s dissertation and satisfactory completion of other graduate requirements, a final oral examination on the dissertation is required.

Each Ph.D. candidate is required to present a dissertation proposal to the graduate director after approval by at least three members of his or her Dissertation Committee including the chairperson. This proposal will include a statement of the problem (topic summary), a preliminary survey of the literature, a description of the research methodology, and other pertinent material. With the approval of the graduate director, the student is then required to present the proposal in a faculty-student seminar. Credit for dissertation research and writing is available under Economics 797, but only if the student has a dissertation chairperson and an approved topic.
Finance
K. Victor Chow, Coordinator, M.S. in Finance Program
218 Business and Economics Building
http://www.be.wvu.edu/msfinance/index.htm

Degree Offered
Master of Science in Finance

The M.S. in finance program provides students with the theory, tools, and applications to support their goal of becoming proficient financial researchers and analysts and acquiring the most recognized global market credentials via the CFA charter designation. We provide students with the theoretical underpinnings that provide the basis for becoming a practicing analyst. We prepare students to become competent investment professionals.

The CFA Designation
The designation CFA stands for chartered financial analyst. This is the industry designation for expertise regarding securities from assessments of risk to interpretation of value. The CFA designation is awarded after the successful candidate passes three levels of testing over an expansive list of topics from ethical practice to general technical knowledge of investment and securities. The M.S. in finance program of study includes the CFA candidate body of knowledge among its core offerings. The program is designed so that a student may sit for the CFA Level One exam in December and sit for the CFA Level Two exam the following June.

Credit Hours
The 36-hour program is comprised of a core of advanced finance classes, laboratory experiences, and practical application of theory for success in this career path. Students complete an intensive, 12-month program that starts in June. The program includes a quantitative finance tools course, a course in ethical and professional standards, a firm foundation in the general theory of economics, seven advanced finance courses, and a three credit-hour internship. A subset of the coursework provides graduates with a thorough understanding of the material in the CFA Candidate Body of Knowledge (CBOK).

Admission
To gain admission to the M.S. in finance program, an applicant must have a bachelor’s degree from an accredited institution. Admissions decisions are based on an assessment of expected success in the program shown by the application materials and on space available. The Admissions Committee considers grade point average in all previous college-level work and also the grade point average in the last 60 hours of coursework. The Graduate Management Admissions Test (GMAT) is required and the Admissions Committee takes no action on an application for admission to the full-time program until the applicant submits a GMAT score. Each applicant must submit a resume with the application. For applicants with a significant amount of work experience in a financial field, the GMAT may be waived. Additionally, applicants are encouraged to submit a statement of purpose and no more than three letters of reference. Each applicant will be interviewed either in person or by phone prior to admission. Provisional admissions are very rare and will be evaluated on a case-by-case basis.

The following prerequisite courses may be taken at other institutions but must be successfully completed prior to entering the M.S. in finance program:

- Principles of Economics – six hours
- Principles of Accounting – six hours
- Investments
- Business finance
- Statistics
- Calculus
Transcripts and Deadlines
Application for admission to the M.S. in finance program and official transcripts of all prior academic work should be submitted to the WVU Office of Admissions as early as possible. Applicants who have attended institutions other than WVU must request the registrar or records office of those institutions to forward a complete official transcript directly to the WVU Office of Admissions. Review of applications and consideration of financial awards will begin on January 15 and continue until April 15.

Financial Aid
A limited number of tuition scholarships are available on a competitive basis to full-time students. Major selection criteria include prior academic performance and GMAT scores. Further information and applications can be obtained from the director of the MS in Finance program.

Academic Standards
The M.S. in finance requires that the candidate achieve a cumulative grade point average of at least 3.0 on all work counting toward the graduate degree. A regular graduate student whose cumulative grade point average falls below 2.75 will be placed on probation. If the average is not brought up to 2.75 by the end of the following semester, the student will be suspended from the program. A grade below C in more than one course taken while enrolled as a graduate student will result in suspension from the program. In addition, the student must maintain a 3.0 average in all work counting toward the graduate degree.

M.S. in Finance Program Schedule
Summer
BADM 512 Law, Ethics, and Professional Responsibility 3 Hr.
BADM 631 Micro-Economics 3 Hr.
Fall
BADM 591 Macro-Economics 3 Hr.
FIN 520 Quantitative Finance 3 Hr.
FIN 521 Financial Reporting and Analysis 3 Hr.
FIN 523 Equity and Fixed Income Investments 3 Hr.
FIN 526 Portfolio Management 3 Hr.
Spring
FIN 522 Corporate Finance 3 Hr.
FIN 525 Derivatives 3 Hr.
FIN 527 Alternative Investments 3 Hr.
FIN 528 Integrated Financial Analysis 3 Hr.
FIN 421 Internship in Finance 3 Hr.
Summer
FIN 421 Internship in Finance.

Doctorate of Business Administration
Gary S. Insch, Coordinator, D.B.A.
358 Business and Economics Building
http://www.be.wvu.edu/graduate

The doctorate of business and administration program is offered through a combination of face-to-face and distance learning instruction to various sites in the United States and Europe. The D.B.A is designed for working professionals seeking to increase their research and problem-solving abilities beyond an M.B.A. Emphasis is placed on workplace solutions to workplace problems using current research techniques. Graduates will have the ability to function as change agents in their organization or in a consultancy role. The program requires three years to complete. The standards of excellence that support accreditation by the AACSB are maintained at all instructional sites.
Credit Hours
The plan of study requires a total of 56 credit hours of graduate study distributed as follows: concentration courses – 18 semester credit hours; research methods – 12 semester credit hours; current issues – six semester credit hours; and dissertation – 20 semester credit Hours. The D.B.A. degree program is completed on the Morgantown and selected European campuses. Students can enter the program only in May of each year. A dissertation is required to complete the program.

Admission
To gain admission to the D.B.A. program, an applicant must have an M.B.A degree or equivalent from a recognized university. Admissions decisions are based on an assessment of expected success in the program shown by the application materials and on space available. The Admissions Committee considers grade point average in all previous college-level work and also the grade-point average in the last 60 hours of coursework. The Graduate Management Admissions Test (GMAT) is required and the Admissions Committee takes no action on an application for admission to the full-time program until the applicant submits a GMAT score. Each applicant must submit a resume showing prior work experience. A minimum of two years work experience post bachelor’s degree is required for admission into this program. Additionally, applicants are encouraged to submit a statement of purpose and no more than three letters of reference.

Transcripts and Deadlines
Applications for admission to the D.B.A. program and official transcripts of all prior academic work should be submitted to the appropriate Office of Admissions as early as possible. Applicants who have attended institutions other than WVU must request the registrar or records office of those institutions to forward a complete official transcript directly to the appropriate Office of Admissions. The deadline for receipt of applications and transcripts in the appropriate Office of Graduate Programs is November 1.

Financial Aid
Scholarships are available on a competitive basis. Additional information and application forms can be obtained from the director of graduate programs.

Academic Standards
The D.B.A. requires that the candidate achieve a cumulative grade point average of at least 3.0 on all work counting toward the graduate degree. A regular graduate student whose cumulative grade point average falls below 2.75 will be placed on probation. If the average is not brought up to 2.75 by the end of the following semester, the student will be suspended from the program. A grade below C in more than one course taken while enrolled as a graduate student will result in suspension from the program. In addition, the student must maintain a 3.0 average in all work counting toward the graduate degree.

Courses in the D.B.A.
BADM 710 Philosophy of Research. 3 Hr.
BADM 711 Quantitative and Qualitative Research Methods. 3 Hr.
BADM 712 Linear Statistical Models. 3 Hr.
BADM 713 Multivariate Analysis and Structural Equation Modeling. 3 Hr.
BADM 720 Global Management Models in HR/OB. 3 Hr.
BADM 730 Global Leadership and Change. 3 Hr.
BADM 740 Social Psychology and Group Processes. 3 Hr.
BADM 750 International Marketing. 3 Hr.
BADM 760 Organizational Theory 3 Hr.
BADM 770 International Strategy and Theory. 3 Hr.
BADM 780 Current Topics in Global Leadership. 3 Hr.
BADM 785 Current Topics in Global Strategy. 3 Hr.
20 credit hours of dissertation credit.
Degrees Offered

**Master of Science in Industrial Relations**

**Industrial Relations Area of Emphasis for Doctor of Philosophy**

The Department of Management and Industrial Relations offers a master of science in industrial relations (M.S.I.R.). The AACSB accredited program of study prepares students for professional positions in human resources (employee relations) and labor relations. Coursework can be structured to prepare students for doctoral studies in industrial relations, economics, management, or law.

Entry-level professional opportunities for M.S.I.R. graduates include such positions as human resource generalist, human resource managers, labor relations specialist, compensation analyst, and benefits administrator. Other positions include staff representative with organized labor, apprentice arbitrator, labor-management consultant, National Labor Relations Board field examiner, government employee relations representative, and employment analyst. Many graduates are employed by Fortune 500 companies. Some find positions with organized labor, all levels of government, and advocacy organizations. The department, in conjunction with the College of Business and Economics Center for Career Development, makes a concerted effort to place graduates in positions that fulfill student job objectives.

**Doctor of Philosophy Studies**

The department operates, in conjunction with the Department of Economics, an industrial relations doctor of philosophy option. Master’s students who plan to pursue the industrial relations option in the Ph.D. program in economics should align their master’s work with the degree requirements.

**IRSA**

Students are encouraged to participate in academic-related extracurricular activities. Many are cosponsored by the Industrial Relations Student Association including; the IRSA Newsletter, the mentorship program, company site visits, guest speakers, community service efforts, social events, and honors banquets. Outstanding academic achievement is recognized by membership in the Industrial Relations Honor Society. The faculty makes Outstanding IR Student awards yearly to persons selected on the basis of scholarship, informal leadership, and extracurricular activities.

**Financial Aid**

More than half of all M.S.I.R. students qualify for financial aid on the basis of need, merit, or a combination of both. A limited number of scholarships and tuition waivers are awarded each year on a competitive basis. Additional information can be obtained from the graduate programs office.

**Academic Common Market**

The WVU M.S.I.R. program is a member of the Southern Regional Education Board’s Academic Common Market program. Residents of Delaware, Florida, Georgia, Kentucky, Maryland, North Carolina, and Virginia who are admitted to the M.S.I.R. program can pay tuition at West Virginia University’s in-state (resident) rates. http://www.sreb.org.
Admission
The MSIR degree is interdisciplinary in nature and no specific undergraduate major is required. Coursework in computer science, labor economics, statistics, and business disciplines is helpful. To gain admission into the M.S.I.R. program, an applicant must have a bachelor’s degree from an accredited institution. Overall grade point average is considered with additional attention given to the grade point average achieved in the last 60 hours of coursework. Either the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE) is required. A resume is a requirement of the application process. No action is taken on an application for admission until a GMAT or GRE score is submitted. International students must also submit a satisfactory TOEFL score.

Applicants must also send additional supportive material, including a personal statement in support of their application, reference letters, a resume of school and work experience, and an example of written work.

Application Deadlines
Students with a non-business undergraduate major must apply for July admission. Students with a business undergraduate major must apply for August admission. The application deadline is March 1. Later applications, while acceptable, may diminish the chances for admission due to the graduate class being filled. Since no admission decision can be made without the applicant’s GMAT/GRE score being submitted, applicants should keep in mind the GMAT/GRE test schedule.

Institute of Industrial and Labor Relations
The mission of the Institute of Industrial and Labor Relations (ILIR) is to coordinate instruction, research, and public service activities, which embrace a study of the elements of human resources development uniquely identified with the economy of West Virginia. Membership is open to faculties who have an interest in the mission of the ILIR. The ILIR serves as a means of rational response to economic trends based on an amalgamation of the three University functions: faculty/student research on a continuing basis in search of human resource development possibilities; use of research results in credit instruction to produce a growing cadre of graduates aware of and trained to be able to contribute to the state’s economic goals; and, using both of the former extension and public service efforts designed to place the state’s human resource development and use activities on their most economically rational courses.

Industrial Relations Degree Program

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILR 501 Accounting/Economics/Finance</td>
<td>3</td>
</tr>
<tr>
<td>ILR 502 Industrial Labor Relations Management and Marketing</td>
<td>3</td>
</tr>
<tr>
<td>ILR 503 Critical Thinking and HR Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>ILR 504 Industrial Relations Theory and Strategy</td>
<td>3</td>
</tr>
<tr>
<td>IRL 505 Employment Law</td>
<td>3</td>
</tr>
<tr>
<td>ILR 506 Performance Management and Training</td>
<td>3</td>
</tr>
<tr>
<td>ILR 507 Conflict Management Processes</td>
<td>3</td>
</tr>
<tr>
<td>ILR 508 Organizational Change and Renewal</td>
<td>3</td>
</tr>
<tr>
<td>ILR 509 Staffing and Selection</td>
<td>3</td>
</tr>
<tr>
<td>ILR 520 Human Resource Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>ILR 521 Managing the Culturally Diverse Workforce</td>
<td>3</td>
</tr>
<tr>
<td>ILR 522 International Industrial Relations</td>
<td>3</td>
</tr>
<tr>
<td>ILR 530 Compensation Issues</td>
<td>3</td>
</tr>
<tr>
<td>ILR 534 Work Group Dynamics and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>ILR 537 Practicum in Industrial Interviewing</td>
<td>3</td>
</tr>
<tr>
<td>ILR 540 Arbitration Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>ILR 543 Negotiation Strategy</td>
<td>3</td>
</tr>
<tr>
<td>ILR 544 Benefits</td>
<td>3</td>
</tr>
<tr>
<td>ILR 545 Equal Employment Opportunity Problems</td>
<td>3</td>
</tr>
<tr>
<td>ILR 548 Strategic Management for Human Resources</td>
<td>3</td>
</tr>
</tbody>
</table>
ILR 549 Advanced Strategic Management ................................................................. 3
ILR 580 Industrial Relations Practicum ..................................................................... 3
ILR 592 Directed Studies .......................................................................................... 3
ILR 595 Independent Study ...................................................................................... 3
ILR 689 MSIR Internship .......................................................................................... 3

**Typical Course Scheduling**
*Select one elective each semester or term.*

**Summer**
* 501 Accounting/Economics/Finance
* 502 IR Management and Marketing

**Fall**
505 Employment Law
* 507 Conflict Management Processes
509 Staffing and Selection
* 543 Negotiation Strategy
544 Benefits
562 Collective Bargaining and Labor Relations

**Spring**
506 Performance Management and Training
522 International Industrial Relations
530 Compensation Issues
* 534 Work Group Dynamics and Leadership
545 Equal Employment Opportunity

**Summer**
* 520 Human Resources Information Systems
* 540 Arbitration Theory and Practice
580 Industrial Relations Practicum

* Designed for entering students that do not have an undergraduate background in business and economics. Total program credit requirements for non-business related undergraduate majors are 48 credit hours; for business-related undergraduates the required credit hours are 42.

* Elective

**GPA**
The industrial relations program requires that the student maintain a grade point average of at least 3.0 on all work taken as a graduate student while enrolled in the College of Business and Economics. In addition, the student must maintain a 3.0 average in all work counting toward the graduate degree. A student whose cumulative grade point average falls below 2.75 will be placed on probation. If the student’s average is not brought up to 2.75 by the end of the following semester, the student will be suspended from the program. A grade below C in more than one course taken while enrolled as a graduate student will result in suspension from the program.

**Industrial Relations Emphasis in the Economics Ph.D. Program**
Graduate work in industrial relations typically is interdisciplinary in nature. The Ph.D. emphasis retains this orientation while providing students with a Ph.D. level of understanding of economic theory and economic analysis. Students in the industrial relations option take the nine core courses in the Ph.D. in economics program, take comprehensive examinations in microeconomic theory and macroeconomic theory, and follow the rules and requirements for obtaining the economics Ph.D.
 Degrees Offered
 Master of Arts
 Master of Music, Doctor of Musical Arts, Doctor of Philosophy in Music
 Master of Fine Arts in Art and Theatre

The College of Creative Arts, composed of the Divisions of Art and Design, Music, and Theatre and Dance, serves an academic and cultural function and provides an educational and interdisciplinary environment for the exploration, advancement, and understanding of the visual and performing arts. The college boasts a distinguished faculty of actors, artists, composers, conductors, directors, instrumentalists, vocalists, scholars, and writers who bring to the college a commitment to a creative process of artistic growth which is shared with each student. Through teaching, research, and service, the faculty of the college provides students the professional preparation to achieve the highest level of performance, scholarly research, and creative activity.

Graduate programs in art, music, and theatre are characterized by quality of faculty, students, and curricular opportunity. Each division is an accredited member of the nationally recognized accrediting agency for professional instruction in the discipline: art programs by the National Association of Schools of Art and Design; music programs by the National Association of Schools of Music; and theatre programs by the National Association of Schools of Theatre.

The College of Creative Arts is committed to providing the highest levels of creative, intellectual, and cultural experiences in art, music, and theatre to the University, the state, and the region. In an environment rich with art exhibitions, concerts, performances, and plays, students gain the knowledge, skills, experience, and inspiration necessary for professional success. Students, faculty, and visiting artists present a full calendar of performances and exhibitions which are open to the public.

The Creative Arts Center, which houses the college, is a modern, multimillion-dollar instructional and performance facility with four theatres, two recital halls/recording studios; scenery, painting, drawing, design, costume, printmaking, sculpture, ceramic, puppet, and instrumental studios; additional art studios; and two art galleries.

The doctor of musical arts (D.M.A.) curricula in performance (piano, voice, percussion, flute, oboe, clarinet, bassoon, saxophone, horn, trumpet, trombone, tuba, violin, viola, cello, or double bass) or composition, and the Ph.D. curriculum in music education prepares students for careers as teachers in higher education. The master of fine arts (M.F.A.) is a terminal degree in art and theatre that prepares students for careers in ceramics, graphic design, painting, printmaking, sculpture, acting, or theatre design/technology.

The master of music (M.M.) degree enhances undergraduate programs in performance, music education, theory, music history, and composition. The master of arts has concentrations in art education, art history, and studio art.

For further information, please contact:
- Graduate Advisor, Division of Art at (304) 293-4841 x3218
- Director of graduate studies in music, Division of Music at (304) 293-4841 x3196
- Chair, Division of Theatre and Dance at (304) 293-4841 x3120

Our mailing address is College of Creative Arts, Creative Arts Center, West Virginia University, P.O. Box 6111 Morgantown, WV 26506-6111.

Special Admission Information

The College of Creative Arts offers graduate programs leading to terminal degrees in art, music, and theatre. Prospective students apply for admission through the University’s Office of Admissions. All candidates for graduate degrees must conform to University regulations for graduate study. Requirements for admission to specific programs are included in the program descriptions. Most programs require an audition or a portfolio review as part of the admission process.
process. Full graduate assistants receive a stipend and remission of tuition. Approximately 11 graduate assistantships in art, 28 in music, and 14 in theatre are available each year. Application for these assistantships should be made to each division; the application deadline for art is February 15, for music March 1, and for theatre April 1.

**Graduate Faculty**

† Indicates regular membership in the graduate faculty.
* Indicates associate membership in the graduate faculty.

**Art and Design**

**Professors**

†Alison Helm, M.F.A. (Syracuse U.). Chair, Sculpture.
†Bernard Schultz, Ph.D. (U. Pitt.). Dean and director, Art history.

**Associate Professors**

*Victoria Fergus, Ph.D. (Purdue U.). Art education.
*Kristina Olson, M.A. (SUNY-Stony Brook). Associate Chair, Art history, Art criticism and contemporary art, Modern architecture.
*Janet Snyder, Ph.D. (Columbia U.). Head of Art History. Medieval art and architecture, Native American art.

**Assistant Professors**

†Alison Helm, M.F.A. (Syracuse U.). Chair, Sculpture.
†Bernard Schultz, Ph.D. (U. Pitt.). Dean and director, Art history.

**Music**

**Professors**

†Peter Amstutz, D.M.A. (Peabody Cons.), Coordinator, Keyboard Instruments, Piano.
†John Beall, Ph.D. (U. of Rochester, Eastman Sch. of Music). Composition, Theory.
†Janet Robbins, Ph.D. (Ohio St. U.). General music education.
†William Skidmore, M.M. (U. Ill.). Coordinator of strings, Cello, Chamber music.
†Robert H. Thieme Jr., M.M. (WVU). Director, WVU opera theatre, Opera, Vocal repertoire, Accompanying-coaching.
†Virginia Thompson, D.M.A. (U. Iowa). Horn, Chamber music.
†Don G. Wilcox, M.A. (Cal. St. at Long Beach). Director of bands emeritus.

**Associate Professors**

†Cynthia Anderson, M.M. (Manhattan Sch.). Director of Graduate Studies, Oboe, Theory.
†David Bess, Ph.D. (WVU). Instrumental music education.
†John E. Crotty, Ph.D. (Eastman Sch. of Music). Theory, Analysis.
†Mary Fifer, Ph.D. (U. of Ill.). Coordinator, Music history, Music history.
†John Hendricks, M.M. (WVU). Director of Bands, Conducting, Undergraduate Advising Coordinator.
†Andrew Kohn, Ph.D. (U. of Pitt.). Double bass, Theory.
†Paul Scea, M.M. (U. of Iowa). Theory, Jazz, Director of Jazz Studies.
†Kathleen Shannon, D.M.A. (U. of Miami). Director of choral activities, Choral music education, Conducting.
†David Taddie, Ph.D. (Harvard). Theory, Director of electronic music, Coordinator, Theory composition.
†Molly Weaver, Ph.D. (U. Mich.). Coordinator, Music education, Instrumental music education.

Assistant Professors
†Sandra Schwartz, Ph.D. (U. of Miami). Vocal music education.
†George Willis, M.M. (Temple U.). Director of Percussion.

Teaching Assistant Professor
Dearl J. Drury, M.M. (WVU). Director of Marching Band, Assistant Director of Bands.

Part-time Lecturer

Lecturers

Theatre and Dance

Professors

Associate Professors
†James Dylan Held, M.F.A. (U. Wash.). Theatre history and design.
†Jay Malarcher, Ph.D. (LSU). Theatre history and criticism.
†Mary McClung, M.F.A. (WVU). Director of costumeing, Costume design.
†William J. Winsor, M.F.A. (Ohio St. U.). Associate Dean and Scene design.

Assistant Professors
*Robert Klingelhofer (United Scenic Artists). Scene design.

Clinical Assistant Professor

Assistant Professors-Teaching
Cathy O'Dell, M.F.A. (WVU). Introduction to theatre.

Visiting Assistant Professor
*Alan McEwen, M.F.A. (U. of Ore.). Lighting, Sound design, and CAD.

Part-time Lecturer
Barbara Yurick, B.S. (WVU). Dance.
Art
Alison Helm, Chair
Kristina Olson, Associate Chair
Gerald Habarth, Graduate Advisor
419-A Creative Arts Center
http://artanddesign.wvu.edu/

Degrees Offered

Master of Arts
Master of Fine Arts

The graduate programs in the Division of Art and Design lead to a master of arts with emphasis in art history, art education, or studio art, (two years and a minimum of 30 credit hours; 36 is recommended), or to a master of fine arts with emphasis in studio art (three years and a minimum of 60 credit hours; 72 is recommended). These programs are highly selective and closely integrated. All applicants are expected to have academic competence artistic maturity, and the motivation to achieve excellence in their areas of concentration.

The master of fine arts is a professionally-oriented terminal degree in the studio arts, with concentration in ceramics, graphic design, intermedia, painting, printmaking, or sculpture. Applicants typically hold a baccalaureate degree in art or its equivalent for admission. Recommended preparation includes 12 hours of art history, 70 hours of studio art or equivalent experience, and 36 hours of general education.

Accreditation

The Division of Art and Design is an accredited institutional member of the National Association of Schools of Art and Design, the only nationally recognized accrediting agency for professional art instruction. Applicants for graduate studies must comply with the standards for admission set by West Virginia University, the College of Creative Arts, and the Division of Art and Design.

Reviews

All students enter the graduate programs in art as preliminary candidates. Students in the M.F.A. program are reviewed for advancement to degree candidacy at the end of their third semester of study or upon the completion of 30 to 36 credit hours. Students in the M.A. program are reviewed for advancement to degree candidacy at the end of their first semester of study or upon the completion of 12 to 15 credit hours. Candidacy status is obtained upon review by the full faculty of the Division, and must be approved by the student’s Graduate Committee.

The division of Art and Design has high expectations for its graduate students. Because of this, certain standards of achievement exceed the minimum standards set by the University for all graduate students. The Division of Art and Design reserves the right to impose stricter limitations on all art graduate students. Credit hours in courses with an earned grade of C do not automatically count toward graduate degree requirements. The Graduate Committee and the divisional chairperson have the right to declare such credit hours unacceptable.

Program Transfer

A preliminary candidate in a graduate art program is not guaranteed acceptance into another graduate art program. A change from the M.F.A. program to the M.A. program (or the reverse) must be approved by the graduate faculty of the Division of Art and Design. Under normal conditions, such a change is not considered until the student has established credibility by successfully completing 12 to 15 approved credit hours of study at WVU. Transfer to a program outside the Division of Art and Design must be approved by the receiving unit. To make an application for a double degree program or a special interdepartmental program at the graduate level, students must have prior written approval of the Division of Art and Design chairperson.
Thesis
All candidates for a graduate degree in art must prepare a written thesis (or graduate project) related to their work and activity as a graduate student. The chairperson of the student’s Graduate Committee supervises the preparation of the thesis, which must be completed at least one month before the anticipated graduation date. The thesis must be prepared according to the form prescribed in the WVU regulations governing the preparation of dissertations and theses as well as divisional guidelines, unless an exception is authorized in advance by the student’s Graduate Committee and the division chairperson.

Applications
Applicants for the M.A. in art history must submit a copy of a written research project, three letters of recommendation, a statement of purpose, and GRE scores.

Applicants for the M.A. (studio and art education) or the M.F.A. must present a portfolio for admission to the Division of Art and Design. This portfolio must contain 20 jpg images with a minimum of 800 x 600 pixels or equivalent video documentation on DVD. Applicants should take care to select images of recent and representative work for inclusion in the portfolio. Each image should be documented with name, date of completion, size of work, and type of medium. Applicants must also submit a statement of purpose and three letters of recommendation from college faculty or persons knowledgeable of the applicant’s interests and abilities.

The materials outlined above should be submitted to: Graduate Advisor, Division of Art and Design, College of Creative Arts, West Virginia University, P.O. Box 6111, Morgantown, WV 26506-6111.

Provide a stamped, self-addressed mailer envelope to assure prompt, safe return of the CD.

In addition to the Division of Art and Design’s graduate application and portfolio requirements, prospective students are required to fill out a separate West Virginia University student application form, which is to be sent directly to the Office of Admissions, along with an application fee and official transcripts.

Probationary admittance
Upon faculty review, applicants found to be deficient in any areas of preparation may be asked to take additional courses prior to gaining preliminary candidate status. Credits taken to erase deficiencies cannot be counted in the total credits required for a graduate degree.

Financial Aid
Financial aid information is available through the Student Financial Aid Office, West Virginia University, P.O. Box 6004, Morgantown WV 26506-6004.

Graduate Assistantships
Graduate assistantships and other forms of financial aid are awarded to students of exceptional promise by the faculty of the Division of Art and Design.

Studio Art
Master of Fine Arts

The master of fine arts is a terminal degree in studio art. Our selective and limited enrollment insures regular individual contact with a dedicated, diverse faculty, who are committed to a sustained professional exchange with each student. A collaboratively designed curriculum is augmented by regular critiques engaging all studio majors and faculty. Media experimentation is encouraged. Students must be able to apply and communicate a diverse body of knowledge relating historical, cultural, contemporary, and aesthetic issues to their professional practice. Students are expected to articulate and defend their position within the context of contemporary art discourse. The suggested distribution of studies for the three-year program is as follows:

Degree Requirements: Three-Year M.F.A. Program

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio Art Concentration Courses</td>
<td>36</td>
</tr>
<tr>
<td>Studio/Academic Electives</td>
<td>6</td>
</tr>
<tr>
<td>Teaching Practicum</td>
<td>3</td>
</tr>
<tr>
<td>Graduate Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>
Art History                                                                                   6
Graduate Exhibition and Thesis                                                               6
**Total**                                                                                      60

Studio/Academic electives                                                                   3
Cognate Subjects                                                                              9
**Recommended Total**                                                                        72

**Note:** Graduate credits in art history must be at the 500 or 600 level (graduate) and are in addition to courses taken or required at the undergraduate level. A required graduate exhibition and thesis (ART 600) will include organized graduate seminars, committee meetings, and exhibition preparation discussions.

For the fulfillment of M.F.A. degree requirements, it is recommended that the student must have a combined undergraduate and graduate minimum total of 118 credit hours in studio art, 18 in art history, or equivalent experience.

**Transfers** In addition to the application materials listed, transfer students must ask to transfer graduate work completed elsewhere. Transcripts must accompany the written request. The acceptance of transfer credit is not automatic. The graduate faculty, the graduate advisor, and the division chairperson will determine how much, if any, previous graduate-level work may be transferred. At least 60 percent of the work for the M.F.A. must be completed at WVU in the studio arts.

**Residence Requirements** The M.F.A. student must complete the stated requirements in order to graduate, usually in a three-year period. Most students take nine to 15 hours per semester. All students accepted into the M.F.A. program are usually required to spend six full-time semesters (excluding summer sessions) in residence.

**Master of Arts in Studio Art**

The studio art concentration promotes advanced study in ceramics, painting, printmaking, graphic design, intermedia, and sculpture. This course of study requires a baccalaureate degree in art or its equivalent for admission. Preparation should include 12 hours of art history, 45 hours of studio art related to professional needs, and 36 hours of general education. The suggested distribution of studies is as follows:

**Degree Requirements: Two-Year M.A. Program**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio Art Concentration Courses</td>
<td>18</td>
</tr>
<tr>
<td>Art History**</td>
<td>6</td>
</tr>
<tr>
<td>Studio/Academic Elective or Graduate Seminar**</td>
<td>3</td>
</tr>
<tr>
<td>Graduate Exhibition and Thesis</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
<tr>
<td>Studio Academic electives</td>
<td>3</td>
</tr>
<tr>
<td>Cognate Subjects</td>
<td>3</td>
</tr>
<tr>
<td><strong>Recommended Total</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

The graduate art faculty recommends those students who may be required to hold a graduate exhibition.

**Requirements**

The student must complete the stated degree requirements in order to graduate. After consultation with the graduate advisor, students specializing in studio arts are required to prepare a study list of courses to be taken to satisfy Division of Art and Design requirements. Changes in this list must be requested in writing and approved by the chairperson of the division.
**Master of Arts in Art Education**

Art education is a popular option for graduate study in art. Specialization in art education requires the completion of a minimum of 30 hours with a recommended total of 36. The exact course of study is determined through consultation with the student’s advisor and Graduate Committee.

**Degree Requirements: Two-Year M.A. Program**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio Art Concentration Courses</td>
<td>9</td>
</tr>
<tr>
<td>Studio/Academic Electives</td>
<td>6</td>
</tr>
<tr>
<td>Art Education or Approved Studies</td>
<td>12</td>
</tr>
<tr>
<td>Art 402 Master’s in Art Education Project</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
<tr>
<td>Teaching Practicum or Graduate Seminar</td>
<td>3</td>
</tr>
<tr>
<td>Cognate Subjects</td>
<td>3</td>
</tr>
<tr>
<td><strong>Recommended Total</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

Each student is required to complete a graduate project. The graduate art faculty recommends those students who may be required to hold a graduate exhibition.

**Master of Arts in Art History**

Art history studies the traditions and techniques of the visual arts. It is an interdisciplinary field, drawing upon philosophy, history, literature, religion, and mythology to examine works of art and their contexts. The history of art provides means to penetrate cultural constructions and their aesthetic and artistic productions.

The *West Virginia University Art Collection* provides first-hand experience with works of significant aesthetic and cultural value, and introduces students to curatorial and museum practice. Each semester, art history field trips travel to study works in regional museums. Guest artist and art historian lectures and exhibitions in the Mesaros Galleries are scheduled each semester.

Opportunities to study the history of art are also available within the Division of Art and Design’s established international summer programs in Italy and China. In the final semester, the student will complete a thesis on a topic selected by the student with the approval of the art history faculty.

Applicants for admission to the master’s program are expected to demonstrate competence in the history of art, equivalent to an undergraduate major, as well as reading competence of at least one language other than English, (four-semester equivalent). The B.A. degree in an area of substantial humanistic research, plus a foreign language may also be considered appropriate preparation.

Each student must complete a core curriculum of courses in art history with a minimum of one course in each of the following areas: classics; Western European traditions; modern and contemporary studies, concluding with a written thesis. The thesis consists of a research paper demonstrating critical knowledge of relevant sources, skill in analysis and interpretation, and ability to present the results in a well-organized and intelligent manner. The thesis must be defended in an oral examination.

**M.A. Degree Requirements: Two-Year Program**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio Art Concentration Courses</td>
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<td>Art Education or Approved Studies</td>
<td>12</td>
</tr>
<tr>
<td>Art 402 Master’s in Art Education Project</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

*Cognate subjects to be selected in support of research (e.g.: history, philosophy, classics/religious studies, anthropology, arts administration, historic preservation, etc.)*
Music
H. Keith Jackson, Chair
Cynthia Babin Anderson, Director of Graduate Studies
Division of Music 416-A Creative Arts Center
http://music.ccarts.wvu.edu

Degrees Offered

Master of Music
Doctor of Musical Arts
Doctor of Philosophy

The Division of Music is an accredited institutional member of the National Association of Schools of Music, the only nationally recognized accrediting agency for professional music instruction. All programs comply with the objectives and guidelines required by this organization. Prospective graduate students in music are required to have completed the appropriate curriculum of undergraduate study in music at WVU or its equivalent at another institution of recognized standing. For acceptance into a degree program the applicant should make inquiry to the Director of Graduate Studies, Division of Music, P.O. Box 6111, Morgantown, WV 26506-6111.

Applicants for degree study in composition, history, and performance, must take diagnostic tests in music theory, music history, and a piano proficiency. In addition, performance majors in voice and conducting take diagnostic tests in pedagogy and literature. Applicants for degree study in music education must take proficiencies in piano and voice. Applicants in music education have the option to take diagnostic exams in music history and music theory. The results of these tests may indicate the need for remedial study, which must be completed before admission to candidacy.

Master of Music

The degree of master of music may be taken in performance, music education, composition, music theory, or music history. Performance majors may specialize in piano, piano pedagogy, voice, percussion, flute, oboe, clarinet, bassoon, saxophone, horn, trumpet, trombone, tuba, violin, viola, cello, double bass, guitar, jazz pedagogy, or conducting.

Admission

Applicants to the program leading to the degree of master of music must present necessary credentials for evaluation of previous training and experience to the Division of Music. These include transcripts from all institutions previously attended showing a grade point average of at least 3.0 in all undergraduate study, submitted through the WVU Office of Admissions. Applicants for music history and music theory must also submit scores from the Graduate Record Examination General Aptitude Test. Three letters of recommendation from individuals who are qualified to judge the applicant's potential success as a graduate student in music must be submitted directly to the director of graduate studies in music.

With the exception of applicants in composition, all applicants are also required to demonstrate, by audition, their level of attainment in a principal performance area. The evaluation of performance proficiency is based on technical ability, repertoire, and musicianship. A listing of representative material for each performance area, graded by proficiency level, is available upon request. A recording may be submitted in cases where travel makes an audition impractical. Each degree option has established standards which must be met for admission. For performance majors, the estimated proficiency level must be confirmed by a jury examination at the end of the first semester of performance study. Credit in performance may be counted toward degree requirements only after the proficiency-level prerequisite has been reached.

Applicants seeking admission as composition majors must submit representative compositions for evaluation and approval. When the application for composition is complete, it will be reviewed by the composition faculty. If this review is favorable, a representative of the composition faculty will contact the applicant to schedule an entrance audition and interview.

Applicants seeking admission as music theory or music history majors must submit a sample of writing, such as a term paper. A musical subject is recommended, but not required.
Applicants to music education curricula must submit the following:
1. An essay describing and discussing your training, experiences, present interests, and career aspirations in the field of music education.
2. A current résumé.
3. A video recording of teaching, preferably a K-12 music class or rehearsal. Please submit a detailed lesson plan for each class or rehearsal presented on your video of teaching. This is not required of those who are applying for the certification option. When the application for music education is complete, it will be reviewed by the music education faculty. If this review is favorable, a representative of the music education faculty will contact the applicant to schedule an entrance interview and audition.

Provisional Admission
Applicants whose admissions profile does not meet the qualifications outlined above may be considered for acceptance as provisional students. If, upon completion of up to 12 semester hours of graduate study, they have achieved a minimum of a B (3.0) average, and satisfied any previous undergraduate deficiencies or other conditions, such students may be accepted as degree students.

Music Education Options
The M.M. music education degree is designed to cultivate continued development of professional competence beyond the baccalaureate degree. High levels of musicianship and pedagogical expertise are integrated into a comprehensive program of study. Unique to the degree in music education are four degree options that enable students to pursue individual interests and talents.

At the core of each of the 30-hour degree options is coursework that immerses students in the foundations and research of music education, performance studies, music history, and music theory. Depending on the degree option a student selects, coursework and culminating projects are tailored to emphasize a specialization in performance, research, or teaching.

Requirements
Music Education

Field Study Option
This degree option emphasizes teaching and includes opportunities to integrate performance studies and research, with a school-based field study that demonstrates application of knowledge and skills from graduate study as a culminating project.

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSC 783 Foundations of Music Education III</td>
<td>3</td>
</tr>
<tr>
<td>MUSC 784 Introduction to Research in Music Education</td>
<td></td>
</tr>
<tr>
<td>Advanced seminars in music education, methods, workshops, directed studies</td>
<td>6</td>
</tr>
<tr>
<td>(Maximum of two hrs. from workshops, maximum of 2 hrs. from directed studies)</td>
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</tr>
<tr>
<td>One graduate-level music theory course, (students who do not take the diagnostic exam in music theory must take MUSC 561 as a prerequisite to any graduate-level theory course), and one graduate-level music history course, (students who do not take the diagnostic exam in music history must take MUSC 670 as a graduate-level history course)</td>
<td>5-6</td>
</tr>
<tr>
<td>(Theory courses: MUSC 460-462, 463, 464, 465-466, 468, 761, 762, 763, 764</td>
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</tr>
<tr>
<td>History courses: MUSC 470-476, 591K, 670, 791</td>
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<tr>
<td>MUSC 500 or 700 Performance</td>
<td>4</td>
</tr>
<tr>
<td>Master’s Field Study</td>
<td>4</td>
</tr>
<tr>
<td>Music Electives</td>
<td>4-5</td>
</tr>
</tbody>
</table>

Recital Option
This degree option emphasizes performance studies and includes opportunities to integrate research and teaching with a representative public recital that demonstrates advanced performance competence as a culminating project.
Courses | Hrs.
--- | ---
MUSC 783 *Foundations of Music Education* | 3
MUSC 784 *Introduction to Research in Music Education* | 3
Advanced seminars in music education, methods, workshops, directed studies | 6
(Maximum of two hrs. from workshops, maximum of two hrs. from directed studies)
One graduate-level music theory course, (students who do not take the diagnostic exam in music theory must take MUSC 561 as a prerequisite to any graduate-level theory course) and one graduate-level music history course, (students who do not take the diagnostic exam in music history must take MUSC 670 as a graduate-level history course) | 5–6
(Theory courses: MUSC 460-462, 463, 464, 465-466, 468, 761, 762, 763, 764
History courses: MUSC 470-476, 591K, 670, 791)
MUSC 500 or 700 *Performance* | 8
Master’s Recital | 2
Music Electives | 2–3

**Recital Option**
This degree option emphasizes research and includes opportunities to integrate performance and teaching with an original thesis that demonstrates advanced research and writing competence as a culminating project.

Courses | Hrs.
--- | ---
MUSC 783 *Foundations of Music Education* | 3
MUSC 784 *Introduction to Research in Music Education* | 3
Advanced seminars in music education, methods, workshops, directed studies | 6
(Maximum of two hrs. from workshops, maximum of two hrs. from directed studies)
One graduate-level music theory course, (students who do not take the diagnostic exam in music theory must take MUSC 561 as a prerequisite to any graduate-level theory course) and one graduate-level music history course, (students who do not take the diagnostic exam in music history must take MUSC 670 as a graduate-level history course) | 5–6
(Theory courses: MUSC 460-462, 463, 464, 465-466, 468, 761, 762, 763, 764
History courses: MUSC 470-476, 591K, 670, 791)
MUSC 500-700 *Performance* | 8
Master’s Thesis | 2
Music Electives | 2–3

**Thesis Option**
This degree option emphasizes research and includes opportunities to integrate performance and teaching with an original thesis that demonstrates advanced research and writing competence as a culminating project.

Courses | Hrs.
--- | ---
MUSC 783 *Foundations of Music Education* | 3
MUSC 784 *Introduction to Research in Music Education* | 3
Advanced seminars in music education, methods, workshops, directed studies | 6
(Maximum of two hrs. from workshops, maximum of two hrs. from directed studies)
One graduate-level music theory course (students who do not take the diagnostic exam in music theory must take MUSC 561 as a prerequisite to any graduate-level theory course) and one graduate-level music history course (students who do not take the diagnostic exam in music history must take MUSC 670 as a graduate-level history course) | 5–6
(Theory courses: MUSC 460-462, 463, 464, 465-466, 468, 761, 762, 763, 764
History courses: MUSC 470-476, 591K, 670, 791)
MUSC 500-700 *Performance* | 8
Master’s Thesis | 2
Music Electives | 2–3
Certification Option

This degree option is designed for persons who obtained an undergraduate degree in music other than music education. Coursework (including student teaching) leads to a professional certificate (birth-adult music, West Virginia) and is combined with a master's degree in music education, with the generation of a professional portfolio as a culminating project. Students begin the program with a series of undergraduate courses that are necessary for certification. This block of undergraduate courses ranges from 0 to 25 credits depending on the student’s previous coursework.

Courses

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSC 783 Foundations of Music Education</td>
<td>3</td>
</tr>
<tr>
<td>MUSC 784 Introduction to Research in Music Education</td>
<td>3</td>
</tr>
<tr>
<td>Advanced seminars in music education, methods, workshops, directed studies</td>
<td>6</td>
</tr>
</tbody>
</table>

(Maximum of two hrs. from workshops, maximum of two hrs. from directed studies) One graduate-level music theory course (students who do not take the diagnostic exam in music theory must take MUSC 561 as a prerequisite to any graduate-level theory course) and one graduate-level music history course (students who do not take the diagnostic exam in music history must take MUSC 670 as a graduate-level history course) ........................................... 5–6

(Theory courses: MUSC 460-462, 463, 464, 465-466, 468, 761, 762, 763, 764
History courses: MUSC 470-476, 591K, 670, 791)

| MUSC 686 Instrumental Music Methods and Materials                      | 3    |
| MUSC 687 Choral Music Methods and Materials                            | 3    |
| MUSC 688 General Music Methods and Materials                           | 3    |
| MUSC 500 or 700 Performance                                            | 4    |
| MUSC 492 Music Student Teaching Seminar                               | 2    |

Performance

M.M. Traditional Performance Program

| MUSC 700 Performance (major performance area)                          | 8    |
| MUSC 771 Music Research and Bibliography                               | 3    |
| MUSC 689 Master's Recital                                              | 4    |
| MUSC 689 Master's Recital                                              | 2    |

One graduate-level music theory course and one graduate-level music history course (Theory courses: MUSC 460-462, 463, 464, 465-466, 468, 761, 762, 763, 764
History courses: MUSC 470-476, 591K, 670, 791) ........................................... 5–6

Music electives (no more than four hours in the major performance area) .................................................. 7–8
Ensembles (2 semesters) .................................................................................................................. 2

M.M. Conducting Program

| MUSC 700 Performance (major performance area)                          | 8    |
| MUSC 771 Music Research and Bibliography                               | 3    |
| MUSC 710, 711 Conducting Seminars                                     | 6    |
| MUSC 631, 632, or 633 Survey of (major area) Vocal/Instrumental Music  | 3    |
| MUSC 780 or 781 Studies in Choral/Instrumental Techniques (secondary area) | 2    |

One 700-level theory course .......................................................................................... 2

One graduate-level music theory or music history course ................................. 2–3

(Theory courses: MUSC 461-464, 761, 762, 763, 764, 765
History courses: MUSC 470-476, 591K, 670, 791)

<p>| MUSC 689 Recital                                                       | 6    |
| Ensemble (2 semesters)                                                | 2    |</p>
<table>
<thead>
<tr>
<th>Program</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M.M. Piano Pedagogy Program</strong></td>
<td></td>
</tr>
<tr>
<td>MUSC 700 Performance (major performance area)</td>
<td>8</td>
</tr>
<tr>
<td>MUSC 771 Music Research and Bibliography</td>
<td>3</td>
</tr>
<tr>
<td>MUSC 689 Master’s Recital</td>
<td>2</td>
</tr>
<tr>
<td>MUSC 630 Studies in Keyboard Performance and Pedagogy</td>
<td>6</td>
</tr>
<tr>
<td>MUSC 592 Guided Studies (Teaching Internship)</td>
<td>4</td>
</tr>
<tr>
<td>One graduate-level theory course or one graduate-level music history course</td>
<td>2–3</td>
</tr>
<tr>
<td>(Theory courses: MUSC 460-462, 463, 464, 465-466, 468, 761, 762, 763, 764)</td>
<td></td>
</tr>
<tr>
<td>History courses: MUSC 470-476, 591K, 670, 731, 791)</td>
<td></td>
</tr>
<tr>
<td>Music electives</td>
<td>4–5</td>
</tr>
<tr>
<td>Ensembles</td>
<td>2</td>
</tr>
</tbody>
</table>

| **M.M. Jazz Pedagogy Program** |      |
| MUSC 700 Performance (major performance area) | 8    |
| MUSC 731 Music Research and Bibliography | 3    |
| MUSC 689 Master’s Recital | 2    |
| MUSC 634 Studies in Jazz Performance and Pedagogy | 6    |
| One graduate-level music theory course or one graduate-level music history course | 3    |
| (Theory courses: MUSC 460-462, 463, 464, 465-466, 468, 761, 762, 763, 764) |
| History courses: MUSC 470-476, 591K, 670, 791) |      |
| Music Electives | 4–5  |
| MUSC 797 Research | 4    |
| Ensemble | 2    |

| **M.M. Composition Program** |      |
| MUSC 660 Composition | 6    |
| MUSC 771 Music Research and Bibliography | 3    |
| MUSC 764 Compositional Techniques of 20th c. music | 3    |
| MUSC 761 Theory Topics | 3    |
| MUSC 762 Pedagogy of Theory | 3    |
| Music Electives (must include one of the following): MUSC 465 Electronic Music, MUSC 763 Analytical Techniques, or MUSC 765 Transcribing and Arranging | 8    |
| MUSC 698 Research (thesis) | 4    |
| Ensemble (2 semesters) | 2    |

| **M.M. Music History Program** |      |
| MUSC 771 Music Research and Bibliography | 3    |
| Graduate Music History electives (MUSC 470-476, 670) | 6    |
| MUSC 791 Advanced Topics/ MUSC 591 | 6    |
| Graduate Music Theory Elective (MUSC 460-466, 468,761-764) | 3    |
| MUSC 698 Thesis | 4    |
| MUSC 700 | 8    |
| Electives | 4    |
| Ensembles (two semesters) | 2    |
M.M., Music Theory Program

Prerequisite: Level 8 in the major performance area; piano proficiency (level 4); two semesters or equivalent proficiency in one language (French, German, or Italian, or a language pertaining to the thesis topic).

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 771 Music Research and Bibliography</td>
<td>3</td>
</tr>
<tr>
<td>One graduate-level music history course</td>
<td>3</td>
</tr>
<tr>
<td>*MUSC 465 16th Century Counterpoint</td>
<td>2</td>
</tr>
<tr>
<td>*MUSC 466 18th Century Counterpoint</td>
<td>2</td>
</tr>
<tr>
<td>MUSC 763 Analytical Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MUSC 764 Compositional Techniques in Contemporary Music</td>
<td>3</td>
</tr>
<tr>
<td>MUSC 762 Pedagogy of Theory</td>
<td>3</td>
</tr>
<tr>
<td>MUSC 761 Theory Topics</td>
<td>3</td>
</tr>
<tr>
<td>MUSC 698 Research (Thesis)</td>
<td>4</td>
</tr>
<tr>
<td>†Electives</td>
<td>8</td>
</tr>
<tr>
<td>Ensemble (two semesters)</td>
<td>2</td>
</tr>
</tbody>
</table>

*Required if not taken in the undergraduate degree.
†If counterpoint was taken in undergraduate degree (i.e., MUSC 465 and/or 466), six total hours are available as electives.

Additional Requirements

- Master’s degree students must establish an overall grade point average of 3.0.
- A representative public recital is required of candidates majoring in performance. Composition majors must submit as a thesis a composition in a large form.
- All candidates for the master of music degree are required to participate for credit for two semesters (or summer sessions) in a performing group which meets at least two clock-hours per week and which is selected with the advisor’s approval.
- A general comprehensive oral examination must be passed by all candidates for the master of music degree. Unsuccessful candidates may repeat this examination after a three-month period. The results of the second oral examination will normally be considered final. The Examining Committee will decide immediately after an unsuccessful second attempt whether a petition for a third attempt will be granted.
- Students must complete their programs in eight calendar years. Failure to do so will result in the loss of credit for courses taken at the outset of the program.

Doctor of Philosophy in Music Education

The doctor of philosophy curriculum in music education prepares students for careers as teachers and researchers in higher education. A main purpose of the program is to develop skilled and knowledgeable professionals who will challenge the present and enrich the future with significant contributions to the field through teaching, research, and service. Acceptance into the doctoral program is competitive. A prospective doctoral student in music education is required to have completed appropriate undergraduate and master’s degrees in music or their equivalent at institutions of recognized standing. Also, an applicant must provide evidence of excellence in teaching and musicianship demonstrated during at least three years of successful, full-time contractual K-12 music teaching. Applicants to the program leading to the doctor of philosophy must present necessary credentials for evaluation of previous training and experience to the Division of Music. These include transcripts showing at least a 3.0 grade point average in a minimum of 28 hours in liberal arts studies, submitted through the WVU Office of Admissions. The following items must be submitted directly to the Director of Graduate Studies in music:

1. An essay describing and discussing your training, experiences, present interests, and career aspirations in the field of music education.
2. A current résumé.
3. A video recording of teaching, preferably a K-12 music class or rehearsal. Please submit a detailed lesson plan for each class or rehearsal presented on your video of teaching. When the application for music education is complete, it will be reviewed by the music education faculty. If this review is favorable, a representative of the music education faculty will contact the applicant to schedule an entrance interview and possible audition.

Applicants who do not meet all of the criteria for regular admission to the Ph.D. degree program may be granted a provisional admission subject to the satisfactory completion of certain specified courses or the attainment of a specified grade point average within a semester's work.

Coursework

Music Education Courses


Other Required Courses: (11–12 credits) Music History, Music Theory/Composition, Statistics, Educational Psychology

Cognate Courses (12 credits total, nine credits in same discipline)

Anthropology, applied music, art history, audiology, computer science, curriculum and instruction, educational administration, educational foundations, educational psychology, elementary education, foreign language, history, literature, music history, music theory/composition, philosophy, physics, psychology, secondary education, sociology, special education, statistics, theatre.

Elective Courses (eight to nine credits)

Selected at the discretion of the student in conjunction with an academic advisor.

Examinations

Written Qualifying

Each student must demonstrate the following areas of knowledge:

• A broad knowledge in the fields of music history and music theory.
• Appropriate knowledge in the cognate field.
• In-depth knowledge in the field of music education.

Oral Qualifying

The student’s Doctoral Committee will administer a comprehensive oral examination integral with the written examinations; passage of all is the basis for formal admission to candidacy.

Candidacy

Upon completion of the requirements of the Division of Music and the general WVU graduate studies requirements, the student will be recommended for admission to candidacy for the degree. These requirements are (in order of occurrence):

1. Complete all coursework.
2. Complete a major project from a graduate music education seminar. This project should be appropriately refined and presented publicly under the supervision of a member of the graduate music education faculty. A concise written proposal articulating the scope and context of the project and the nature of its intended forum must be submitted to the graduate music education faculty for consensus approval.
3. Pass written qualifying examinations demonstrating:
   a. Broad knowledge in music history and music theory.
   b. Appropriate knowledge in the cognate field (usually integrated into the music education exam.)
   c. In-depth knowledge in the field of music education.
4. Pass a comprehensive oral qualifying examination.
   The qualifying examinations shall be considered as one integral examination consisting of
   the written and oral parts. If the first attempt is unsuccessful, the student is allowed to try the
   entire examination a second time. The second attempt will be considered final. The applicant’s
   committee may elect to discourage a second attempt if the first does not indicate probable
   success upon repetition.

Dissertation Prospectus
1. The requirement for doctoral seminars must be completed before the presentation of
   the dissertation prospectus.
2. The prospectus must include the following: table of contents, introduction, statement
   of purpose, research hypothesis, summary of related literature, specifics of methodology,
   research design, data collection process, analysis procedures, appendices, comprehensive
   bibliography.

Dissertation
The candidate must submit a dissertation produced at WVU under the direction of a
major professor that demonstrates a high order of independent scholarship, originality, and
competence in research and that makes an original contribution to the field of specialization.
After the dissertation has been approved and all other requirements have been fulfilled,
the candidate’s Doctoral Committee will administer the final oral examination. However, a
final examination will not be given in the same semester as the qualifying examination. At
the option of the student’s committee, a final written examination may also be required. The
final examination(s) shall be concerned with the dissertation, its contribution to knowledge, its
relation to other fields, and the candidate’s grasp of the field of specialization.

Residence Requirements
Completion of the requirements for this degree normally requires at least three years of
full-time graduate work. A minimum of two consecutive semesters must be spent in residence
in full-time graduate study at WVU beyond the master’s degree or its equivalent.

Time Limitation
Following admission to candidacy, Ph.D. students are allowed five years to complete all
remaining degree requirements. An extension of time may be permitted only upon repetition of
the qualifying examination and completion of any other requirements specified by the student’s
Doctoral Committee.

Doctor of Musical Arts
The primary objective of the doctor of musical arts degree is the recognition of the highest
achievement in music performance and teaching. The principal objective of the degree is to
prepare artist-pedagogues for careers in higher education and in the professional world.
The degree may be taken in performance and literature (with specialization in piano, voice,
percussion, flute, oboe, clarinet, bassoon, horn, trumpet, trombone, tuba, low brass, violin,
saxophone, viola, cello, double bass, conducting) or in composition. Historical and theoretical
knowledge sufficient to support individualized interpretations for performers and original creative
work for composers is expected, as are writing and speaking skills needed to communicate
clearly and effectively. To assist the student in achieving these objectives, the course of study
includes requirements in performance or composition, academic coursework, and research.
The doctor of musical arts curriculum in conducting prepares students for careers in
higher education and in the professional world. During the program of study, students will
study repertoire and technique specific to ensembles in all three major performance areas:
wind band, choir, and orchestra. Demonstration of knowledge, skill, expressive fluency, and
general conducting competency will be developed through public performance preparation
with all three areas; however, most performing will be completed in the student’s primary area
of emphasis.
Admission

Acceptance into doctoral programs is competitive. Applicants to the program leading to the D.M.A. must present necessary credentials for evaluation of previous training and experience. These include transcripts showing an average of at least a 3.0 grade point average in a minimum of 28 hours in liberal arts studies, submitted through the WVU Office of Admissions. Copies of programs of recent major recitals, and three letters of recommendation from individuals who are qualified to judge the applicant’s potential success as a graduate student in music must be submitted directly to the director of graduate studies in music. Normally, the admission process also includes an on-campus audition and interview with the faculty of the major performance area. Applicants to the D.M.A. in composition must also submit scores and recordings for review. Applicants who do not meet all of the criteria for regular admission to the D.M.A. degree program may be granted a provisional admission subject to the satisfactory completion of certain specified courses or the attainment of a specified grade point average within a semester’s work.

Audition Requirements

Have a complete résumé and prepared list of your completed repertoire in hand for examination by the Audition Committee. On this list, using asterisks indicate those numbers that you have performed from memory. Auditions are approximately 60 minutes of performance. Live auditions are strongly recommended, but tapes or other recorded formats can be considered when travel distance poses a hardship.

The following repertoire guidelines are intended to be flexible and to encourage diversity of individual interests, but they also provide a sense of expected scope. Offering repertoire from all the categories listed below is not mandatory at your audition, but you should certainly choose a program that contains stylistic variety and represents your own strengths. Works customarily performed from memory in public recitals should be performed from memory at your audition.

Percussion

1. Keyboard
   a. Major contemporary marimba work
   b. Solo violin work (one movement) from J.S. Bach Sonatas and Partitas
   c. Vibraphone solo of any style
   d. Perform six orchestral excerpts (xylophone and glockenspiel)
2. Snare Drum
   a. Solo or etude from the advanced classical repertoire
   b. Solo or etude from the advanced rudimental repertoire
   c. Three orchestral excerpts
3. Drumset
   a. Perform at least four varying styles
   b. World percussion (optional) (Possibilities include steel drums, African drumming, taiko, etc. . . . )
4. Multi-media
   a. Video recording of last solo percussion recital that includes multiple percussion and chamber music (if possible).

Piano

1. A major Baroque work, such as a group of Scarlatti sonatas, a suite by Bach, or one or more preludes and fugues from the well-tempered Clavier.
2. A complete sonata, variation set, or similar work by Beethoven or another classical composer.
3. A major Romantic or Impressionist work.
4. Another work of your choice, preferably a major composition (or several shorter pieces) representative of twentieth-century style.
Voice

Have a prepared list of your previous vocal teachers and vocal coaches and a precise statement of your present language background; foreign language study, diction, phonetics, etc.

1. An Aria from an Oratorio: Handel, Haydn, or Mendelssohn.
2. One selection of your own; preferably a major operatic aria.
3. At least two selections from each of the four language categories:
   A. Italian
      1. 17th and 18th century
      2. Aria by Mozart
      3. 19th and 20th century opera
   B. German
      1. An Aria by Bach
   C. French
      1. Art Songs: Debussy, Ravel, Faure, Poulenc
   D. English
      1. Early Songs: Purcell or Arne
      2. Contemporary American and British songs: such as Britten, Menotti, or Floyd

Strings

Audition repertoire for the D.M.A. in music performance should be chosen to demonstrate the applicant's current level of achievement.

Early in the application process potential students should contact the major teacher in the area and discuss audition repertoire possibilities.

Suggested repertoire could include a concerto, sonata, show piece, solo Bach, and for the double bass three major orchestral excerpts.

Woodwinds, Brass

Audition repertoire for the D.M.A. in music performance should be chosen that allows the applicants to demonstrate their current level of achievement.

Early in the application process potential students should contact the major teacher in their area and discuss audition repertoire possibilities.

Conducting

An on-campus audition with the WVU Wind Symphony, University Choir, or Symphony Orchestra is preferred, although video recorded auditions are allowed when great distance precludes a visit to campus. The student is encouraged to audition in his/her strongest performance area: wind band, choir, or orchestra. Further audition requirements are as follows:

1. The applicant will perform a conducting audition with an appropriate WVU ensemble which will consist of 20–30 minutes of rehearsal of repertoire to be assigned at least two weeks in advance by the appropriate conducting faculty.
2. The applicant will perform an audition on his/her major instrument or voice before appropriate music faculty. Those who have been away from solo performance for a period of several years may offer evidence of past proficiency (e.g. recital programs, letters, reviews, video or audio recording, etc.)
3. Knowledge of literature and techniques appropriate to the applicant’s desired area of emphasis will be assessed by appropriate faculty.
4. Applicants desiring a choral emphasis will also be asked to demonstrate knowledge of appropriate vocal pedagogy within the choral rehearsal, as well as appropriate piano skills.

Curriculum

The exact amount and nature of coursework undertaken will be determined by the student’s advisor with the approval of the Committee on Graduate Studies in light of previous preparation and field of specialization. A paradigm detailing recommended courses and other requirements is available upon request.
The D.M.A. curriculum in conducting includes: 12 credits of private lessons (minimum of two credits in each secondary area); six to nine credits of conducting seminar (in-depth repertoire study); six to eight credits of music theory, including at least one analysis course (results of the graduate theory entrance exam will dictate the exact number of credits required); six to nine credits of music history (results of the graduate history entrance exam will dictate the exact number of credits required); 12–18 credits of recital; two to eight credits of research. The combination of recital/research credits must equal 20.

Candidacy Upon completion of the requirements of the Division of Music and the general WVU graduate studies requirements, the student will be recommended for admission to candidacy for the degree. These requirements are (in order of occurrence):

1. Pass written qualifying examinations satisfactorily to show:
   a. Broad knowledge in music theory and music history and literature.
   b. In-depth knowledge of the literature of the field of specialization or of the craft of composition.
2. Satisfactorily pass a comprehensive oral qualifying examination.
3. The qualifying examinations shall be considered one integral examination consisting of written and oral parts. If the first attempt is unsuccessful, the student is allowed to try the entire examination a second time. The second attempt will be considered final. The applicant’s committee may elect to discourage a second attempt if the first does not indicate probable success upon repetition. Graduate students who have met these requirements and who have maintained a minimum average of B (3.0) in courses completed shall be admitted to candidacy.

Residence Requirements Completion of the requirements for this degree normally requires at least three years of full-time graduate work. A minimum of two consecutive semesters must be spent in full-time graduate study at WVU beyond the master’s degree or its equivalent.

Performance Requirements Performance requirements (for performance majors) include private lessons, master classes in applied repertory, and public performance of at least two solo recitals and other types of presentations appropriate for the preparation of an artist-teacher, such as chamber music programs, concerto performances, lecture recitals, major roles in opera oratorio, musical theater, or major accompaniments. Credit for each public performance is determined in advance, during the first semester of study, along with the establishment of the student’s Doctoral Committee. A performance prospectus indicating projected performance repertoire is prepared by the student in consultation with his/her committee and the major ensemble directors, as appropriate.

Academic requirements include courses in music theory, music history, and music literature.

Composition Requirements Composition requirements (for composition majors) include private lessons and the creation of a composition portfolio. The student will be encouraged by the major professor to compose works in a timely manner in a wide variety of genres from which can be drawn a select number of pieces for the portfolio. The comprehensive examination determines the admission to candidacy and is normally taken after the successful completion of required coursework in music theory and music history. Work on the major project and research document normally will commence only after admission to candidacy. The candidate will submit to his/her Doctoral Committee for approval a prospectus for the portfolio to include the proposed major work, the proposed research document, and the other compositions with proposed credit weighting for each.

Research Requirements Research requirements are intended to develop theoretical and historical investigative techniques sufficient to enable the performer to form valid individualized interpretations and to assist the composer in developing an original style. These requirements consist of the course Music Research and Bibliography (MUSC 771), for composers a doctoral seminar, and for all students a research project culminating in an extended written study related to the student’s area, although not necessarily constituting original research. This project will be supervised by an approved graduate faculty member who is a member of the student’s Doctoral Committee in consultation with the entire Doctoral Committee.
Final Examination  For performers, the final examination will consist of a major solo recital (which will be regarded as the equivalent of the Ph.D. dissertation defense). Immediately following the public performance, the candidate’s committee will meet to evaluate the performance as evidence of mature musicianship and finished technique. The final recital will not occur in the same semester as the qualifying examination.

For composers, when all compositions and the major project have been approved and all other requirements have been fulfilled, the candidate’s Doctoral Committee will administer the final oral examination. At the option of the committee, a written examination may also be required. The final examination(s) shall be concerned with the compositions, the major project, and the candidate’s grasp of the field of specialization and its relation to other fields. The final examination will not be given in the same semester as the qualifying examination.

Time Limitation  Following admission to candidacy, doctoral students are allowed five years to complete all remaining degree requirements. An extension of time may be permitted only upon repetition of the qualifying examination and completion of any other requirements specified by the student’s Doctoral Committee.

Theatre and Dance
Joshua Blackmer Williamson, Chair
305-A Creative Arts Center
e-mail: theatre@mail.wvu.edu
http://theatre.wvu.edu/

Degree Offered

Master of Fine Arts

The Division of Theatre at WVU offers the master of fine arts as the terminal degree in acting and theatre design (scene, costume, and lighting). The program is fully accredited by the National Association of Schools of Theatre.

Admission
Prospective candidates for the degree of master of fine arts in theatre must have a B.A. or B.F.A. degree or equivalent from an accredited institution. Ordinarily, a minimum of 30 semester hours in theatre at the undergraduate level is expected to have been completed with a grade point average of no less than 2.75, although students with an undergraduate grade point average of 2.25 to 2.75 may be admitted with probationary status.

Auditions
Applicants must audition/interview. Applicants intending to specialize in acting must submit a complete résumé of their acting experience, at least two letters of recommendation from acting coaches or directors, and must present an audition before at least one member of the acting faculty. Those intending to specialize in design must submit a complete portfolio of their work, a résumé of their design experience, and at least two letters of recommendation from design instructors or directors. An interview with members of the design faculty is also required.

For further details regarding these requirements, address inquiries to: Chairperson, Division of Theatre and Dance, West Virginia University, P.O. Box 6111, Morgantown, WV 26506-6111 or visit theatre.wvu.edu.

Advanced Standing
Students may be eligible for 18 hours of graduate transfer credit for advanced standing if they meet the regular requirements of graduate admission. Students admitted with advanced standing are required to be in residence at WVU for a minimum of two semesters and a summer session. The request for advanced standing should be made to the division chairperson at the time of application.
Master of Fine Arts Degree Programs

For the master of fine arts degree, students must complete requirements for one of the following two programs.

**Acting** The M.F.A. acting program is an intensive three-year course of study designed to train students for the professional theatre world and its related fields including teaching pedagogy. The program offers conservatory-style actor training in all aspects of acting, voice/speech, and movement. In addition to the studio program, students are required to complete coursework in theatre history, text analysis, criticism, and research methods.

Graduation from the program is contingent upon completion of the following:
- Three years of graduate courses and production work totaling at least 66 designated credit hours and three elective graduate credits.
- A final thesis project including both a performance of a significant role or roles and a thesis paper exploring aspects of the creation and performance of this role.
- Oral defense of this thesis.
- A successful evaluation at the end of each semester of study.
- An overall grade point average of 3.0.

**Design** The M.F.A. design program is an intense three-year course of study for students seeking professional preparation in scenic, costume, or lighting design. Studio design courses, together with fully realized production experience offer expectations found in the real world.

- Three years of graduate courses and production work totaling at least 64 designated credit hours.
- A production or research thesis.
- Oral defense of the thesis project.
- A successful evaluation at the end of each semester of study.
- An overall grade point average of 3.0.

**M.F.A. in Acting Suggested Program**

### First Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hrs.</th>
<th>Second Semester</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>THET 540 Grad. Vocal Techniq. I........................</td>
<td>2</td>
<td>THET 541 Graduate Vocal Tech. II....................</td>
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<tr>
<td>THET 542 Grad. Stage Movement I........................</td>
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<td>THET 543 Graduate Movement II..........................</td>
<td>2</td>
</tr>
<tr>
<td>THET 544 Grad. Acting Studio I...........................</td>
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<tr>
<td>THET 546 Grad. Scene Study................................</td>
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<td>THET 546 Graduate Scene Study..........................</td>
<td>1</td>
</tr>
<tr>
<td>THET 610 Research Methods................................</td>
<td>3</td>
<td>THET 600 Rehersal and Performance....................</td>
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<td><strong>Total</strong> .............................................</td>
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### Second Year

<table>
<thead>
<tr>
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<th>Second Semester</th>
<th>Hrs.</th>
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<td>THET 600 Rehersal and Performance....................</td>
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<td>THET 694 Specialized Seminar.............................</td>
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## Third Year

### First Semester

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<td>THET 744 Adv. Graduate Studio III</td>
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<td>THET 600 Rehearsal/Performance</td>
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<tr>
<td>THET 742 Adv. Graduate Movement III</td>
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<td>THET 750 Showcase Development</td>
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<tr>
<td>THET 650 Grad Acting-Musical Theatre</td>
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<tr>
<td>THET 690 Teaching Practicum</td>
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-or Advance Study Elective | 3

**Total** | 13

### Second Semester

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<thead>
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<tr>
<td>THET 698 Thesis</td>
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<tr>
<td>THET 600 Rehearsal/Performance</td>
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<tr>
<td>THET 751 Showcase Development II</td>
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<td>THET 690 Teaching Practicum</td>
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</table>

-or Advance Study Elective | 3

**Total** | 13

**Total Hrs.** | 69

## M.F.A. Scene Design Suggested Program

### Theatre Studies

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>THET 610 Research Methods</td>
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</tr>
<tr>
<td>THET 627 Graduate Costume &amp; Décor I</td>
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</tr>
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<td>THET 628 Graduate Costume &amp; Décor II</td>
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</tr>
<tr>
<td>THET 697 Research</td>
<td>3</td>
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<tr>
<td>THET 698 Thesis</td>
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**Total** | 15

### Theatre Performance Design

<table>
<thead>
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<tbody>
<tr>
<td>THET 424 Advanced Tech. Production</td>
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<tr>
<td>THET 623 Adv Grad. Scene Design</td>
<td>3</td>
</tr>
<tr>
<td>THET 428 Scene Painting</td>
<td>3</td>
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<tr>
<td>THET 623 Adv Grad. Scene Design</td>
<td>3</td>
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<tr>
<td>THET 520 Prin. of Stage Lighting</td>
<td>2</td>
</tr>
<tr>
<td>THET 629 Graduate CAD Seminar</td>
<td>3</td>
</tr>
<tr>
<td>THET 631 Grad Scenographic Tech</td>
<td>3</td>
</tr>
<tr>
<td>THET 630 Grad Rendering Tech</td>
<td>3</td>
</tr>
<tr>
<td>THET 622 Grad Scene Design</td>
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<td>THET 725 Portfolio Development</td>
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**Total** | 27

### Practicum

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<tbody>
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**Total credits for program** | 62

## M.F.A. in Costume Design Suggested Program

### Theatre Studies

<table>
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<tbody>
<tr>
<td>THET 610 Research Methods</td>
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<tr>
<td>THET 697 Research</td>
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<td>THET 627 Grad. Cost. &amp; Décor I</td>
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<tr>
<td>THET 698 Thesis</td>
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<td>THET 628 Grad. Costume &amp; Décor II</td>
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**Total** | 15
<table>
<thead>
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<tr>
<td>THET 423</td>
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<td>THET 425</td>
<td>Adv. Costume Construction</td>
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<td>THET 626</td>
<td>Grad. Costume Design 2</td>
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<td>THET 520</td>
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**Total** .......................................................... 26

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*Out of the 12 elective – one must be an art elective*

**Total credits for program** .................... 57

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### M.F.A. in Lighting Design Suggested Program

<table>
<thead>
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<tr>
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<tr>
<td>THET 627</td>
<td>Grad. Costume &amp; Décor I</td>
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<tr>
<td>THET 628</td>
<td>Grad. Costume &amp; Décor II</td>
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<tr>
<td>THET 697</td>
<td>Research</td>
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<tr>
<td>THET 698</td>
<td>Thesis</td>
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<tr>
<td>THET 427</td>
<td>Lighting Technology</td>
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<tr>
<td>THET 520</td>
<td>Prin. of Stage Lighting</td>
<td>2</td>
</tr>
<tr>
<td>THET 613</td>
<td>Stage Management</td>
<td>3</td>
</tr>
<tr>
<td>THET 622</td>
<td>Grad. Scene Design</td>
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</tr>
<tr>
<td>THET 630</td>
<td>Grad. Rendering Tech</td>
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<td>THET 625</td>
<td>Grad. Lighting Design</td>
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<td>THET 629</td>
<td>Graduate CAD Seminar</td>
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<td>THET 631</td>
<td>Grad. Scenographic Tech</td>
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<tr>
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Possible electives: Sound Seminar

**Total credits for program** .................... 61
Degrees Offered

Aerospace Engineering: Master of Science and Doctor of Philosophy
Chemical Engineering: Master of Science and Doctor of Philosophy
Civil Engineering: Master of Science and Doctor of Philosophy
Computer Engineering: Doctor of Philosophy
Computer Science: Master of Science
Computer and Information Science: Doctor of Philosophy
Electrical Engineering: Master of Science and Doctor of Philosophy
Engineering: Master of Science
Industrial Engineering: Master of Science and Doctor of Philosophy
Industrial Hygiene: Master of Science
Mechanical Engineering: Master of Science and Doctor of Philosophy
Mining Engineering: Master of Science and Doctor of Philosophy
Occupational Safety and Health: Doctor of Philosophy
Petroleum and Natural Gas Engineering: Master of Science and
Doctor of Philosophy
Safety Management: Master of Science
Software Engineering: Master of Science

College of Engineering and Mineral Resources (CEMR) graduate programs are administered through the Departments of Chemical Engineering, Civil and Environmental Engineering, the Lane Department of Computer Science and Electrical Engineering, Industrial and Management Systems Engineering, Mechanical and Aerospace Engineering, Mining Engineering, and Petroleum and Natural Gas Engineering.

The facilities are housed on the Evansdale campus in three buildings: the Engineering Sciences Building, the Mineral Resources Building, and the Engineering Research Building. These buildings house state-of-the-art research facilities, well-equipped teaching laboratories, classrooms, and offices for the faculty and administration of the graduate programs and Extension and Outreach.

The college offers a doctor of philosophy in most disciplines. The Ph.D. program prepares graduates for leadership in industrial, governmental, or academic fields. The areas of specialization in engineering are aerospace, chemical, civil, computer, electrical, industrial, mechanical, mining, and petroleum and natural gas engineering. In addition, the college offers a Ph.D. in computer science and a Ph.D. in occupational safety and health.

Designated master’s degrees are offered in aerospace, chemical, civil, electrical, industrial, mechanical, mining, petroleum and natural gas engineering, software engineering, and computer science. A master of science in engineering (M.S.E.) degree is offered to qualified students as determined at the departmental level. The college offers two accredited master of science degrees in industrial hygiene, and in safety management. These programs are accredited by the Applied Science Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

Currently the college offers graduate certificate programs in computer forensics, information assurance and biometrics and software engineering. For specific information about a program, students should review research and graduate studies (http://www.cemr.wvu.edu) information of the college website.
**Special Requirements**

A student desiring to take courses for graduate credit in the college must comply with the appropriate University regulations for graduate study. To become enrolled in a CEMR graduate program, a student must apply for admission through the Office of Admissions to the department housing the student’s choice of major. Acceptance will depend upon review of the student’s academic background and available facilities in the major program’s department.

An applicant with a baccalaureate degree, or its equivalent, from a program accredited by the Accreditation Board for Engineering and Technology (ABET), Computer Science Accreditation Board (CSAB), or an internationally recognized program in engineering or computer science will be admitted on the same basis as engineering or computer science graduates of WVU. Lacking these qualifications, an applicant must first fulfill any special requirements of the department in which the student is seeking an advanced degree.

No credits which are reported with a grade lower than C are acceptable toward an advanced degree. To qualify for an advanced degree, the graduate student must have a grade point average of at least 3.0 based on all courses acceptable for graduate credit for which the student has received a grade from WVU. Graduate students in the college must also comply with the regulations of their major department.

Individual Departments may establish more stringent requirements than those adopted for CEMR as a whole. These departmental requirements are contained in the individual program sections of the graduate catalog.

**Course Load**

A full-time graduate student must register for at least nine, but no more than 15, credit hours during each regular semester, or at least six, but no more than 12, credit hours in the summer session. Permission to carry a heavier load must be obtained in writing from the dean.

**Master's Program**

For all master’s degree students, an Advisory and Examining Committee consisting of at least three faculty members will be appointed. A plan of study must be jointly prepared and approved by the student and all members of the student’s Advisory and Examining Committee, the department chair, and the dean or dean’s designate, either at the end of the second semester of the student’s attendance or at the completion of the 12th course credit hour, whichever is later. The college is authorized to grant master’s degrees under each of the following three options:

- **Thesis Option** – This option requires a minimum of 24 credit hours of coursework and at least six credit hours of research leading to the thesis.
- **Problem Report Option** – This option requires a minimum of 30 credit hours of coursework and at least three credit hours of a research or design project leading to a formal written report.
- **Coursework Option** – This option requires a minimum of 33 credit hours of coursework. There are two ways this option is implemented. First, although rarely permitted, this option is open to students who have practical engineering experience and/or have demonstrated an ability to organize and develop a project and write a technical report. Approval to pursue this option must be obtained from the student’s Advisory and Examining Committee (AEC), the graduate program coordinator, and the department chair. Second, a department can choose to offer students within a designated program the coursework only option. Normally, for each option the coursework required is greater than that required for a student doing a thesis or problem report. In addition, the Department must require successful completion of a written or oral comprehensive examination.

For complete details about admission criteria and other governance details of the master’s of science programs please refer to the *Guidelines for Master’s of Science Programs* which can be found on the college’s home page.
Application for Transfer of Graduate Credit

A student wishing to apply graduate credit earned at another institution to a master’s degree at WVU must complete an application for transfer of graduate credit to WVU and have an official transcript submitted to the WVU Office of Admissions from the external institution. A maximum of 12 semester hours from other institutions may be acceptable for credit at WVU in master’s degree programs in CEMR. Departmental programs may choose to accept fewer transfer credit hours with the restriction that only courses with grades of A or B may be considered for transfer.

Advisory Committee

The student, research advisor, academic advisor, and department chairperson appoint the student’s Advisory and Examining Committee (AEC). For the masters program, each committee must consist of at least three members. The specific makeup of the master’s AEC is described in the college’s Guidelines for Master’s of Science Programs.

Plan of Study

At the end of the second semester of a student’s attendance, or at the completion of the twelfth credit hour the student, with the advice and consent of the student’s academic advisor, graduate coordinator, and members of the student’s Advisory and Examining Committee, will submit a plan of study, initiated in the student’s department, to the dean or dean’s designee.

Time To Completion

All requirements for the master’s degree must be completed within eight years preceding the student’s graduation.

Doctor of Philosophy

Admission as a graduate student is required of all applicants for admission to a program of study and research leading to the Ph.D. degree. To be eligible for admission into a doctorate of engineering program, a candidate is expected to hold or to receive by time of enrollment a B.S. or an M.S. degree in:

- Some discipline of engineering from an institution which has an ABET-accredited program in that discipline or which has an internationally recognized program in engineering/mineral resources,
- Mathematics and physical sciences (as specified by individual programs)

To be eligible for admission into the computer sciences and information doctoral program, a candidate is expected to hold a B.S. or an M.S. degree in:

- Computer science
- Engineering
- Mathematics and physical sciences (as specified by the program)

To be eligible for admission into the occupational safety and health doctoral program, a candidate is expected to hold a B.S. or an M.S. degree in:

- Industrial hygiene
- Safety
- Engineering
- Mathematics and physical and life sciences (as specified by the program)

Although a bachelor's degree is the minimum requirement, applicants are normally encouraged to hold a master's degree in a relevant discipline. Admission to graduate study does not necessarily assure entrance into a CEMR doctoral program.

For complete details about admission criteria and other governance details of the doctor of philosophy programs please refer to the Guidelines for Doctor of Philosophy Programs which can be found on the college’s home page.

Application for Transfer of Graduate Credit

A student wishing to apply credit earned at another institution to a doctoral degree program at WVU must submit an application for transfer of graduate credit to WVU and have an official transcript from the institution forwarded to the WVU Office of Admissions. The approval of transfer credit is at the discretion of the student’s Advisory and Examining Committee with the restriction that only courses with grades of A or B may be considered for transfer.
Advisory Committee

The student, research advisor, academic advisor, and department chairperson appoint the student’s Advisory and Examining Committee. For the Ph.D. program, each committee must consist of at least five members—at least three, including the chairperson, from the student’s major department and at least one from another discipline related to the student’s area of interest. The specific makeup of the Ph.D. AEC is described in the college’s Guidelines for Doctoral Programs.

Plan of Study

At the end of the second semester of a student’s attendance or at the completion of the 12th credit hour the student, with the advice and consent of the student’s academic advisor, graduate coordinator, and members of the student’s Advisory and Examining Committee, will submit a plan of study, initiated in the student’s department, to the dean or dean’s designee. Some Departments may require that a preliminary dissertation research proposal be submitted along with the plan of study.

Candidacy Examination

After admission to the program and after the residence requirements are met, the applicant will take a candidacy examination in which the student must demonstrate: (a) a grasp of the important phases and problems of the field of study and an appreciation of their relation to other fields of human knowledge and accomplishments, and (b) the ability to employ the instruments of research developed in the student’s area of interest. When an applicant has passed the candidacy examination, the student will be formally admitted to candidacy for the doctoral degree. A student will have only one opportunity for reexamination. Some programs may require a student to successfully pass a qualifying examination before taking the candidacy examination.

Credit Requirements

The doctor of philosophy degree is not awarded solely on the basis of the accumulation of course credits and completion of a definite residence requirement. The amount and nature of the coursework undertaken by a doctoral student will be established for each individual student with the objective of ensuring a reasonable and coherent progression of academic development beyond the baccalaureate and/or master’s degree.

Faculty

† Indicates regular membership in the graduate faculty.
* Indicates associate membership in the graduate faculty.

Chemical Engineering Professors

†Eugene V. Cilento, Ph.D. (U. Cinn.). Dean. Physiological transport phenomena, Biomedical engineering, Image analysis, Mathematical modeling.
†Dady B. Dadyburjor, Ph.D. (U. Del.). Catalysis, Reaction engineering, Micellization, Fuels and chemicals from synthesis gas, Synthesis gas from coal.
†Rakesh K. Gupta, Ph.D. (U. Del.). Chairperson. Berry Chair. Polymer processing, Rheology, Non-newtonian fluid mechanics, Composite materials.
†Alfred H. Stiller, Ph.D. (U. Cinn.). Physical/inorganic/solution chemistry, Coal liquefaction, Carbon science.
†Richard Turton, Ph.D. (Ore. St. U.), P.E.. Fluidization, Chemical process design, Particle processing, Powder processing.
Associate Professors
†Charter D. Stinespring, Ph.D. (WVU). Semiconductor growth and etching, Surface kinetics.

Research Associate Professor
†Debangsu Bhattacharyya, Ph.D. (Clarkson U.). Modeling, Optimization, Control and experimental characterization of fuel cells (PEMFC & SOFC); Coal gasification processes; Dynamic modeling and optimization of modern energy conversion processes.

Assistant Professors
†Brian J. Anderson, Ph.D. (MIT). Natural-gas hydrates, Sustainable-energy development, Molecular dynamics, Quantum-chemical calculations, Geo thermal energy, Reservoir simulation.
†Robin S. Farmer, Ph.D. (U. Del.) Biomaterials, Polypeptides, Drug delivery, Biomedical engineering, Materials science.

Research Assistant Professors
†Sushant Agarwal, Ph.D. (WVU). Polymer processing, Rheology, Nano-composites, Dispersions.
†Ruifeng (Ray) Liang, Ph.D. (Chinese Acad. Sci.). Polymer processing and modeling, Smart materials, Composites.

Visiting and Adjunct Professors
Charles M. Jaffe, Ph.D. (U. Colo.). Theoretical chemistry, Molecular and atomic physics, Nonlinear dynamics, Astrodynamics, Forensics.
Mahesh Padmanabhan, Ph.D. (U. of Minn.). Foods, Polymer science and Rheology.
Robert H. Wildi, B.Ch.E. (Cleveland St. U.). Polymer extrusion.

Civil and Environmental Engineering Professors
†Udaya B. Halabe, Ph.D., P.E. (MIT). Nondestructive evaluation and in-situ condition assessment of structures and materials, Elastic and radar wave propagation, Structural analysis and design, Structural dynamics and wind/earthquake resistant design.
W. Joseph Head, Ph.D. (Purdue U.). Waste utilization, Highway and airfield pavements, Concrete. Emeritus
†David R. Martinelli, Ph.D. (U. Md.). Transportation engineering, Traffic operations, Systems analysis, Infrastructure management.

Research Professors
†Lloyd (James) French, Ph.D., P.E. (WVU). Research. Transportation planning, Traffic engineering, Intelligent transportation systems.
Associate Professors
†Karl Barth, Ph.D. (Purdue U.). Jack H. Samples Distinguished Professor of Structures. Steel structures, Bridge design and rehabilitation, Connections, Stability analysis, Experimental mechanics.

Research Associate Professor

Assistant Professors
†John D. Quaranta, Ph.D., P.E. (WVU). Geotechnical/Geo-environmental engineering, Soil testing and characterization, Soil and mine waste dewatering, Geo-synthetics, Soil and groundwater remediation.
†Avinash Unnikrishnan, Ph.D. (U. of Tex.-Austin). Transportation network analysis and planning, Freight network analysis and logistics, Intelligent transportation systems.

Research Assistant Professors
†An Chen, Ph.D. (WVU). Composite mechanics, Reinforced concrete structures, Civil infrastructure.
†Mourad Riad, Ph.D. (WVU). Infrastructure instrumentation, Bridge engineering, Advanced concrete technology, Finite element modeling, Structural mechanics.
†P. V. Vijay, Ph.D. (WVU). Concrete structures, FRP composite structures for bridges, buildings, and pavements, Aging of structures and rehabilitation, Recycled polymers for infrastructure, Analytical modeling.
†Xinchao Wei, Ph.D. (WVU). Water quality and environmental chemistry, Nano-materials and application in treatment/remediation, Acid mine drainage and restoration of impaired waters, Physical and chemical treatment of water and wastewater.
†Gergis William, Ph.D., P.E. (WVU). Civil infrastructure, Bridge design and diagnosis, Thermal stress analysis, Nonlinear finite element analysis, Advanced materials and structures.

Visiting and Adjunct Professors
†Samir Shoukry, Ph.D. (Aston, UK). Structural dynamics, Finite element modeling, Pavement dynamics, Measurements and instrumentation.

Lane Department of Computer Science and Electrical Engineering
Professors
†John M. Atkins, Ph.D. (U. Pitt.). Graduate Coordinator for CS. Design of database management systems, Analysis of algorithms, Mathematics of computation. Emeritus
†Muhammad A. Choudhry, Ph.D. (Purdue U.). Graduate coordinator for CpE & EE. Power system control, DC transmission, Stability, Power electronics.
†Powsiri Klinkhachorn, Ph.D. (WVU). Microprocessor applications, Computer architecture, Binary and non-binary logic.
†Afzel Noore, Ph.D. (WVU). VLSI design and testing, Software engineering, Information assurance and biometrics.
†Brian Woerner, Ph.D. (U. of Mich.). Chair. Wireless communication.
Associate Professors

†Donald Adjeroh, Ph.D. (Chinese U. of Hong Kong). Multimedia information systems (images, video, and audio), Distributed multimedia systems.


†Elaine M. Eschen, Ph.D. (Vanderbilt U.). Graduate coordinator for CS Ph.D. CCDM program. Design and analysis of algorithms, Graph theory, Combinatorics.


†Mark A. Jerabek, Ph.D., P.E. (Purdue U.). Solid state devices and sensors, Electromagnetics.


†Timothy Edward McGraw, Ph.D. (U. of Fla.). Visualization.


†Daryl Reynolds, Ph.D. (Tex. A&M). Statistical signal processing for communications, Iterative (turbo) processing, Transmitter pre-coding, Space-time coding and processing.


K. Subramani, Ph.D. (U. Md.). Scheduling, Computational biology, Computational complexity, Polyhedral combinatorics.


†Frances L. VanScoy, Ph.D. (U. Va.). Programming languages and compilers, Multisensory computing, High performance computing.

Research Associate Professors

Alan V. Barnes, Ph.D. (Cal Tech). Ion surface interactions, Materials growth and automated document analysis.


Assistant Professors

†Xian-An Cao, Ph.D. (U. of Fla.). Nanofabrication, Optoelectronic device.

David Graham, Ph.D. (Ga. Tech.). Analog signal processing.


Research Assistant Professors

Jeremy Dawson (WVU). Nanotechnology.


Hui Wan, Ph.D., (Hong Kong Polytech. U.). Power system protection and control, Distributed generation, and application of artificial intelligence techniques in power system.

Visiting And Adjunct Professors


†Nancy Lan Guo, Ph.D. (WVU). Medical information systems.


Lecturers


Cynthia D. Tanner, M.S.C.S. (WVU). Graduate coordinator for software engineering.

Teaching Assistant Professors

†Ordel Jasmin Brown, Ph.D. (U. of the West Indies, Mona, Jamaica). Holistic learning approaches, Optical sensor development and technologies – chemical and biomedical.

Extension and Outreach

Extension and Outreach is a unit within the College of Engineering and Mineral Resources (CEMR) that is composed of two programs: Mining Extension and Industrial Extension.

James M. Dean, M.S.E.M. (WVU), Director. Mine management, Mine safety and health, Initial miner training.


Industrial Extension Service

Industrial Extension Specialists


Jeffrey Thomas Bopp, B.S. Metallurgical Eng., Aluminum and steel recycling and welding.

Mining Extension Service

Professor

Joseph C. Dorton, B.S. (Concord Coll.). Mine foreman training, Electrical training, Mandatory miner training courses.

Associate Professor


Mining Extension Agents

Mark A. Adkins, B.S. (WVUIT). Mine foreman training, Surface and underground apprentice training and electrical training.

Joseph Caldwell, B.S. (WVUIT). Mine foreman training, Surface and underground apprentice and electrical training.

Thomas W. Hall, B.S. (Fairmont St. Coll.). Mine foreman training, Mandatory miner training, Mining methods.

John D. Martin, B.S. (Berea Coll.). Fire safety training, Protective clothing and equipment.


Ireland Sutton, B.S. (WVUIT). Surface mine blasting, Underground and surface power systems, Mandatory miner training.

Industrial and Management Systems Engineering

Professors

†Rashpal S. Ahluwalia, Ph.D., P.E. (Western Ontario U.). Manufacturing systems, Quality and reliability engineering, Robotics and automation.


†B. Gopalakrishnan, Ph.D., P.E., CEM. (Va. Tech.). Manufacturing processes and production systems, Artificial intelligence applications, Expert systems development, Industrial energy efficiency, Building’s energy efficiency, Industrial energy and waste minimization, and Productivity improvement.

†Steven Guffey, Ph.D., C.I.H. (N.C.S.U.). Ventilation systems theory and design, Noise measurement and control, Exposure assessment.


†Majid Jaraiedi, Ph.D. (U. Mich.). Statistics, Quality control, Forecasting and transportation research.

Warren R. Myers, Ph.D., C.I.H. (WVU). Associate Dean for Academic Affairs. Industrial hygiene and safety, Worker exposure assessment and modeling, Aerosol filtration, Occupational respiratory protection design and testing.


†Gary Winn, Ph.D. (Ohio St. U.). Construction safety, Transportation safety and program evaluation, Total quality management, Theory of paradigm shifts.

Associate Professors


**Assistant Professors**

†Michael J. Klishis, Ph.D. (WVU). Safe behaviors, Training and loss control, Instructional development, Mine safety and health.


**Visiting and Adjunct Professors**


Christopher Coffey, Ph.D. (WVU). Occupational safety and health, Assessment, Evaluation of respiratory protective equipment.

Ren Dong, Ph.D. (Concordia U.). Industrial hygiene, Exposure assessment.

John Richard Etherton, Ph.D. (WVU). Industrial and management systems.

Martin Harper, Ph.D. (London Sch. of Hygiene and Tropical Med.). Industrial hygiene, Exposure assessment.

James R. Harris, Ph.D. (WVU). P.E., Safety research, Human factors.

Paul Hewett, Ph.D., C.I.H. (U. of Pitt.). Exposure assessment strategies with a focus on data analysis paradigms.


Christopher Pan, Ph.D., Industrial hygiene, Exposure assessment.


Ziqing Zhuang, Ph.D. (WVU). Exposure assessment, Assessment and evaluation of respiratory protective equipment.

**Mechanical and Aerospace Engineering**

**Professors**


†Larry Banta, Ph.D. (Ga. Tech.). Automation, Controls, Energy management.

†Ever Barbero, Ph.D. (VPI & SU). Chair, Materials, Experimental and computational mechanics.

†Ismail Celik, Ph.D. (U. Iowa). Fluids engineering, Fuel cell technology.


†Mridul Gautam, Ph.D. (WVU). Interim Associate VP for Research and Economic Development. Fluid mechanics, IC engines and emissions.

†Bruce Kang, Ph.D. (U. Wash.). Experimental mechanics, Advanced materials.


†Victor Mucino, Ph.D., P.E. (U. Wisc.-Mil.). Engineering design.


†Jacky Prucz, Ph.D. (Ga. Tech.). Interim Chair and Graduate Program Director. Structural design, Composite materials, Solid mechanics.

†Samir Shoukry, Ph.D. (Aston U. in Birmingham UK). Pavement modeling, Non-destructive evaluation, Structural dynamics, Neural nets, Instrumentation.


†James E. Smith, Ph.D. (WVU). Mechanical and aeronautical design.

**Associate Professors**


†Gregory Thompson, Ph.D. (WVU). Thermodynamics, Machine design.

**Research Professors**


†Steve Lewellen, Ph.D. (UCLA). Fluid dynamics.

†Donald W. Lyons, Ph.D., P.E. (Ga. Tech.). Manufacturing systems engineering, Instrumentation, Engines and emissions.

John E Sneckenberger, Ph.D. (WVU). System design and controls, Distributed power generation and Smart electric grids.
Research Associate Professor
†David Lewellen, Ph.D. (Cornell). Fluid dynamics, Turbulence.

Assistant Professors
†Darran Cairns, Ph.D. (U of Birmingham, UK). Materials science.
†Daneesh O McIntosh-Simien, Ph.D. (Rice U., Houston, Tx.). Nano devices and materials. Materials that respond to stimuli: Smart materials and multifunctional nano-composites.
†Xueyan Song, Ph.D. (Zhejiang U., China). Materials science, Electron microscopy.
†Nianqiang Wu, Ph.D. (Zhejiang U., China). Materials science and Engineering.
†Yu Gu, Ph.D. (WVU). Flight control systems.
Andrew Nix, Ph.D. (Va. Polytechnic Inst.). Engines and emissions.
†Brad Seanor, Ph.D. (WVU). Flight controls, Parameter estimation, Flight testing, UAV technology.
†Benjamin Shade, Ph.D. (WVU). Engines and emissions.

Visiting And Adjunct Professors
Alberto Ayala, Ph.D. (U. of Calif., Davis). Prof. engine emissions.
†Russell K. Dean, Ph.D. (WVU). Associate Provost for Academic Affairs Admin. Engineering mechanics.
Luis A. Godoy, Ph.D. Structural stability.

Mining Engineering Professors
†Christopher John Bise, Ph.D. (Penn. St.). Chair. Charles T. Holland Distinguished Professor of Mining Engineering and Chairman, Mine design, Mine health and safety.
†Syd S. Peng, Ph.D. (Stanford U.). Charles E. Lawall, Chair in Mining Engineering. Longwall mining, Ground control.

Associate Professors
†Yi Luo, Ph.D. (WVU). Surface subsidence, Ventilation.

Assistant Professor
†Brijes Mishra, Ph.D. (WVU). Theoretical and experimental rock mechanics, Time dependent deformation of rock and salt, Mathematical modeling in rock mechanics

Petroleum and Natural Gas Engineering Professors
†Khashayar Aminian, Ph.D. (U. Mich.). Natural gas engineering, Reservoir engineering.

Associate Professor

Assistant Professor
Department of Chemical Engineering
Rakesh Gupta, Ph.D., Chair
403 Engineering Sciences Building
E-mail: rakesh.gupta@mail.wvu.edu
http://www.che.cemr.wvu.edu

Degrees Offered
- Master of Science in Chemical Engineering
- Master of Science in Engineering with a major in Chemical Engineering
- Doctor of Philosophy with a major in Chemical Engineering

The Department of Chemical Engineering, with 14 active tenure-track faculty members, 96 undergraduates, and 41 graduate students, has one of the oldest doctoral-granting programs in the University. From the initial doctoral degree in 1932, the graduate course program has been based on advanced chemical engineering fundamentals, while the research program has reflected a balance of fundamental research areas and their application to relevant technological areas such as bioengineering, catalysis, coal conversion, materials, and polymer processing.

The outcomes of the graduate programs in chemical engineering are:
- Holders of graduate degrees will understand the advanced principles of chemical engineering, which include reaction engineering, transport phenomena, and thermodynamics.
- Holders of graduate degrees will have an expert-level understanding of the background and theory/principles of their research topics.
- Holders of Ph.D. degrees will be able to initiate research ideas in order to solve specific problems and to write research proposals on these ideas.
- Holders of Ph.D. degrees will have furthered a novel research idea.
- Holders of graduate degrees will be able to plan research projects, to perform the tasks, and to draw conclusions based on sound scientific and engineering principles.
- Holders of graduate degrees will be able to write technical articles for publication in refereed journals and to make oral and poster presentations at technical meetings.
- Holders of graduate degrees will demonstrate initiative in research planning and management, including safety and environmental issues.
- Holders of graduate degrees will be technically prepared for a lifetime of continuing education.
- Holders of graduate degrees will understand professional and ethical responsibilities.

Faculty Research Areas
Chemical engineering faculty are presently involved in the following research areas: biochemical engineering, biomedical engineering, carbon science, catalysis, fluid mechanics, heat transfer, materials engineering, polymers and polymer rheology, reaction engineering, separation processes, solution chemistry, surface science, and thermodynamics. These fundamental areas have applications in biochemical technology, bio-transport, coal gasification and liquefaction, materials handling and processing, in-situ combustion, non-fuel uses of coal, carbon products, and synthetic fuels.

Faculty members possess a wide variety of industrial experience and are routinely in contact with their counterparts in industry. This contact with real engineering problems enables them to convey a practical experience to students while keeping in perspective many of the fundamental concepts involved in graduate study. During the last five years, the chemical engineering faculty have authored or coauthored four books, published over 90 refereed journal articles, received five patents, made over 175 presentations at professional meetings, and supervised the completion of 50 master’s and ten doctoral degrees, and supervised ten post-doctoral students and several visiting scholars. In addition, faculty members have taught short courses throughout the United States and abroad.

Degree Programs
The department is authorized to admit students to the following degree programs: master of science in chemical engineering (M.S. Ch.E.), master of science in engineering (M.S.E.), and College of Engineering and Mineral Resources interdisciplinary doctor of philosophy (Ph.D.). A problem report option is also available as an alternative to the traditional research based
Master's Programs

Admission
Admission into the M.S.Ch.E. degree program is restricted to those holding a baccalaureate degree in chemical engineering or its equivalent. The M.S.E. program is available to students holding baccalaureate degrees in other fields of engineering and the physical sciences who wish to pursue a broad interdisciplinary program relevant to the major graduate areas administered by the department. To be admitted as a regular graduate student, an applicant must have a B.S. degree and a sound record in previous college work with a minimum 3.0 (on a 4.0 scale) cumulative grade point average. Applicants who cannot meet these conditions may be considered for admission in a conditional category. Students admitted with deficiencies in their undergraduate programs are required to take some chemical engineering courses as prerequisites for graduate courses. International students must demonstrate proficiency in communicating in English (a minimum TOFEL score of 550, or iBT score of 79, or IELTS score of 6.5). These requirements are stated as a condition for admission.

Planned Programs
M.S.Ch.E. students should expect to obtain their degree in 18–24 months. M.S.E. students typically require one to one-and-a-half years beyond completion of prerequisite courses. Typically, the prerequisite courses include as a minimum: CHE 310, 311, 312, 315, 320, and 325. All M.S. degree candidates are required to perform research and will follow a planned program which conforms to either of the following outlines:

• A minimum of 30 semester credit hours, excluding seminar; not more than six of which are in research leading to an acceptable thesis.
• A minimum of 33 semester credit hours, excluding seminar; not more than three of which are in research leading to an acceptable problem report.

The coursework M.S. degree option is not presently offered by the Department of Chemical Engineering.

Required Courses
All students are required to take CHE 615, 620, and 625, and all full-time students are required to take one credit of journal club/seminar (CHE 796) for each semester enrolled. The research advisor, in conjunction with an Advisory and Examining Committee (AEC) to be designated by each student, will be responsible for following Departmental guidelines to determine the plan of study appropriate to the student's program.

Research Proposals
A written research proposal and oral presentation of this proposal is required of all M.S. students. This oral defense is administered by the student’s AEC and must be completed by the end of the second semester of the first year for a M.S.Ch.E. candidate, and as soon as possible but not later than the end of the second semester of the second year for M.S.E. candidates.

Final Examination
All students are required to pass a final oral examination, administered by their AEC, covering both the thesis or problem report (depending on the program selected) and related course material.

Doctor of Philosophy
A candidate for the degree of doctor of philosophy must comply with the rules and regulations as outlined in the general requirements for graduate work in engineering and the specific requirements stated in the departmental guidelines. Students who are interested in pursuing
a Ph.D. degree in the Department of Chemical Engineering should contact the department for specific information. A program with a major in chemical engineering, designed to meet the needs and objectives of each student, will be developed in consultation with the student’s research advisor and Advisory and Examining Committee (AEC). It should be emphasized that the Ph.D. degree is primarily a research degree, and therefore the research work for a doctoral dissertation should show a high order of originality on the part of the student and must offer an original contribution to the field of engineering science. Students in the Ph.D. program should expect to complete the requirements in two to four years.

Admission

Admission to the Ph.D. program is open to students who qualify as regular graduate students and who have obtained a B.S. or M.S. degree in science or engineering. Students admitted must have demonstrated an excellent academic record in previously completed college coursework with a minimum cumulative grade point average of 3.0 (on a 4.0 scale). Three letters of recommendation and GRE scores (international students only) are required by the department. International students must demonstrate proficiency in communicating in English (a minimum TOFEL Score of 550, or iBT Score of 79, or IELTS Score of 6.5).

Required Courses

All B.S. students entering the Ph.D. program are required to take CHE 615, 620, and 625, while M.S. students entering the program must demonstrate equivalent courses taken for graduate credit. In addition, all full-time students must take one credit of seminar/journal club (CHE 796) each semester. For a student admitted directly after the B.S. degree, the Ph.D. program consists of a minimum of 36 course credit hours, excluding research (CHE 797 and CHE 796). If the student has an M.S. in chemical engineering from WVU, the program consists of a minimum of 12 course credit hours (excluding CHE 797 and CHE 796). If the student has an M.S. in chemical engineering from another institution, the program consists of a minimum of 18 course credit hours (excluding CHE 797 and CHE 796).

Students must complete a minor consisting of a minimum of nine semester hours of a coherent set of courses taken outside of the department. These courses may be related to the major research area. Non-technical courses are considered only under exceptional circumstances. Courses at the 400 level may be acceptable. All courses must be approved by the AEC and the academic advisor. Students must complete graduate courses with an overall coursework average of 3.0 or better (exclusive of research credits) and complete all CHE courses with an overall grade point average of 3.0 (exclusive of research credits). A minimum of 24 credit hours in dissertation research is required. Also, two semesters of full-time attendance at the Morgantown campus is required to complete the residency requirement.

Examinations

All students must pass the Ph.D. qualifying examination given in their first year at WVU. This examination is designed to assess the basic competency of students in the chemical engineering field to determine whether or not they have sufficient knowledge to undertake independent research.

In order to complete the Ph.D. requirements, a student must pass a final oral examination on the results embodied in the dissertation. This examination is open to the public and, in order to evaluate critically the student’s competency, may include testing on material in related fields, as deemed necessary by the AEC. In addition, since the Ph.D. degree is primarily a research degree that embodies the results of an original research proposal and represents a significant contribution to scientific literature, the student must submit a manuscript on this research to the AEC.

Research Proposal

Within 12 months of passing the qualifying examination or of entering the Ph.D. program, whichever is later, the student must successfully defend an original research proposition in an oral examination. The written proposition, developed by the student alone, remains the intellectual property of the student and must be on a topic unrelated to the student’s own research work for the dissertation.
A student must receive acceptance of a written dissertation research proposal and must also successfully defend this proposal to the student’s AEC. This requirement must be completed within six months of passing the qualifying examination or of entering the Ph.D. program, whichever is later. The research work for the doctoral dissertation should show a high order of originality on the part of the student and must offer an original contribution to the field of engineering science.

A student who has successfully completed all coursework, passed the qualifying examination, and successfully defended the original research proposition and research proposal is defined as one who is a candidate for the Ph.D. degree.

**Department of Civil and Environmental Engineering**
Radhey Sharma, Ph.D., Chair
625 Engineering Sciences Building
E-mail: ceeinfo@mail.wvu.edu
http://www.cee.cemr.wvu.edu/

**Degrees Offered**
- Master of Science in Civil Engineering
- Master of Science in Engineering with a major in Civil Engineering
- Doctor of Philosophy with a major in Civil Engineering

The Department of Civil and Environmental Engineering offers the master of science in civil engineering (M.S.C.E.). In conjunction with the College of Engineering and Mineral Resources, the master of science in engineering (M.S.E.), and the doctor of philosophy degrees are available with emphases in civil engineering.

The Department of Civil and Environmental Engineering has a full-time faculty of 26 who are active in teaching, research, and professional commitments.

**Areas of Emphasis**
There are four major areas of interest of the faculty and graduate studies:
- Environmental and hydro-technical engineering, which includes wetland and natural stream restoration; water, wastewater, and industrial waste treatment; air pollution and site remediation; groundwater hydraulics, hydrology, and fluid mechanics.
- Geotechnical engineering, which includes soil mechanics, foundations engineering, soil-structure interaction, geomechanics, geoenvironmental, groundwater and seepage, geosynthetics, contaminant transport, earthwork design, and waste by-product utilization.
- Transportation engineering, which includes planning, design, construction, operations, and maintenance of transportation facilities/systems (roadways, railroads, airports, and public transportation) as well as related areas of infrastructure management and expert systems.
- Structural engineering, which includes advanced structural mechanics, structural dynamics, bridge engineering, building design for static and dynamic loads, advanced materials for civil infrastructure, and nondestructive testing and evaluation.

**Faculty**
Many of the faculty members are licensed professional engineers registered in one or more states and are involved in state, regional, and national professional organizations, serving on numerous technical committees. They are successful researchers and have published extensively in technical journals. The civil and environmental engineering faculty produces graduates who can assume the problem solving, decision making, and technical leadership roles of a professional engineer and who have the sound educational background for the continuing professional development the field requires.

Students tailor their program of study to pursue individual topics of interests, with guidance from a faculty advisor. Opportunities abound within the master’s and doctoral tracks for a research experience in which the student tackles an engineering problem individually, with guidance from a faculty advisor. The graduate program in civil engineering was established with the aim of developing its students’ abilities to use today’s contemporary methods of engineering analysis and design to solve tomorrow’s engineering problems.
Application
An application package can be obtained from the Graduate Program Coordinator, Department of Civil and Environmental Engineering, West Virginia University, P.O. Box 6103, Morgantown, WV 26506-6103. Complete application information is also available on the web at: http://www.cee.cemr.wvu.edu/grad/admission.php.

Admission
To be eligible for admission into the M.S.C.E. degree program, a candidate must either
• Hold or expect to receive a B.S.C.E. degree from either an accredited ABET curriculum or an internationally recognized program, or
• Have a superior academic record and a baccalaureate degree in another engineering field, mathematics, or science.
Candidates with a baccalaureate degree in another field of engineering, mathematics, or science are also eligible for admission into the M.S.E. degree. Candidates are normally required to attain a baccalaureate level of proficiency in areas of emphasis of the department. An engineering technology (non-calculus based) degree is not sufficient qualification for admission into any of the graduate programs offered by the department.
To be eligible for admission into a doctorate of engineering program, a candidate is expected to hold or expect to receive a B.S. or an M.S. degree or equivalent in:
• Some discipline of engineering from an institution which has an ABET-accredited program in that discipline, or
• Which has an internationally recognized program in engineering, or mathematics and sciences (as specified by individual programs)
The other requirements for admission into the graduate programs of the department are summarized as follows.
• To be admitted as a regular graduate student, an applicant must have a grade point average of 3.0 or better (out of a possible 4.0) in all previous college work and must meet all other requirements below.
• The applicant must first submit to the WVU Office of Admissions a completed application, application fee, and transcripts of all college work completed (directly from the institution).
• Each applicant is required to have three reference letters (using standard forms available from the department) sent directly to the department; at least two of the three references should be from the institution the applicant last attended.
• International students must demonstrate proficiency in communicating in English (a minimum TOFEL score of 550, or iBT score of 79, or IELTS score of 6.5). (Students who have completed a recent four-year bachelor’s degree in the USA need not submit these scores.)
• All applicants who have not received their undergraduate degree in the United States are required to submit GRE General Test scores with the Engineering Subject Test score being optional.

Provisional Admission
Students must comply with rules and regulations as outlined in the general requirements for graduate work. Each candidate will, with the approval and at the discretion of the Graduate Committee, follow a planned program which must conform to one of the following outlines.

Masters of Science in Civil Engineering
Students must comply with rules and regulations as outlined in the general requirements for graduate work. Each candidate will, with the approval and at the discretion of the Graduate Committee, follow a planned program which must conform to one of the following outlines.
• A minimum of 30 semester credit hours, not more than six of which are in research leading to an acceptable thesis.
• A minimum of 33 semester credit hours, not more than three of which are in research leading to an acceptable problem report.
A minimum of 36 semester credit hours, with no thesis or problem report required. Although rarely permitted, this option is open to students with practical engineering experience or those who have demonstrated an ability to organize and develop a project and write a technical report. Approval to pursue this option must be obtained from the student’s Advisory and Examining Committee (AEC), the graduate program coordinator, and the department chairperson.

No rigid curricula are prescribed for the degree of master of science in civil engineering. Graduate-level work in mathematics, mechanics, or other appropriate areas of science is customary; however, at least 15 semester hours of credit should normally be selected from graduate civil engineering courses.

**Thesis and Problem Report**
A thesis or problem report is normally required of all candidates. While required credit in research (CE 697) is devoted to the thesis or report preparation, the thesis or problem report is not automatically approved after the required number of semester hours of research work has been completed. The thesis or problem report must conform with the general WVU requirements for graduate study and to any additional requirements established by the department.

**Examinations**
A candidate shall be required to pass an examination which may be written or oral or both, to be administered by the student’s Advisory and Examining Committee. The examination shall cover course material and the thesis or problem report, depending upon the program followed.

**Master of Science in Engineering**
The master of science in engineering program is available to students approved for the graduate program who possess a baccalaureate degree in a technical area other than civil engineering. Students entering this graduate program must complete appropriate undergraduate work as specified by the Advisory and Examining Committee. In addition to fulfilling the required undergraduate work, the M.S.E. program must follow a planned program meeting one of the three options for the M.S.C.E. as specified above. No rigid curricula are prescribed for the degree of master of science in engineering. Graduate-level work in mathematics, mechanics, or other appropriate areas of science is customary; however, at least 15 semester hours of credit should normally be selected from graduate civil engineering courses. This degree program is administered by the College of Engineering and Mineral Resources; the program may emphasize civil engineering.

**Doctor of Philosophy**
The doctor of philosophy degree is administered through the college’s interdisciplinary program; civil engineering may be the major. A candidate for the degree of doctor of philosophy must comply with the rules and regulations outlined in the general requirements of the College of Engineering and Mineral Resources. The research work for the doctoral dissertation must show a high degree of originality on the part of the student and must constitute an original contribution to the art and science of civil engineering.
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Degrees Offered
- Master of Science in Computer Science
- Master of Science in Electrical Engineering
- Master of Science in Engineering
- Master of Science in Software Engineering
- Doctor of Philosophy in Computer Engineering
- Doctor of Philosophy in Electrical Engineering
- Doctor of Philosophy in Computer and Information Sciences

Faculty
The Lane Department of Computer Science and Electrical Engineering, with 30 faculty members offers an excellent graduate program. Faculty members in the department have diverse and extensive expertise in industry, research, and graduate instruction, providing opportunities for students to pursue graduate study in either theory-oriented or application-oriented fields.

Overview of Programs
The Lane Department of Computer Science and Electrical Engineering offers master’s programs leading to a master of science in computer science (M.S.C.S.), a master of science in electrical engineering (M.S.E.E.), and a master of science in software engineering (M.S.S.E.). It also participates in the College of Engineering and Mineral Resources interdisciplinary program offering the master of science in engineering (M.S.E.). Master of science students must comply with the rules for master’s degrees as set forth by the college in the Guidelines for Master’s Degree Programs Offered in the College of Engineering and Mineral Resources and by the Department in the Master of Science Program Guidelines.

The department also offers programs leading to the doctor of philosophy (Ph.D.) in computer and information sciences, and the doctor of philosophy (Ph.D.) with specialization in electrical engineering or computer engineering. Ph.D. in electrical or computer engineering students must comply with the rules set forth by both the college in The College of Engineering and Mineral Resources Doctor of Philosophy Program Guidelines and by the Department in the Doctor of Philosophy Program Guidelines. Ph.D. students in computer and information sciences must comply with the rules set forth in the Handbook for Computer Science Graduate Students.

How to Apply
Students can apply for WVU admission online at http://www.wvu.edu (choose admissions), or by an e-mail request to the proper graduate coordinator for an application. Do not send applications to the Lane Department. Instead, mail to Office of Admissions, P.O. Box 6009, Morgantown, WV 26506-6009.
Information on degree programs and course descriptions can be found at our CSEE website (http://www.csee.wvu.edu). Send other inquiries to the appropriate graduate coordinator of Computer Science, Electrical and Computer Engineering, or Software Engineering (whichever applies), P.O. Box 6109, Morgantown, WV 26506-6109.

**Deadlines for Applications**

Application deadlines are as follows:
- **Fall semester**: March 1
- **Spring semester**: October 1
- **Summer session**: January 1

Applicants failing to meet these deadlines have no guarantee of consideration for timely entrance into the program for which they apply.

**Admission Requirements for All Programs**

All master’s and Ph.D. programs require applicants to provide the items below to be considered for admission. Specific programs may have additional requirements. Exception: These requirements do not apply to nontraditional students in the Certificate of Software Engineering program and M.S.S.E. program (see certificate program and M.S.S.E. program for more information):

- A minimum cumulative grade point average of 3.0 or equivalent, based on a 4.0 system.
- Three letters of reference.
- International students must demonstrate proficiency in communicating in English (a minimum TOFEL Score of 550, or iBT Score of 79, or IELTS Score of 6.5). (Students who have completed a recent four-year bachelor’s degree in the USA need not submit these scores.)

**Additional Admission Requirements for Specific Programs**

- M.S., Ph.D. in computer science.
- An undergraduate curriculum which includes computer science courses consistent with a bachelor’s degree in computer science. The GRE general test is also required M.S.E.E.
- A bachelor’s degree in electrical or computer engineering, and A GRE score on the general test of either the 80th percentile on the quantitative part or 80th percentile total (verbal + quantitative + analytical). M.S.E.
- A bachelor’s degree in engineering (other than EE or CPE) or the sciences M.S.S.E. (software engineering).
- See: Certificate in Software Engineering; Master of Science in Software Engineering for requirements.
- Ph.D. with major in CPE or EE. A master’s degree in engineering or the sciences and a statement of purpose. A GRE score on the general test of either the 80th percentile on the quantitative part or 80th percentile total (verbal and quantitative and analytical).

**Regular, Provisional, and Non-Degree Admission**

Students admitted into a program are designated as regular status or provisional. The department also admits students to non-degree status in the College of Engineering and Mineral Resources, but these students are not admitted to any specific program. Regular status is given to students who are qualified for unconditional admission to a specific program. Provisional status is given to students who have deficiencies to make up such as incomplete credentials or other reasons as identified by the graduate coordinator. In all cases, the student’s letter of admission will state what must be done to attain regular status.

Provisional students must complete the requirements for transfer to regular status by the end of the semester in which they complete 18 credit hours. Usually provisional students are not considered for graduate assistantships or tuition waivers.

Non-degree status is granted upon request to students meeting the minimum admission requirements. A non-degree student is one who wishes to take courses without seeking a formal degree. Non-degree students require permission of the instructor to take courses that are restricted to specific majors. There is no guarantee of eventual acceptance into a degree program, and in no case may more than 12 hours be transferred to a degree program.

Non-degree students may not be offered graduate assistantships or tuition waivers.
Master of Science in Computer Science

General Description

The M.S.C.S. program qualifies a student to assume a professional role in industry or government, teach in a junior or senior college, or undertake advanced training toward a doctorate in computer science.

The following sections describe the general procedures to be followed in completing the M.S.C.S. degree. Note that steps are intended to be carried out in a specific order. Further details may be found in the Handbook for Computer Science Graduate Students.

Admission Requirements

Students who satisfy the admission requirements for all programs as given above will be considered for admission. Additional criteria may be considered in making a final decision. All applicants must submit three letters of reference and complete an Applicant Information Form.

Removing Deficiencies

The minimum background expected of any student entering the M.S.C.S. program is coursework equivalent to the following:

- One year of calculus (MATH 155 and 156).
- One course in probability and statistics (STAT 215).
- Knowledge of introductory programming in a high-level programming language (CS 110).

Students not meeting these minimum requirements will be required to take the equivalent coursework before applying to the M.S.C.S. program.

Students entering without a four-year bachelor’s degree in computer science may have additional deficiencies in their coursework which must be addressed before beginning the regular M.S.C.S. program. These students will be initially admitted with provisional status, and required to remove these deficiencies during their first 18 hours of coursework.

Possible deficiency areas for students having a bachelor’s degree in other disciplines represent the following core areas required of all undergraduate CS students:

- Data Structures (CS 111).
- Software Engineering (CS 230).
- Discrete Mathematics (CS 220).
- Analysis of Algorithms (CS 221).
- Computer System Concepts (CS 350).
- Theory of Programming Languages (CS 310).

As demand justifies and resources permit, the department will offer accelerated courses to assist graduate students in satisfying deficiencies.

Program Requirements

Students may choose the thesis option or the problem report option. The thesis option requires 30 credit hours: 24 hours of formal coursework and six hours of research. At most nine hours of 400-level undergraduate coursework may be included. This option requires writing a thesis that represents research suitable for publication in a refereed journal. All theses are submitted to the University’s Electronic Thesis and Dissertation program.

The problem report option requires 33 credit hours: 30 hours of formal coursework and three hours of research. Again, at most nine hours of 400-level undergraduate coursework may be included. The problem report option requires writing an acceptable report describing a research project carried out by the student.

Regardless of the option chosen, students must take at least one graduate course in each of three areas: theory, systems, and applications. The following courses may be used to meet this requirement:

- Theory: CS 510, 520, or 525.
- Systems: CS 550 or 555.
- Applications: Any other CS graduate course.

The department or the student’s Graduate Committee may designate additional courses, including doctoral-level courses that may meet these requirements.
Graduate Committee
Before the end of the second semester as a regular master’s student, each student must form a Graduate Committee of at least three members. The chair of this committee must have regular graduate faculty status. For a committee overseeing a thesis, the majority of the members must also have regular graduate faculty status.

The role of this committee is to guide the student both in selection of courses and in research. At the time the committee is formed, the student submits for approval a preliminary plan of study listing the courses that have been taken or will be taken. The choice of thesis or problem report option should also be indicated on the plan of study, along with a tentative title for the thesis or problem report.

Research and Final Defense
After formation of the Graduate Committee and approval of the preliminary plan of study, the student may register for research using course number CS 697. Research may begin at the same time that the coursework is being completed. However, students should normally plan on the equivalent of one semester of full-time effort to complete a problem report, or two semesters to complete a thesis.

All master’s students must defend their thesis or problem report at an oral exam, attended by all members of the committee. The exam consists of two parts. The first part is a period of oral questioning on the student’s coursework. This questioning is intended to ensure that the student has learned the general concepts of the courses he or she has taken. The coursework part must be completed satisfactorily before the research defense can take place. A student who fails the coursework part may have one additional attempt during the same semester.

The second part is presentation of the research and a defense of this research by answering questions from the committee. This defense may occur directly after the coursework questions or at a later time. It cannot be held until the coursework questions are answered satisfactorily.

A student who fails the research defense may repeat the defense at most once, at a time determined by the Graduate Committee but not necessarily during the same semester.

Program Length
Normally a student who has attained regular master’s status should expect to spend two to three semesters plus an additional semester or summer session to complete the M.S.C.S. degree.

Master of Science in Electrical Engineering (M.S.E.E.)
Program Requirements for M.S.E.E.
There are three options available for students to gain a master’s degree: coursework only thesis option, or problem report option.

- Students following the coursework option must take 33 credit hours of formal coursework plus two hours of graduate seminar. This option is open only to professionals employed full-time in local industry. At most nine hours of 400-level coursework may count.
- Students following the problem report option must take 35 credit hours: 30 hours of formal coursework, three hours of research, and two hours of graduate seminar. At most nine hours of 400-level undergraduate coursework may count.
- Students following the thesis option must take 32 credit hours: 24 hours of formal coursework, six hours of research, and two hours of graduate seminar. At most nine hours of 400-level undergraduate coursework may count. Students supported by research assistantships are expected to pursue this option.

Students pursuing either the thesis or problem report option leading to the M.S. degree must have the thesis or problem report approved by the student’s advisory and examining committee (AEC) before it can be accepted. The student must also pass a final oral examination and defense of the thesis or problem report administered by the AEC.

Those students who lack course prerequisites may require more than three semesters of full-time study to complete the degree. Students with research assistantships may also require more than three semesters to complete the degree.
Master of Science in Engineering Program (M.S.E.)

The master of science in engineering program is available to students who are interested in graduate work in electrical or computer engineering but hold a baccalaureate degree from another field of engineering or from another discipline. Students with a baccalaureate degree from another field of engineering or from one of the sciences should contact the department for further information. In general, a student in the M.S.E. program will be expected either to complete certain undergraduate prerequisite courses or to attain equivalent competence, but may not be required to complete all of the requirements equivalent to the B.S.E.E. or B.S.CPE. degree. However, all graduate students will be required to meet the prerequisites for each course taken for credit.

Software Engineering

The department offers a certificate in software engineering program and a master of science in software engineering. For some students, completion of the certificate is the first step towards earning an M.S.S.E.

Certificate in Software Engineering

The certificate in software engineering program provides further education to individuals who are currently working in the computer and information technology industry. This program is usually offered at evening times and off-campus locations convenient for the working professional.

Admission Requirements

Applicants for the certificate in software engineering must meet the following requirements:

• Hold a bachelor’s degree in any field from an accredited University.
• Submit a resume documenting at least three years of software development experience.
• Provide names and addresses of three references that are familiar with the applicant’s work.

Program Requirements

The certificate program consists of completing five approved courses and the certificate final exam paper. Students who achieve a B or higher in each of the first four courses of the certificate program will qualify to enter the master of science in software engineering program, described below. Courses taken for the certificate program earn credit towards the master’s degree.

Master of Science in Electrical Engineering with Emphasis in Biometrics and Information Assurance

An applicant with a baccalaureate degree or its equivalent from a program accredited by the Accreditation Board for Engineering and Technology (ABET), or an internationally recognized program in engineering will be admitted on the same basis as engineering graduates of WVU. Lacking these qualifications, an applicant must first fulfill any special requirements of the department in which the student is seeking an advanced degree.

All master’s programs require applicants to satisfy the three items below in consideration for admission. Specific programs may have additional requirements.

• A GRE score on the general test of either the 80th percentile on the quantitative part of 80th percentile total (verbal, quantitative, and analytical).
• A minimum cumulative grade point average of 3.0 or equivalent, based on 4.0 system.
• Three letters of reference.
• Familiarity with the basic concepts of information assurance and biometrics.

Admission as a graduate student is required of all applicants for admission to a program of student and research. Applicants for admission must hold or expect to receive a bachelor’s degree in engineering or computer science from an accredited or an internationally recognized program in engineering or computer science.
Regular, Provisional, and Non-Degree Admission

Students admitted into a program are designated as regular, provisional, or non-degree status. Regular status is given to students who are granted unconditional admissions. Provisional status is given to students who have deficiencies to make up such as incomplete credentials or other reasons as identified by the graduate coordinator. In all cases, the student’s letter of admission will state what must be done to attain regular status, and students must sign and date this letter no later than the first registration. Non-degree status is granted case-by-case by the graduate coordinator. Basically, a non-degree student is one who may take courses, but sometimes with no plan of study or any guarantee for attaining provisional status.

Master Options

Three options are available to EE master’s students for degree completion:

- **Thesis Option** Total hours: 32. Eight three-credit courses, at least two hours of graduate seminar, plus six credits of research leading to successful thesis defense.
- **Problem Report** Total hours: 35. Ten three-credit courses, at least two hours of graduate seminar, plus three credits of research/independent study leading to successful problem report completion.
- **Coursework Option** Total hours: 35. Eleven three-credit courses and at least two hours of graduate seminar

Master of Science in Software Engineering (M.S.S.E.)

The M.S.S.E. degree provides graduate-level software engineering expertise to individuals who are either currently working in the computer and information technology industry or have academic credentials that provide a foundation to begin graduate work in software engineering. The M.S.S.E. program aspires to serve both adult learners from the local computer and information technology industry, and traditional, resident full-time graduate students. This program is usually offered at evening times and off-campus locations convenient for the working professional. It may also be available by distance learning methods.

Admission Requirements

Students seeking admission to the M.S.S.E. program must fall into one of three categories to be considered for admission. The categories are:

- **CS, CPE, or Software Engineering Students**
  
  Students who have recently completed a bachelor’s degree in computer science, computer engineering, or software engineering will be considered for admission with regular status if they satisfy requirements listed previously under Admission Requirements for All Programs.
  
  - Students from other disciplines
  - Students who have recently completed a bachelor’s degree in a field other than computer science, computer engineering, or software engineering will be considered for admission with regular status if they meet the following requirements:
    - A minimum GPA of 3.0 (on a 4.0 scale), or equivalent.
    - A minimum GPA of 3.0 for coursework in the major.
    - A GRE score on the general test of either 80th percentile on the quantitative part or a total of 1800 (verbal + quantitative + analytical).
    - A GRE score on the computer science subject test of 40th percentile or higher.
  
  - Nontraditional students
    - Students who have at least three years of software-development work experience in the high-technology industry are waived of all GRE and GPA requirements. Instead, they will be considered for admission with non-degree status by meeting the following requirements:
      - Hold a bachelor’s degree in any field from an accredited University.
      - Submit a resume documenting at least three years of software development experience.
      - Provide names and addresses of three references that are familiar with the applicant’s work.
    - Nontraditional students may enroll in courses in the M.S.S.E. program, and must earn a grade of at least B in each of the first four courses. Upon meeting this requirement, students will be transferred from non-degree status to regular status for the M.S.S.E. program.
M.S.S.E. Program Requirements

Students pursuing an M.S.S.E. degree may elect a coursework only option, a problem report option, or a thesis option. The coursework option and the problem report option require completion of a total of 33 graduate credit hours: 33 hours of formal coursework, or 30 hours of formal coursework and three hours of research (SENG 697). The thesis option requires a total of 30 credit hours: 24 hours of formal coursework and six hours of research.

Doctor of Philosophy in Computer Engineering

Doctor of Philosophy in Electrical Engineering

Description

The doctor of philosophy program should be considered by those with superior academic achievement and who desire to pursue a career of research or teaching. Students interested in the Ph.D. program in electrical engineering or computer engineering should see our web page at http://www.csee.wvu.edu for information. If additional information is needed, contact the graduate coordinator of electrical and computer engineering.

Admission

As a first step, students must satisfy provisions under the “Admission Requirements for All Programs” and must submit a statement of purpose.

Students who hold an M.S.E.E. or M.S.E. (or equivalent) degree will be considered for admission with regular status into the Ph.D. program. Students, who hold a master’s degree in the sciences or engineering, excluding M.S.E.E. or M.S.E., will be considered for admission with provisional status and will likely have coursework deficiencies to remove. All other students must apply for admission into a master’s program as the first stage in attaining the Ph.D.

Removing Deficiencies for Ph.D. in CPE or EE

Prior to the first week of classes, new Ph.D. students must meet with the graduate coordinator to select classes. This interview determines if the student needs remedial work in order to pursue a graduate degree.

Students with deficiencies may be required to take courses as prerequisites for graduate courses. Deficiencies are usually noted as a condition for admission. However, they may also be specified during the interview or later.

During the second semester, students must form their Advisory and Examining Committee (AEC) and write a plan of study. The AEC may also identify additional deficiencies to be removed, but this is rare since deficiencies should have been identified earlier in the student’s career.

Program Requirements

Coursework

Students must complete at least 18 hours of formal coursework at the 600 and 700 levels at WVU, beyond that required of the master’s degree. Students with the help of their AEC select courses that will develop expertise in the student’s area of interest, and that will strengthen knowledge of other areas supportive of research endeavors.

Examinations

Ph.D. students must pass a written qualifying examination, normally within one year of their first enrollment in the Ph.D. program. The student must also pass a written and oral candidacy examination given by the AEC, and must successfully defend in oral examination a written research proposal.

When all requirements are completed, the qualifying and candidacy examinations are passed, and the research proposal is successfully defended, the student is formally admitted to candidacy for the Ph.D. degree. For full-time students, admission to candidacy must occur within three years of entering the Ph.D. program.

After the student completes the research (at least 24 credit hours) and prepares a dissertation, the final examination consists of a public defense of the dissertation. All requirements for the degree must be completed within five years after the student has been admitted to candidacy.
Research
Research work for the doctoral dissertation must represent a significant contribution to engineering. It may entail a fundamental investigation into a specialized area or a broad and comprehensive system analysis or design. A minimum of 24 credit hours of research (CPE 797 or EE 797) is required.

Program Length
A typical Ph.D. program requires four to five years beyond the baccalaureate degree, although scholarly achievements are more important than length of program.

Doctor of Philosophy in Computer and Information Sciences
General Description
The doctor of philosophy is a research degree rather than a coursework degree. Doctoral students are required to complete a number of advanced courses, but more time is spent in original research in close association with an experienced researcher. The Ph.D. program in computer and information sciences (CIS) prepares a student for a teaching and research career in computer science or related information sciences, in industry, government, or advanced educational institutions.

An area of emphasis in combinatorial computing and discrete mathematics (CCDM) is offered within the CIS Ph.D. program. The CCDM Ph.D. program offers students the opportunity to pursue multidisciplinary studies across theoretical computer science, discrete mathematics, and statistics. Applicants are expected to satisfy the Admission Requirements for All Programs as given previously. In addition, for regular admission, applicants must satisfy certain CCDM specific prerequisites, and hold a master’s degree in computer science, statistics, mathematics, a closely related field, or have completed equivalent graduate coursework. An applicant that does not meet all of these requirements may be admitted provisionally. Note that a CCDM Ph.D. student is not required to have or obtain the equivalent of a bachelor’s or master’s degree in computer science. The CCDM Entrance Exam replaces the CIS Ph.D. Qualifying Exam. Coursework requirements differ from those of the CIS Ph.D. program, but are not in conflict with any CIS Ph.D. requirements. Details for the CCDM Ph.D. program can be found in the Handbook of CCDM Ph.D. Program for Computer Science Graduate Students.

The following sections describe the general procedures to be followed in completing the regular CIS Ph.D. degree. Note that the steps are intended to be carried out in a specific order. Further details can be found in the Handbook for Computer Science Graduate Students.

Admission Requirements
Students who satisfy the Admission Requirements for All Programs as given previously, and who have at least a bachelor’s degree in computer science or a science, engineering, or mathematics discipline will be considered for admission. All applicants must submit three letters of reference and a statement of purpose, which briefly explains their objectives in seeking the degree.

Removing Deficiencies
Normally, students who do not have at least the equivalent of a bachelor’s degree in computer science will be admitted initially as provisional master’s students. Their first requirement will be to complete all necessary preparatory work by taking the courses as described for the M.S.C.S. degree. After meeting this requirement, these students may apply for the doctoral program.

In exceptional cases a student lacking some elements of the required background may be admitted directly as a provisional doctoral student. Students in this category must complete the needed preparatory work as described above during their first two semesters.

Preliminary Coursework
Doctoral students who do not have an M.S.C.S. degree must either earn this degree, or as a minimum, complete coursework as required for the M.S.C.S. with thesis option. It is not necessary to actually write a thesis. A minimum of 24 hours of coursework is required. Up to 12 hours may be transferred from work done at another institution.
Graduate Committee

During the second semester as a regular doctoral student, students must form their Graduate Committee and prepare a plan of study. Students planning to first complete an M.S.C.S. degree must be admitted as an M.S.C.S. student and form a Master’s Committee consisting of three or more members, and follow the requirements for the M.S.C.S. as discussed above. In all other cases, or when the M.S.C.S. degree has been completed, students should form a Doctoral Committee of at least five members in consultation with the graduate coordinator. This committee must conform to all University and college requirements set forth in other sections of this catalog.

Qualifying Examinations

Within three years of admission to the doctoral degree program, applicants must take and pass a set of departmental qualifying examinations, demonstrating a breadth of knowledge in computer science. Information on the content of these examinations is made available by the department. The content is not necessarily limited to specific courses the student has taken. A student may receive one of two grades on each exam: pass or fail. Students are permitted three sittings to pass the exams, but need not retake exams on which they previously received a passing grade. The student must pass all three qualifying examinations in three consecutive semesters. A Ph.D. student who does not receive a pass on these examinations after three attempts may transfer all credits earned in the doctoral program toward acquiring a master’s degree.

Regular Coursework

Students who have successfully passed the qualifying examinations must then take, additionally, 18 hours of advanced graduate coursework at the doctoral level. Courses used to fulfill this requirement are selected in consultation with the Doctoral Committee. Up to six of these hours may be in directed study (CS 792). All other hours must be in regular courses.

Comprehensive Examinations

After completing all regular coursework, a doctoral student will be permitted to stand for the comprehensive examinations. These examinations are prepared for each student by the student’s Doctoral Committee. The examinations are intended to assess the student’s knowledge in areas closely related to his or her intended research area. The committee will determine the content and format of these examinations and the manner in which they will be administered.

Upon successful completion of the comprehensive examinations, the student is formally admitted as a candidate for the Ph.D. degree in CIS.

Research Prospectus

After completion of the comprehensive examinations, the doctoral student will present a research prospectus to his or her Graduate Committee, outlining the original research that the student proposes to perform. The prospectus will consist of a statement of the research problem, a review of the pertinent scientific literature in the area, and a description of the methods that will be employed in an attempt to solve the research problem. After the committee has questioned the student on the prospectus and approved it (with any required modifications) as the doctoral research topic, the student will be permitted to register for doctoral research.

Research and Dissertation

After approval of the research prospectus, the student carries out the dissertation research under the supervision of the Doctoral Committee. Each doctoral student must register for a total of 18 hours of dissertation research using course number CS 797. Preliminary research may be carried out before the research prospectus is approved, but not before the Doctoral Committee is formed. Normally the research requirement is fulfilled by registration for nine hours or more in two consecutive semesters of residence, which also meets University residency requirements.

Research for the CIS Ph.D. degree must represent an interesting and original contribution to the field of computer science. The results of the research must be of a quality suitable for publication in an archival journal. The student must demonstrate a good knowledge of the
literature related to the research topic and the relation of his or her own work to other work that has been reported. The dissertation must provide satisfactory theoretical or experimental evidence to demonstrate the soundness of the results presented.

The results of the research are reported in a dissertation, which is presented to the Doctoral Committee and formally defended in a public meeting. When the committee determines that the candidate has successfully completed and presented the research as outlined in the prospectus, the student will be certified for graduation.

**Program Length**

Scholarly achievements are more important than length of program, but a typical Ph.D. program requires at least two years after all master's-level requirements have been completed. In many cases substantially more time is required.

After admission to candidacy, students must register for at least one credit hour during each semester. All requirements must be completed within five years of admission to candidacy.

**Facilities and Centers for All Programs**

The Lane Department of CSEE has its main office, instructional lab, and research lab space on the Evansdale campus occupying four floors of the Engineering Sciences Building and one floor of the Engineering Research Building. The department has facilities also located in Eiesland and Armstrong Halls on the downtown campus.

The department has research activities and facilities at the NASA IV&V Center and the Alan B. Mollohan Innovation Center of the West Virginia High-Tech Consortium Foundation in Fairmont, WV. Our research facilities constitute a rich and diverse resource which spans the needs of research and graduate education in computer science, computer engineering, and electrical engineering. Laboratories and centers include the Software Research Laboratory (SRL), the Reusable Software Research Group, the Institute of Combinatorial Computing and Discrete Mathematics (jointly with the Department of Mathematics), the Lab for Advanced Information and Computation Systems (LAICS), the ElectroMechanical Systems Lab (EMSL), the Power Control Systems Lab, and the Virtual Environments Lab. The Microelectronic Systems Research Center (MSRC) is part of the department and is affiliated with the LAICS. MSRC facilities include a micro system fabrication lab, photonic systems lab, systems prototyping lab with CAE/CAD tool suites and workstation cluster, electronic systems test (device through systems), surface-mount multilayer PCB fab, and a system test bed development facility. Department faculty serves as the primary leadership and technical staff for the Concurrent Engineering Research Center (CERC).

**Computing Facilities**

All graduate students have access to a broad variety of computing platforms for both classwork and research. The department operates and maintains a variety of dedicated computer systems, clusters, and networks supporting both the instructional and research activities of the department. These systems include numerous Windows workstations and a cluster of Linux Servers. An additional laboratory by Hewlett-Packard supports large databases and medical informatics. Students have access to a rich set of software packages and tool suites available either on department systems or the College of Engineering and Mineral Resources systems. All department, college, and University computing resources are fully networked via Ethernet and FDDI with a campus-wide ATM backbone enabling interface to the statewide ATM network. All computing systems have Internet access enabling worldwide connectivity and access to several additional computing services via the Pittsburgh Supercomputing Center. The University is also a member of Internet2, vBNS, and SURANET, of which faculty in the department are active participants.

**Areas of Research: Overview**

The department is enthusiastically and vigorously involved in research, technical publication, and graduate instruction at the forefront of the field. The areas of emphasis are:

- Theory of computation, including foundations, complexity, algorithm analysis, parallelism, and graph theory.
- Computer systems, including microprocessor applications, advanced computer architecture, neural networks, fuzzy logic, parallel processing, VLSI testing techniques, fault tolerant design, software metrics, and software engineering.
• Control systems, including classical and modern control theory and applications.
• Communications and signal processing, including computer networks and image processing systems.
• Bioengineering and biometric systems including biosignal processing, bioinstrumentation, telemedicine, biometric devices, and algorithms.
• Electric power systems and power electronics, including stability and control, transients, and steady state analysis, real time control, protection, electric machines, drives, advanced motion controllers, and electric and hybrid electric vehicles.
• Electronic and photonic systems, including integrated electronic, optoelectronic, and optical devices and circuits, microelectromechanical systems (MEMS), and micro/nanofabrication.
• Software engineering, including reuse and portability, verification and validation, language issues, and user interface issues.

Areas of Research: Specifics

Theory of Computation
Research in the theory of computation covers a variety of areas ranging from foundations of computer science to algorithm design and analysis. A core of faculty performs research in areas such as discrete mathematics (including graph theory and combinatorics) and combinatorial optimization, partly in connection with the Combinatorial Computing and Discrete Mathematics Institute. Another key area of interest are analysis for parallel and distributed systems and problems in bioinformatics. The department offers core graduate courses in design and analysis of algorithms and computational complexity theory. Upper-division graduate courses cover topics such as graph algorithms, information dissemination, approximation and randomized algorithms, linear programming, and combinatorial optimization.

Computer Systems Engineering
Computer engineering is a very broad area, covering hardware, firmware, and software engineering of complex digital systems and system components. Software and hardware systems design is the most technically intensive component of the electrical and computer engineering curriculum. A broad spectrum of research topics of both applied and theoretical nature are undertaken in the department. Some examples are: software verification and validation, software process improvement, software development environments for signal processing applications, parallel processing of fingerprint image comparison systems, fast adaptive routing algorithms for processor arrays, communication switching systems, information systems, computational accelerator using digital signal processing arrays, an automated lumber processing system, neural network medical and industrial applications, autonomous robots, computer-controlled electric and hybrid vehicle instrumentation, a distributed microprocessor monitoring system, knowledge-based decision support system, and microprocessor-based instrumentation. A large selection of hardware and software graduate courses is offered in the department. These cover topics such as switching theory, digital communication systems, VLSI design and testing, fault-tolerant computing, computer architecture, neural networks, applied fuzzy logic, real-time software design and development, and C++ object-oriented programming. In addition, the electrical engineering and computer engineering faculty collaborate very closely with the computer science faculty. Graduate students in the computer engineering area are encouraged to include courses from computer science in their program. The department offers dedicated laboratories equipped with personal computers and workstations to support classroom instruction and research. A number of computer engineering faculty have close cooperation with several interdisciplinary research centers at WVU such as the Concurrent Engineering Research Center, the Alternate Fuels Research Center, and the Constructed Facilities Research Center.

Control Systems
The control systems area is an important part of the research program in electrical engineering. The topic has great breadth in applications ranging from electrical power systems and electrical machines to electrically energized transportation systems. (Applications of control theory in power are described in the electric power systems program description as well as in this control program description). As a research area, control systems may be characterized as both modeling and control of complex systems of both deterministic and stochastic type. The
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department offers courses that provide the required background to prepare students for the design and analysis of control systems. Control theory, particularly as applied to large-scale systems, is a topic emphasized in the department's research program. Current research is focused on the application of control to large dynamic systems, especially power systems, electrical machines, and maglev transportation systems. The work is primarily on algorithm development. In recent years, external funding for control systems research has come from the National Science Foundation, the Departments of Energy and Defense, and electric utilities. Four faculty members in the Department of Computer Science and Electrical Engineering have significant research activities in control systems. Other faculty members in mathematics and mechanical engineering also collaborate in the exciting on-going work at West Virginia University in the control area.

Communications and Signal Processing

Communications and signal processing are two closely interrelated fields that play an important role in today's information-driven economy. Both fields involve the application of mathematics to the analysis and design of systems that convey and process analog and/or digital signals.

Communications research in the Lane Department of Computer Science and Electrical Engineering focuses on techniques to improve the performance of a wide variety of communication systems. The Wireless Communications Research Laboratory (WCRL) develops and analyzes protocols, error control mechanisms, and signal processing algorithms that enable low energy and/or high data rate transmissions in a cellular or wireless networking environment. Such technologies play a prominent role in third- and fourth-generation cellular networks and in wireless local area and personal area networking standards. A wireless testbed, consisting of low-power wireless transceivers and digital signal processing boards, allows researchers to test prospective protocols and algorithms in an actual wireless environment. The YAS Broadband Center of Excellence supports the broadband industry by performing research related to cable modem, digital subscriber loop (DSL), and fiber optic technologies. The focus of the department's broadband initiative is the development of signaling technology and network infrastructures capable of seamlessly conveying voice, video, and data with quality of service guarantees. In addition to the department's broadband and wireless activities, it conducts research involving the compression, storage, and retrieval of multimedia information, and the design and fabrication of RF transceivers.

Bioengineering and Biometric Systems

A majority of the signal and image processing research in the department is centered in the bioengineering and biometrics areas. Bioengineering is the multidisciplinary application of engineering to medicine and biology. Biometrics uses biological signatures (fingerprint, voice, face, DNA) for identification or authentication in criminal justice, e-commerce, and medical applications. Specific departmental projects in these areas include multimodal biometric system design and performance measures, analysis of temporal fingerprint images for determination of vitality, neural network, and genetic algorithms for matching of fingerprint and dental images, multimedia information systems (images, video, and audio), distributed multimedia systems, and multimedia data storage and compression. Sponsors for this work include the Department of Defense, the National Science Foundation, and the Department of Homeland Security. Research entities in the department include the Center for Identification Technology, a NSF Industry/University Cooperative Research Center, the Biomedical Signal Analysis Laboratory, and the Software Architectures and High Performance Computer Research Lab.

Electric Power Systems

Electrical power systems historically have been an area of emphasis in the electrical engineering curriculum, and the graduate program in power systems at WVU is quite mature. Four faculty members have interest in electric power, and the department has an endowed position for electric power systems. Graduate courses are offered regularly in power system stability and control, real-time control of power systems, computer applications in power system analysis, advanced electric machines, and HVDC systems. In addition, there are three senior elective/graduate courses on the subjects of distribution, power electronics, and power systems analysis. The power group works closely with the control area that offers graduate courses in linear and nonlinear control systems, optimal control, and digital control. Recent and current
research activities include control of power systems in a deregulated environment, energy balancing in a restructured market environment, modeling, controlling, and dispatching distributed resources, electric transportation, modeling, stability analysis, optimal design, design of modulation controllers for multiterminal ac/dc power systems, electric drives, electric machines, advanced motion control systems, and power electronics. Externally funded projects include robust design of modulation controllers for flexible ac/dc transmission lines, optimal design of permanent magnet brushless machines, spacecraft power storage controllers, investigation of voltage/current characteristics of MOS-controlled thyristors with static and dynamic loads, and identification and decentralized control of critical modes. These projects provide excellent support for both graduate student and faculty research. Extensive interaction with industry provides ample opportunity for direct contact with practitioners in the field. The department has enjoyed continuous support from local utilities.

Electronics and Photonics

The field of electronics and photonics—initially microelectronics and now pushing well into nano-electronics—is at a crossroads where further developments are forcing researchers to take a closer look at quantum mechanical processes to design and fabricate small dimensional devices. Students who chose to take the electronics area at WVU should obtain a deeper understanding of the physical basis for the design and fabrication of micro- and nano-electronic and photonic devices.

The suggested coursework draws upon the expertise of the WVU faculty in electrical engineering, physics, and chemical engineering—demonstrating the interdisciplinary characteristic of this field. The faculty has joined to form the Photonics and Microelectronics Working Group. The research areas that the faculty are involved in cover aspects of materials science, physics, and semi-conductor electronics to design, grow, fabricate, and characterize novel electronic and photonic devices and small subsystems. Thus, the strength of the faculty is in experimental semiconductor physics and electronics. Present areas of research include wide band gap semiconductor growth and fabrication techniques, device design, and materials and device characterization; integration of photonics in microelectromechanical devices (MEMs) for active control and feedback; near-infrared and mid-infrared photonic materials and devices; nano-electronic materials growth and device design; and the small-scale integration of photonic and electronic devices for sensing applications.

The Center for Identification Technology Research (CITeR), (http://www.citer.wvu.edu) was recently established to coordinate the research in this area at WVU and three other universities and several industrial and governmental partners. Thus, students are encouraged to take courses outside of the more standard electrical engineering coursework, in information technology and biotechnology, so that they can effectively participate in these multidisciplinary research programs.

Much of the research in photonics and micro/nano-electronics is supported by the laboratory facilities of the Photonics and Microelectronics Working Group in the Lane Department. The facilities include a micro/nanofabrication laboratory, a photonics laboratory, a CAD/CAE facility with workstations/PCs and commercial/academic software tools, and an electronic and photonics test facility (device through small scale systems testing). Students also have access to a number of other facilities across the University to support specific research projects—in physics, chemistry, chemical engineering, and the Health Sciences Center as examples.

Software Engineering

Software engineering covers a well-defined and integrated set of activities to produce correct, consistent software products effectively and efficiently. Faculty perform research in many areas some of which include component-based development, validation and verification, software reuse, software portability, user interfaces, and graphic visualization. Research associations exist with the NASA Independent Verification and Validation Facility, the Institute for Software Research at the West Virginia High-Tech Consortium, and the Concurrent Engineering Research Center.
Degrees Offered

Master of Science in Industrial Engineering
Master of Science in Industrial Hygiene
Master of Science in Safety Management
Doctor of Philosophy with a major in Industrial Engineering
Doctor of Philosophy with a major in Occupational Safety and Health

One of the defining attributes in the success of the department is the dedication and talent of its 16 faculty and three staff members. The aggregate careers of our faculty and staff represent nearly 300 years of service to students at WVU. In these 300 years of service is embodied the wisdom and experience to successfully prepare industrial engineers and occupational health and safety professionals for the 21st century. The faculty and staff typically educate 220 to 240 undergraduate, 100 to 120 M.S., and 15 to 20 Ph.D. students. The department is in the unique position in the United States of having two complimentary graduate programs in industrial hygiene and safety accredited by the Applied Science Accreditation Commission (ASAC) of the Accreditation Board for Engineering and Technology (ABET). The combined resources and faculty talents of these two programs create synergies that provide our students with outstanding academic and research experiences in the field of occupational safety and health. Excellent academic and research opportunities are also available for students in the areas of operations research, decision sciences, and manufacturing, and ergonomics.

Faculty Research

The department has quality research laboratories in manufacturing, robotics and vision systems, CAD/CAM, operations research, production planning and control, decision sciences, ergonomics, industrial hygiene, and safety. Graduate students are encouraged to utilize these resources to explore and develop their capabilities. Research initiatives and on-going funding opportunities are available to students in the areas of: ergonomics; operations research; manufacturing; occupational safety and health; artificial intelligence; and respirator research.

Master's Degree Programs

Industrial and Management Systems Engineering

Graduate programs in industrial and management systems engineering are designed to give students experience in developing innovative solutions to real problems by implementing creative ideas. Students can expect to develop their creative abilities in order to be effective in innovative environments while improving their abilities to communicate and implement new ideas.

Four degrees are offered at the master's level: M.S.I.E., M.S.E., M.S. in industrial hygiene, and M.S. in safety management. See our graduate web page at http://www.imse.cemr.wvu.edu/grad/degrees.php.

- The M.S. industrial engineering degree program is appropriate for students with a B.S. in industrial engineering or other engineering discipline.
- The M.S. engineering degree program is designed for students having a baccalaureate degree in a technical field other than industrial engineering who wish to pursue a broader, more interdisciplinary program of graduate studies. An undergraduate degree in either another engineering field or the basic sciences is required for admission to the M.S.E.
- The M.S. in industrial hygiene is accredited by the Applied Science Accreditation Committee (ASAC) of the Accreditation Board of Engineering and Technology (ABET). Suitable undergraduate degrees include engineering, chemistry, biology, medical sciences, animal sciences, and the physical sciences. The three disciplines that form the basis of hygiene are industrial hygiene, industrial safety, and ergonomics.
• The M.S. in safety management degree program is accredited by the Applied Science Accreditation Committee (ASAC) of the Accreditation Board of Engineering and Technology (ABET). It is designed for students trained in the areas of business and economic sciences, animal sciences, chemical and biological sciences, engineering and technology sciences, medical sciences, and the physical sciences who have an interest in safety management.

Admission
To qualify as a regular graduate student, applicants must have as a minimum, the equivalent of a 3.0 GPA. Applicants with a minimum 2.75 GPA (or the equivalent) may be admitted on a provisional basis. Applicants with GPA below 2.75 would need approval of the dean or his designee. International students must demonstrate proficiency in communicating in English (a minimum TOFEL Score of 550, or iBT Score of 79, or IELTS Score of 6.5). Students must comply with the rules and regulations as outlined in this catalog for graduate work in the College of Engineering and Mineral Resources.
• For admission into the M.S.I.E. and M.S.E. programs, applicants must have a bachelor of science degree from an engineering department, or from physics, chemistry, computer sciences, mathematics, or similar technical or science program. In general a degree in one of the “hard” science programs is required with at least two years of calculus or equivalent mathematics.
• For admission into the M.S. industrial hygiene program, applicants must meet ABET/ASAC prerequisite course requirements which are currently a minimum of 63 credit hours of approved science, mathematics, and other technical courses. Of these, at least 15 credit hours must be junior or senior level. Specific pre/co-requisite course requirements include one semester of computer application (must include spread-sheets and databases), one semester of statistics, two semesters of general/inorganic chemistry, and two semesters of physics. On an individual basis, the faculty may identify additional pre/co-requisite coursework, often including organic chemistry and biology. Applicants will be advised about their specific requirements at the time of admission. Applicants not meeting all of the listed requirements may be considered for admission as provisional students.
• For admission into the M.S. safety management program, applicants must meet ABET/ASAC prerequisite course requirements, which are currently a minimum of 63 credit hours of approved science, mathematics, and other technical courses. Of these, at least 15 credit hours must be junior or senior level. In addition, students must have a minimum of 21 hours of social sciences, humanities, and/or communications. On an individual basis, the faculty may identify additional prerequisite coursework. Applicants will be advised about their specific requirements at the time of admission. Applicants not meeting all of the listed requirements may be considered for admission as provisional students.

Required Courses
Required courses are determined by the student’s degree program and area of emphasis. Specific course information by program area is available at the following website: http://www.imse.cemr.wvu.edu/courses/.

Thesis
When a student elects the thesis or problem report option, the thesis or problem must conform to the general requirements of the University and to the written requirements of the Department of Industrial and Management Systems Engineering.

Graduation Requirements
The M.S.I.E. or M.S.E. degree requirements for the thesis option include completion of a minimum of 24 credit hours, plus a six-hour thesis; or candidates may take 33 credit hours and complete a three-hour problem report. The M.S.I.H. degree requires a total of a minimum 36 hours, including credits for a thesis or a problem report. A candidate for the M.S.I.E., M.S.E., or M.S.I.H. degrees must pass an oral examination on coursework and the thesis or problem report. M.S. in safety management degree candidates may opt to complete a minimum of 31 credit hours, plus a six-hour thesis, or they may opt to complete a minimum of 34 credit hours and a problem report, or a 37-credit-hour all coursework program. Candidates who take the 34- or 37-hour options are also required to pass a final comprehensive written examination. All graduate students must have a final grade point average of at least 3.0.
Doctor of Philosophy
A candidate for the degree of doctor of philosophy (Ph.D.) must comply with the rules and regulations of the College of Engineering and Mineral Resources and the University. To be accepted in the Ph.D. program, applicants should have at a minimum (or equivalent) of a 3.4 GPA in their graduate work. They must also meet all the entrance requirements stated earlier for the master's programs. Each student will develop a program with a major in industrial engineering or occupational safety and health designed to meet his/her needs and objectives in consultation with an advisor and the Advisory and Examining Committee. Required core courses for the Ph.D. program are determined by the student's area of emphasis. In general, Ph.D. students take approximately 54 hours of coursework beyond their baccalaureate degree, with a minimum of 30 hours in industrial engineering or occupational safety and health. The research work for the doctoral dissertation may entail a fundamental investigation or a broad and comprehensive investigation into an area of specialization.

Early in the doctoral program, the student must pass an examination to demonstrate master's-level proficiency in industrial engineering or occupational safety and health subject matter. Upon completion of the coursework, the student must pass a written examination in order to be admitted to candidacy. An acceptable dissertation must be written and defended.

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Degrees Offered
- Master of Science in Mechanical Engineering
- Master of Science in Aerospace Engineering
- Master of Science in Engineering with a major in Mechanical or Aerospace Engineering
- Doctor of Philosophy in Engineering with a major in Mechanical or Aerospace Engineering

Faculty
Faculty members in the department have extensive research, industrial, and teaching experience and have published widely. Their combined experience helps them assist students in selecting relevant courses and research topics to meet their educational goals. The department has excellent laboratory facilities in the Engineering Sciences Building, the Engineering Research Building, and the new Engineering Sciences Building Annex to provide support for both instructional and research activities. The department has several special purpose laboratories located nearby, which include the Engine Research Center, the wind tunnel laboratory, and the aircraft test hangar at the Morgantown Municipal Airport (Hart Field). Funded research allows the department to maintain up-to-date facilities that include modern instrumentation, computing and lab equipment, including simulation and computer-controlled data acquisition systems.

Graduate Programs
The objectives of the departmental graduate-level programs are: 1.) to provide master-level education for students in or entering the engineering profession and/or 2.) To provide an advanced graduate educational experience for students pursuing the doctoral degree. Three master degrees are offered in the department: the master of science in aerospace engineering (M.S.A.E.), the master of science in mechanical engineering (M.S.M.E.), and the master of science in engineering (M.S.E.) with a major in mechanical engineering or aerospace engineering. The department also offers the doctor of philosophy (Ph.D.) degree with majors in mechanical engineering or aerospace engineering.

An application package can be obtained from the Graduate Program Director, Department of Mechanical and Aerospace Engineering, West Virginia University, P.O. Box 6106, Morgantown, WV 26506-6106. Application material and information are also accessible on-line at http://www.mae.cemr.wvu.edu
• The applicant must first submit a completed application, application fee, and transcripts of all college work (directly from the institution) to the WVU Office of Admissions.
• Each applicant is required to complete an applicant information form and have three recent reference letters (using standard forms available from the department) sent directly to the department; at least two of the three references should be from the institution last attended.

Admission to Master's Programs
To be eligible for admission into the M.S.A.E. or M.S.M.E. degree program, a candidate must hold or expect to receive (by the enrollment date) a B.S.A.E. or B.S.M.E. degree from either an accredited ABET curriculum or an internationally recognized program (except for junior level undergraduate students who are eligible for the integrated B.S.M.S. program, described below). Candidates with superior academic records in baccalaureate degrees in other engineering fields, mathematics, or science may be eligible for admission into any of the master programs offered by the department, but will normally be required to attain a baccalaureate level of proficiency in certain areas of specialty in aerospace or mechanical engineering. An engineering technology (non-calculus based) degree is not a sufficient qualification for admission into any of the graduate programs offered by the department.

Admission to the B.S.M.S. Degree Track
The Department of Mechanical and Aerospace Engineering (M.A.E.) offers a five–year double bachelor and master of science (B.S.M.S.) degree option for students enrolled in its undergraduate programs in either aerospace engineering (B.S.A.E.) or mechanical engineering (B.S.M.E.) at WVU. Students pursuing a dual degree in both aerospace and mechanical engineering (B.S.A.E./B.S.M.E.) may also enroll in the B.S.M.S. degree option, which in this case is likely to require six years for the completion of three degrees, namely B.S.A.E., B.S.M.E. and M.S. in either aerospace or mechanical engineering. To qualify for the B.S.M.S. degree option, a WVU student enrolled in the B.S.A.E., B.S.M.E. or dual B.S.A.E./M.E. programs must have a cumulative grade point average (GPA) of 3.5 or higher at the end of the Fall semester in his/her junior year of the curriculum and be selected by a MAE faculty member for joining a sponsored research project. A student admitted into the B.S.M.S. degree track will commence research on his/her M.S. thesis in the summer following the Junior year, will continue such work during the senior year and will complete it within one year after earning the B.S. degree.

Admission to Doctor of Philosophy Program
To be eligible for admission into the doctor of philosophy degree program with a major in aerospace or mechanical engineering, a candidate must hold or expect to receive (by the enrollment date) an M.S. degree in an engineering discipline from an institution which has an ABET accredited undergraduate program in engineering or an internationally recognized program in engineering (except for students qualified for the direct track to Ph.D. degree option, described below). Qualified candidates holding an M.S. degree in applied sciences can also be considered for admission into the Ph.D. program.

Admission to the Direct-Track to Ph.D. Degree Option
The department of Mechanical and Aerospace Engineering (MAE) offers a direct track option from the bachelor of science (BS) to the doctor of philosophy (Ph.D.) degree for prospective qualified students holding a B.S. degree in an engineering discipline, materials science, mathematics or applied sciences from an accredited undergraduate program or an internationally recognized program. This is an accelerated track that provides outstanding candidates the option of earning a Ph.D. degree in less than five years after graduating from an undergraduate program by engaging early in their Ph.D. dissertation research without having to complete first a thesis research for a master of science (M.S.) degree. To qualify for the direct track degree option, a candidate must have earned a cumulative grade point average (GPA) of 3.5 or higher in his/her undergraduate studies and above average scores in all sections of the standardized Graduate Record Examination (GRE). Students who are pursuing an M.S. degree in the MAE department have also the possibility of transferring into the direct track option provided that they earn a GPA of 4.0 and above average GRE scores by the end of their first two semesters of graduate studies at WVU. Students admitted into the direct track option are considered to be Ph.D. students in the MAE department.
Regular Admission Requirements

Minimum requirements for admission as a regular student into the graduate programs of the department are summarized as follows:

- An applicant for admission into the M.S. or the Ph.D. degree program must have earned a grade point average (GPA) of 3.0 or better (out of a possible 4.0) in all previous college work if he/she holds a B.S. or M.S. degree, respectively, from an accredited or internationally recognized program, as stated above.
- Applicants for admission into the B.S.M.S. degree track must have a grade point average of 3.5 or higher at the end of the first semester in the junior year of the curriculum. Applicants for admission into the direct-track from B.S. to Ph.D. degree option must have a grade point average of 3.5 or higher if they commence their graduate studies in the department as Ph.D. students or must have a cumulative grade point average of 4.0 if they transfer from the M.S. degree program by the end of their first year of graduate studies in the department.
- International students must demonstrate proficiency in communicating in English (a minimum TOFEL Score of 550, or iBT Score of 79, or IELTS Score of 6.5). (This requirement will be waived for applicants who have completed a recent four-year bachelor's degree in the USA.)
- All international applicants who have not received their undergraduate degree in the USA are required to submit GRE general test scores with the engineering subject test score being optional. The GRE scores required for admission as a regular graduate student in the department needs to be higher than 450 or 40th percentile in the verbal section, 670 or 75th percentile in the Quantitative section, 560 or 60th percentile in the analytical section and 4.5 or 52nd percentile in the analytical/writing section of the exam.

Provisional Admission

An applicant not qualifying for the admission status of regular graduate student, either due to insufficient grade point average, incomplete credentials, or inadequate academic background, may be admitted as a provisional student at the discretion of the Admissions Committee of the Department. Requirements for attaining regular student status must be stated in a letter of admission. Provisional students must sign a contract, which lists in detail all requirements that have to be met for attaining regular student status, no later than their first registration for courses.

All of the graduate degree programs offered by the department require the student to attain an overall grade point average of 3.0 or higher both in all the courses required for the degree program and in all the courses taken at WVU, in order to meet graduation requirements. The cumulative grade point average (GPA) is calculated on the basis of courses only, and excludes credit for research, for which the received grade can be either S (satisfactory), U (unsatisfactory) or I (incomplete). Note, however, that a grade of U in research is equivalent to a grade of F in a regular course and it can decrease drastically the GPA of a graduate student.

Courses

Only courses with grades of C or higher are acceptable for graduate credit, although all coursework taken will be counted in establishing the student’s grade point average. No more than nine hours of 400-level credit can be counted toward meeting the coursework requirements for the M.S. degree. Only 400-level courses that are approved for math credit (see the following section) and only 400-level courses approved as technical electives for the B.S. degree in an engineering discipline are acceptable for course credit towards the M.S. degree. The technical elective(s) must not have been used to satisfy the B.S. degree. The absolute minimum requirement set by the department for coursework credit towards a Ph.D. degree is 18 hours beyond the master's degree at the 500-level or higher taken at WVU. However, the actual minimum number of coursework credits is set by the student's Advisory and Examining Committee and is based on the student’s background and the area of his/her Ph.D. dissertation. No more than 20 percent of the coursework beyond the minimum of 18 credit hours required by the college for a doctoral degree can be at the 400 level. A minimum of 24 semester hours of research credit at the Ph.D. level is required to meet dissertation requirements. Two consecutive semesters of full-time attendance at the WVU campus in Morgantown are necessary to meet the residency requirements of the Ph.D. program.
Math Requirements
The Department of Mechanical and Aerospace Engineering requires that the graduate coursework include six hours of advanced mathematics for the M.S. programs of study and a minimum of six additional hours of mathematics for the Ph.D. programs. A list of mathematics courses approved for graduate credit can be obtained from the graduate program director of the department.

Time Limitations
All requirements for a master’s degree must be completed within eight years preceding the student’s graduation. All students pursuing an M.S. degree in the MAE department are required to engage in research, and complete and defend successfully an M.S. thesis. They should identify a subject for their M.S. thesis research, form a three-member Advisory and Examining Committee, and file a plan of study by the end of their second semester of enrollment in the graduate program. A minimum of 24 credit hours of coursework and six credit hours of M.S. thesis research is required for the M.S. degree. Students must pass a final examination administered by their Advisory and Examining Committee before being certified for the degree.

M.S.A.E. or M.S.M.E. Degree
Students wishing to pursue a program leading to an M.S.A.E. degree are required to have a B.S.A.E. or B.S.M.E. from an accredited ABET curriculum or the equivalent. Students with an engineering background other than aerospace or mechanical engineering or holding a B.S. degree in applied science, normally will be required to strengthen their background by taking certain key undergraduate courses in addition to the coursework required for the M.S.A.E. degree. Plans of study must comply with the rules and regulations outlined in the general requirements for graduate work in the College of Engineering and Mineral Resources. The student’s plan of study is formulated jointly by the student and his or her Advisory and Examining Committee. A thesis is required of all candidates for the degree of master of science in aerospace engineering.

The plans of study for the M.S.A.E. or M.S.M.E. degree must include six semester-hours of advanced mathematics beyond a first course in differential equations, and at least 12 semester hours of courses taken from selected areas of study in aerospace engineering. The remainder of the coursework may consist of other courses from mechanical and aerospace engineering, other departments in the College of Engineering and Mineral Resources, or advanced coursework in mathematics, chemistry, and physics. A maximum of six hours of research credit is counted toward degree requirements.

M.S.E. Degree
The M.S.E. programs with a major in mechanical engineering or in aerospace engineering are intended for students who wish to pursue graduate work in these areas but do not have an undergraduate degree in either discipline. Students desiring to pursue such a program in the department must meet similar general requirements as for the M.S.A.E. and M.S.M.E. degree programs.
Each plan of study in the M.S.E. program must include six hours of advanced mathematics and nine hours from each of any two academic areas in the department. Students are normally required to write a thesis. A maximum of six hours of research credit is counted toward meeting degree requirements. The student’s plan of study is formulated jointly with his or her Advisory Committee based upon the interests and educational goals of the student.

Doctor of Philosophy
The doctorate is a research degree which requires the accumulation of 18 credit hours of coursework taken at WVU at the 500 level or higher and 24 credit hours of research, also taken at WVU. The remaining requirements for the degree are: passing successfully the qualifying examination, admission to candidacy, one-year residency on campus, completion of dissertation research, and defense of a research dissertation. All students pursuing a Ph.D. degree in the MAE department are expected to engage in research, and complete and defend successfully a Ph.D. dissertation. They should identify a subject for their Ph.D. dissertation, form a five-member Advisory and Examining Committee, and file a plan of study by the end of their second semester of enrollment in the graduate program. At least one member of the graduate faculty from outside the department is required to serve on the Advisory and Examining Committee.
The Ph.D. degree signifies that the holder has the competence to function independently at the highest level in the chosen field. Hence, the number of years involved in attaining or retaining competency cannot be readily specified, nor can an exact program of study be defined. However, one has a maximum of five years to complete all the requirements for Ph.D. from the date of admission to candidacy.

**Ph.D. Qualifying Exam**

The Ph.D. qualifying examination is the method of assessing whether the student has attained sufficient knowledge of the discipline and supporting fields in order to undertake independent research or practice. Students are required to pass a qualifying examination administered by the Department which tests for a minimum level of proficiency expected of all students in a given area. It is expected that students will take the qualifying exam during their first or second semester of enrollment in the Ph.D. program; however it is required that full-time students pass the qualifying examination no later than the end of the third semester of enrollment in their Ph.D. program. Students admitted in the direct track from B.S. to Ph.D. degree option are expected to take the qualifying exam by the end of their fourth semester of enrollment in the MAE graduate program. As the student progresses, his or her Advisory and Examining Committee is charged with evaluating the student’s competency in the specific area of study through the assessment of a dissertation proposal for the research to be completed and the evaluation of the student’s plan of study and associated coursework. After these requirements are completed, the student is formally admitted to candidacy for the Ph.D. degree. Only at this point can a student be called a doctoral candidate; admission to the graduate program for the purpose of pursuing the Ph.D. degree is not equivalent to becoming a Ph.D. candidate. Doctoral candidates are allowed no more than five years to complete the remaining degree requirements after admission to candidacy. An extension of time can be obtained only by repeating the qualifying and candidacy examinations and meeting any other requirements specified by the student’s Advisory and Examining Committee.

**Ph.D. Degree**

Students intending to pursue a doctoral program in the College of Engineering and Mineral Resources with an emphasis in mechanical or aerospace engineering should have earned an M.S. degree in some engineering discipline. Qualified candidates holding an M.S. degree in applied sciences can also be considered for admission into the Ph.D. program. Eligible students holding a B.S. degree are permitted to enroll directly in the Ph.D. program through the direct track from B.S. to Ph.D. degree option. The doctoral courses of study are selected to fit the particular interests and objectives of the student, with proper attention given to broadening related areas of study. The research work for the doctoral dissertation may entail a fundamental investigation into a specialized area or a broad and comprehensive study in a related subject.

**Academic Areas**

Graduate courses in the MAE department are organized under six academic areas: fluids and aerodynamics; solid mechanics and structures; design and controls; thermal sciences; bioengineering; and materials science. Students who are pursuing an advanced degree in either mechanical or aerospace engineering may perform their thesis or dissertation research and specialize in any one of these areas.

**Fluids and Aerodynamics**

A variety of courses and facilities support graduate research in aerodynamics and fluid mechanics. Laboratories are located in college buildings and remote sites. Flow facilities include instrumented subsonic and supersonic wind tunnels, shock tubes, and several flow loops mainly used for research in gas-solid and density stratified flows. Available instrumentation includes eight channels of hot wire/film anemometry, two single-component and one three-component, laser Doppler velocimeter (LDV) systems. The department owns two flight simulation facilities, one that simulates translational and rotational motion in six degrees of freedom, and the other that relies on D-six software to provide “joystick only” flight simulation. Furthermore, the department built and operated different types of Unmanned Airborne Vehicles (UAV’s), as well as experimental aircraft and airborne systems that are housed in a hangar owned by the department at the Hart Field municipal airport in Morgantown. A significant portion of the current activity involves numerical solutions to flow problems and is supported by a computing facility dedicated to graduate research.
Although the faculty background and interests in the areas of aerodynamics and fluid mechanics are broad, recent research has been concentrated on applications of computational fluid dynamics (CFD) to investigate a wide variety of problems in fuel cell technology, fixed wing and rotorcraft aerodynamics, bioengineering, and combustion. The department’s faculty have accumulated extensive research experience in multiphase and density-stratified flows, low-speed aerodynamics, shock phenomena in two-phase systems, flow in microgravity, boundary layer control, and high-speed aerodynamics. Previous and current research areas include topics such as fluidized bed combustion, aerosol sampling, flow metering, flow distribution systems, numerical solutions to gas-solid flows, and fluid-particle turbulence interactions, including deposition on solid surfaces. The low-speed aerodynamics work is related to the design of vertical axis wind turbines and STOL airfoils. The research in high-speed aerodynamics deals with viscous-inviscid interactions in transonic, supersonic, and hypersonic flow.

Solid Mechanics and Structures
The solid mechanics and structures area encompasses the theoretical, numerical, and experimental study of solid bodies, from concentration on local behavior of deformable bodies to the global response of structural elements. Hence, students may explore the mechanical behavior of materials in the neighborhood of micro-scale defects such as cracks, or investigate the behavior of large-scale bodies such as aerospace structures.

The faculty members specialized in this area carries out basic and applied research using state-of-the-art computational and experimental techniques. The areas of research include advanced metal alloys and composite materials, lightweight structures, safety and durability enhancements, real time monitoring and diagnosis of structural systems, aero elasticity, fracture mechanics, nonlinear dynamics and vibrations, biomechanics, computational methods and experimental techniques, including optical and ultrasound methods. Furthermore, in cooperation with the Department of Civil and Environmental Engineering, MAE graduate students may pursue studies related to civil engineering. A large array of research facilities includes laboratories (materials, structures, vibrations, photo mechanics, biomechanics, fracture mechanics), computers (work stations, personal computers, computer-aided engineering), mechanical and electronic shops.

Design and Controls
The system control and design area offers instructional and research opportunities for students who seek to attain the expertise required to design or control the behavior of an engineering system in a dynamic environment. Instructional offerings equip the students with a foundation for developing prototype systems and for improving the performance of existing systems. Selected examples of research areas include flight simulation and controls, automatic controls, advanced instrumentation, microprocessor applications and non-destructive testing, parametric, stochastic and integrated design methods, elastodynamic analysis, computer aided design (CAD), modeling, design and analysis of energy management systems. The research endeavors of the faculty reflect a close association with current industrial-type, real life situations.

Thermal Sciences
The thermal sciences and engineering area encompasses the fields of thermodynamics, combustion, heat transfer, and power and energy systems. Graduate course offerings cover a wide range of topics in this area with applications to both aerospace and mechanical engineering problems. Recent research efforts include topics such as alternative fuels testing, internal combustion engine performance and emissions, fuel cell technology, heat transfer, numerical analysis of thermal systems, the analysis of fluidized bed combustion, energy analysis of buildings, oscillating jet combustion, deposition on turbine blades, and reactor design.

Research facilities include a state-of-the-art engine research laboratory, three transportable emissions research laboratories, thermal analyzers, recording thermocouple data-acquisition systems, high-altitude simulation chamber for ablation and wear studies, a fluidized bed combustion laboratory, an electrically-heated, natural convection water facility, Schlieren systems for flows with varying density, a water reservoir for thermal stratification studies.
Bioengineering

Areas of research specialization related to bioengineering include ultrasound technology for imaging of body tissues and organs, respiratory and diseased tissue mechanics, orthopedic mechanics, bone growth and fracture, and the application to rehabilitation of computer-aided design and microprocessor-based instrumentation. Research facilities include a state-of-the-art ultrasound imaging laboratory, an aerosol inhalation exposure system, laser-based holographic and moire interferometric equipment, a lung acoustic impedance measurement system, and modern orthopedic, rehabilitation, and computer research laboratories.

Materials Science and Engineering

The materials science and engineering area allows for the study of processing, structure, and properties of materials for structural, functional, and device applications. Areas of research emphasized within this area include: advanced microscopy; composite materials; materials for fuel cells; smart materials; super alloys; facilities incorporating electron microscopy, scanning probe microscopy, electro-chemical characterization, thermal analysis, and mechanical testing facilities.

Department of Mining Engineering

Christopher John Bise, Ph.D., Chair
365A Mineral Resources Building
http://www.mine.cemr.wvu.edu/grad/index.php

Degrees Offered

Master of Science in Mining Engineering
Doctor of Philosophy in Mining Engineering

Admissions

International students must demonstrate proficiency in communicating in English (a minimum TOFEL Score of 550, or iBT Score of 79, or IELTS Score of 6.5). (Students who have completed a recent four-year bachelor’s degree in the USA need not submit these scores.)

Academic Standards

Each student will, with the approval of the student’s Graduate Committee (appointed with the consent of the student within the first semester of registration), follow a planned program. The program contains a minimum of 24 hours of coursework and six hours of independent and original study in mining engineering leading to a master’s thesis. At least 60 percent of the course credits must be from 600- or 700-level courses while the remainder can be made up of 400-level courses.

Approval for candidacy for a graduate degree by faculty action is required to establish eligibility for a degree. A graduate student may request approval by formal application after completing a minimum of 12 semester hours of graduate courses with a grade point average of at least 3.0 (B), based on all graduate courses in residence for which final grades have been recorded.

No credits are acceptable toward an advanced degree which are reported with a grade lower than C. To qualify for an advanced degree, students must have a grade point average of at least 3.0 based on all courses completed in residence for each graduate credit. Each candidate for a degree must select a major subject and submit a thesis showing independent, original study in mining engineering.

Master of Science in Mining Engineering (M.S.Min.E.)

Students desiring to take courses for graduate credit at the master’s level in the College of Engineering and Mineral Resources must first apply for admission and state a major field.

Applicants with a baccalaureate degree from institutions other than WVU in mining engineering will be admitted on the same basis as graduates of WVU. Lacking these qualifications, the applicant must first fulfill the requirements of the Department of Mining Engineering.
Doctor of Philosophy in Engineering (Ph.D. MINE.)
The principal objective of the doctor of philosophy program in mining engineering is the education and training of graduates so that they are capable of attaining the highest levels in the mineral engineering profession and performing the professional roles of developing and improving the efficient extraction of solid mineral resources. The three areas of specialization are mine systems, rock mechanics and ground control, and mineral/coal processing.

All applicants must have earned an M.S. degree in mining engineering with a GPA of 3.5 or higher. For all international applicants whose native language is not English, a TOEFL test score of 550 or better is required. In addition, each applicant is required to submit at least three letters of recommendation, one of which must be from the applicant’s previous thesis advisor or an academic equivalent. All letters of recommendation should evaluate the student’s potential for performing independent doctoral-level research.

The Ph.D. program in mining engineering consists of 54 hours of coursework and 30 hours of independent research beyond a bachelor’s degree in mining engineering. The successful completion of a qualifying examination and an approved dissertation are also required.

Department of Petroleum and Natural Gas Engineering
Samuel Ameri, P.E., M.S. in Petroleum Engineering, Chair
347A Mineral Resources Building
E-mail: sameri@wvu.edu
http://www.pnge.cemr.wvu.edu/

Degrees Offered
Master of Science in Petroleum and Natural Gas Engineering
Doctor of Philosophy in Engineering with a major in Petroleum and Natural Gas Engineering

The petroleum and natural gas engineering (PNGE) graduate programs provide students with the advanced technical and engineering skills needed by the oil and natural gas industry in the state, the nation, and the world and are designed for students who have already completed a basic petroleum engineering curriculum. The objective of the program is the education and training of men and women capable of performing at the highest levels of the petroleum and natural gas engineering profession. Moreover, this course of study will make students competent to perform independent research and will prepare them to be the future providers of high quality education in petroleum and natural gas engineering. Graduates have the opportunity to enter all phases of the oil and natural gas industry, government agencies, and academia in meaningful and important jobs.

The Department of Petroleum and Natural Gas Engineering admits students to the following degree programs: master of science in petroleum and natural gas engineering (M.S. PNGE) and petroleum and natural gas engineering major under College of Engineering and Mineral Resources interdisciplinary doctor of philosophy (Ph.D.). Students in these programs must comply with the rules and regulations as presented in the general requirements for graduate work in the College of Engineering and Mineral Resources.

Master of Science in Petroleum and Natural Gas Engineering
A student desiring to take courses for graduate credit at the master’s level in the College of Engineering and Mineral Resources must first apply for admission and state their major field. An applicant with a baccalaureate degree or its equivalent in petroleum or natural gas engineering from another institution will be admitted on the same basis as graduates of WVU. Lacking these qualifications, the applicant must first fulfill the CEMR requirements of the Department of Petroleum and Natural Gas Engineering.

Each student will, with the approval of the student’s Advising and Examining Committee—appointed with the consent of the student within the first semester of registration—follow a planned program. The program contains a minimum of 24 hours of coursework and six hours of independent and original study in the petroleum and natural gas engineering field leading to
a master’s thesis or 30 hours of coursework and three hours of independent study leading to a comprehensive problem report. At least 60 percent of the course credits must be from 500- or 700-level courses while the remainder can be made up of 400-level courses.

**Admission**

Admission to the M.S. PNGE program is open to those holding a baccalaureate degree in petroleum and natural gas engineering or its equivalent or baccalaureate degrees in other fields of engineering. Students admitted with baccalaureate degrees in other fields of engineering are required to take some petroleum and natural gas engineering courses as prerequisites for graduate courses. To be admitted as a regular graduate student, an applicant must have a minimum cumulative grade point average of 3.0 (on a 4.0 scale). Applicants who cannot meet these conditions may be considered for provisional admission.

**Study Programs**

All M.S. degree candidates are required to perform research and follow a planned program of study. The research advisor, in conjunction with the Advising and Examining Committee (AEC) — appointed with the consent of the student — will be responsible to determine the plan of study appropriate to the student’s needs. The underlying principle of the planned program is to provide the student with the necessary tools to carry out his/her research work and prepare them for their career. The program must contain a minimum of 24 hours of coursework and six hours of independent and original study in the petroleum and natural gas engineering field leading to a master’s thesis or 27 hours of coursework and three hours of independent study leading to a comprehensive problem report. At least 60 percent of the course credits must be from 500- or 700-level courses while the remainder can be made up of 400-level courses. All students are required to take PNGE 796 Graduate Seminar for each semester enrolled. A written research proposal and oral presentation of this proposal are required of all M.S. students. This oral defense is administered by the student’s AEC and must be completed as soon as possible but no later than the end of the first semester of the second year.

**Examination**

All students are required to pass a final oral examination, administered by their AEC, covering both the thesis or problem report (depending on the program selected) and related course material.

**Doctor of Philosophy**

**Admission**

A candidate for the degree of doctor of philosophy (Ph.D.) must meet the following requirements:

- B.S. or M.S. degree in petroleum engineering from an ABET accredited, or an internationally recognized petroleum engineering program or equivalent; with a grade point average (GPA) equal to, or greater than 3.0 and 3.2, respectively.
- A score of at least 75 percentile for Graduate Record Examination (GRE) quantitative analysis.
- International students must demonstrate proficiency in communicating in English (a minimum TOFEL Score of 550, or iBT Score of 79, or IELTS Score of 6.5).
- At least three recommendation letters; one of which must be from the applicant’s previous thesis advisor or an academic equivalent.

**Study Program**

Each student must follow a plan of study prepared by the research advisor, in consultation with the student, and approved by the student's Advisory and Examining Committee (AEC) appointed with consent of the student. The underlying principle of the planned program is to accommodate and facilitate the students such that they are well prepared for their dissertation research and their career. A minimum of 54 hours of coursework and 30 hours of independent research above and beyond a bachelor’s degree, or 30 hours of coursework and 24 hours of independent research beyond a M.S. degree are required.
Examinations

All students must take and pass a written qualifying examination no later than one semester after completion of the required courses. In order to be admitted to candidacy, the student must pass the candidacy exam, which is designed to evaluate the student’s overall ability to engage in high-level research. At the completion of the dissertation research, the candidate must prepare a dissertation and defend it.
The College of Human Resources and Education, located in Allen Hall on the Evansdale campus, offers graduate-level programs of study in counseling, counseling psychology, curriculum and instruction, educational leadership, educational psychology, elementary education, reading, instructional design and technology, rehabilitation counseling, secondary education, special education, and speech pathology and audiology. Thesis programs are devoted to the study and development of human talent and resources in the school, family, and community. Instruction, research, and extended service are carried out in close cooperation with related departments and units of the University.

Most graduate programs require the successful completion of clinical experiences in approved sites. Clinical placements are arranged by faculty and the professional judgments of faculty are used to determine continuation of students in these placements.

**Doctoral Programs**

If you would like additional information about the graduate programs in the College of Human Resources and Education, contact the chairperson of the department most relevant to your program interests. Students in the doctor of education (Ed.D.) program may elect an area of emphasis in curriculum and instruction, educational leadership studies, instructional design and technology, or special education. Specific information about doctoral studies in these emphasis areas is listed in the program description area of the catalog. Students interested in the doctor of audiology (Au.D.) and the doctor of philosophy (Ph.D.) in counseling psychology and in education will find information about those programs in separate areas of this catalog. Students in the interdisciplinary (Ph.D.) program select a focus area from one of the following major areas of study: Educational leadership and policy studies; learning, instructional design, and technology, or curriculum, literacy and cultural studies.
Admission

Admission, curriculum, and specific requirements of the various degree programs of the College of Human Resources and Education are provided in each program section in this catalog. It is the responsibility of the student to take steps to insure that he or she is properly informed of the degree requirements and/or the certification standards being sought. Graduates of our state-approved preparation programs are eligible for recommendations for certification/licensure issued by appropriate state agencies. Since certification requirements are changed periodically by the state, the fulfillment of certification requirements as presented in this catalog cannot guarantee compliance with the most recent requirements. The West Virginia State Department of Education requires that a degree be from an accredited institution of higher education for licensure and salary purposes. Students are therefore encouraged to seek the counsel of members of the faculty, their advisors, and the college certification officer on matters pertaining to degree and certification requirements.

All applicants for admission to the doctoral program in the College of Human Resources and Education must submit their scores on the Graduate Record Examination and/or the Miller Analogies Test, three letters of recommendation, a current vita, and a statement of long-range and short-range goals. Applicants to the college must comply with the general University graduate study regulations. Personal interviews are required by several programs. Additional information may be required by the faculty of a specific area of emphasis prior to program admission.

Committee Formation

After admission to a specific program, the student, in consultation with the advisor, selects a chairperson and four committee members to serve as his or her Doctoral Committee. This committee must be approved by the department chair and the dean of the college. The Doctoral Committee must meet the following minimum standards:

• The Doctoral Committee must be composed of a minimum of five members, the majority of who must be regular members of the graduate faculty.
• At least three members of the Doctoral Committee must be members of the graduate faculty of the College of Human Resources and Education.
• The student’s major advisor must be from the student’s major program and must be a regular member of the graduate faculty. No more than two other members of the Doctoral Committee may be from the student’s major program area of study.
• At least two members of the Doctoral Committee must be from the student’s major program area of study.
• At least one member of the Doctoral Committee must be from the student’s minor program area of study.
• The Doctoral Committee must include at least one member from outside the student’s program area, and that individual must have knowledge and insights relevant to the student’s program of study.
• No more than one member of the Doctoral Committee may be a nonmember of the graduate faculty.

Program Plan

The final determination of the program of coursework and research is the responsibility of the student’s Doctoral Committee. The doctor of education degree is not awarded on the basis of the completion of any set number of credits, but is awarded on the basis of demonstrated academic achievement and scholarly competence. Seventy-two semester hours of relevant graduate work, excluding dissertation credit, but including credits of relevant graduate work completed at the master’s degree level, constitute the minimum coursework acceptable. The doctoral program must include coursework in three areas: major, minor, and foundations, and the program requirements in each area must be met.

Candidacy

The student and the committee at the time of program planning will identify competencies to be developed and how they will be assessed. These will be stated in the student’s individual program. The doctoral student and his or her Doctoral Committee will determine when the student is ready for assessment of competencies. The examination will be prepared
and assessed by the student’s Doctoral Committee and will address all work in the doctoral program plan of the student. The student must be enrolled in the semester in which candidacy examination occurs. The chairperson will notify the student and the student records office. Personnel in the student records office will notify all appropriate University and college offices of the outcome. Upon successful completion of the examination, the student will formally propose the dissertation prospectus to the committee.

**Prospectus**

The candidate must submit and justify a prospectus for a doctoral dissertation. The Doctoral Committee must review and approve, approve with change, or reject the outline or prospectus. The student must consult with all members of the committee and with other appropriate members of the University faculty during the dissertation phase of the program.

**Final Oral Examinations**

The student will be admitted to the final oral examination upon completion of the dissertation and after fulfilling all other requirements set by the committee. The examination will be conducted by the student’s Doctoral Committee and the publicized meeting will be open to all members of the University faculty. If the student receives more than one unfavorable vote from the committee, the candidate will not be recommended for the doctoral degree.

**Time Limit**

Because the qualifying examination attests to the academic competence of the student who is about to become an independent researcher or practitioner, the length of time between the examination and degree must be limited. Consequently, doctoral candidates are allowed no more than five years after the qualifying examination in which to complete remaining degree requirements. If the student should fail to complete an approved dissertation within five years, he or she must repeat the admission to candidacy examination and any other requirements specified by the student’s Doctoral Committee.

**Residency**

A student must satisfactorily complete a minimum of nine semester hours of approved graduate credit in each of two consecutive terms in residence.

**Master’s Degree Programs**

Master’s degree programs are offered in counseling, rehabilitation counseling, speech pathology, educational leadership studies, educational psychology, elementary education, instructional design and technology, reading, secondary education, and special education. Three options are generally available in the college’s master’s programs; the student should refer to the specific program to determine the option that applies.

A. At least 30 semester hours of coursework, including six semester hours of research.
B. At least 30 semester hours of coursework, including three semester hours of research, selected in conference with the candidate’s committee, directed by the advisor, with final approval of the committee.
C. At least 36 semester hours of approved coursework.

• The student must comply with specific graduate requirements of the University, the College of Human Resources and Education, and the program.
• All students will be assigned an advisor. For options A and B two additional faculty members will be assigned to serve as the remainder of the three-member Master’s Committee. For option C, only the advisor is required.
• No student may be awarded a master’s degree unless the student has a minimum grade point average of 3.0 on all work taken for the graduate degree. (A grade of less than C does not carry credit toward a graduate degree, but counts in determining the grade point average)
• No student will be permitted to repeat a required graduate course more than once. Some programs may require the comprehensive examination in options A, B, and C above. The candidate’s committee (options A and B) or advisor (option C) will determine whether the examination will be oral or written or both. Within the first two weeks of the semester in which
the student intends to take the final master’s degree examination, he or she must submit to
the appropriate department chair an application to take the examination. A student must have
completed a minimum of 27 semester hours of approved coursework before taking the com-
prehensive examination. In addition, a student must have achieved a 3.0 grade point average
on all work taken for graduate credit before applying to take the comprehensive examination.

Time Limit
All requirements must be completed within eight years immediately preceding the awarding
of the degree.

Non-Degree Status
Students who fail to meet the specific requirements of the sections dealing with admission,
grade point average, course repeats, transfer credits, comprehensive examinations, or special
written requirements specified by the program will not be admitted to or will be terminated from
the degree program. Students not admitted to or terminated from a degree program may apply
in writing for classification as a non-degree graduate student to the appropriate department
chair or the Office of Student Advising and Records of the College of Human Resources and
Education, (P.O. Box 6122, Morgantown, WV 26506-6122). Non-degree classification would
allow the student to take coursework for certificate renewal, certification, or personal interest.
A non-degree graduate student may accumulate unlimited graduate credit hours, but if the
student is later admitted to a degree program, the faculty of that program will decide whether
or not any credit earned as a non-degree student may be applied to the degree. Under no
circumstances may a non-degree student apply more than 12 hours of previously earned credit
toward a degree.

Students may obtain additional information about a particular graduate program by writing
to the coordinator of that program or by writing the Dean, College of Human Resources and
Education, West Virginia University, P.O. Box 6122, Morgantown, WV 26506-6122.

Graduate Faculty
† Indicates regular member of graduate faculty.
* Indicates associate member of graduate faculty.

Child Development and Family Studies
Professors
†Carol Markstrom, Ph.D. (Utah St. U.). Family, adolescent, and social contexts.

Assistant Professors
†Kristin Moilanen, Ph.D. (U. of Neb.) Adolescent development, self regulation, risk behavior, family
relationships.
†Amy Root, Ph.D. (U. of Md., College Park). Parenting and the development of emotional competence;
individual differences; development of shy/wary behavior.

Early Childhood Teacher/Associate Director of the WVU Child
Development Laboratory

Counseling, Rehabilitation Counseling, and Counseling
Psychology
Professors
†L. Sherilyn Cormier, Ph.D. (Purdue U.). Emerita.
†Roy H. Tunick, Ed.D. (U. N. Colo.). Rehabilitation psychology, Counseling psychology, Psychological
and vocational assessment, Vocational psychology, Psychology of disability, Mental health rehabilita-
tion, Adolescents in crisis.
Associate Professors
†Jeffrey Daniels, Ph.D. (U. of Neb.). Counseling Psychology. Global hostage-taking, Averting lethal school violence, Spiritual and religious issues in counseling.
†Margaret K. Glenn, Ed.D. (George Wash. U.). Department chair and coordinator, master’s degree program in rehabilitation counseling. Rehabilitation counseling and leadership, Substance abuse rehabilitation, Problem gambling.
†Ed Jacobs, Ph.D. (Fla. St. U.). Coordinator, master’s degree program in counseling. Creative counseling, Group counseling and family, Impact therapy.

Assistant Professors
†Jennifer Adams, Ph.D. (U. of N.C. at Greensboro). M.A. Counseling Program, Practicum and Internship Coordinator. School counseling, Multicultural counseling, Spiritual and religious issues in counseling.
†David Goode-Cross, Ph.D. (U. of Missouri). Counseling and counseling psychology, Multicultural counseling training and competencies, African American student retention, Racial and sexual microaggressions.
†Michiko Iwasaki, Ph.D. (Ball St. U.). Geriatric/geronlogical psychology, Multicultural counseling/supervision, and research methods.

Visiting Assistant Professor
*James W. Bartee, Ph.D. (U. of Wash.). Director of training, Counseling psychology Ph.D. program. Counseling psychology in multinational settings, Psychology, Neuroscience and spirituality, Professional training and development.

Teaching Assistant Professor

Teaching Instructor
Regina Burgess Carrick, M.S. (WVU). Vocational assessment, Rehabilitation counseling.

Curriculum and Instruction-Literacy Studies
Elementary Education
Reading
Professor

Associate Professors
†Judy A. Abbott, Ph.D. (U. Tex.). Literacy education, Children’s writing, Motivation, Children’s literature.
†Allison Swan Dagen, Ph.D. (U. of Pitt.). Instructional and learning reading.
†Ardeth M. Deay, Ph.D. (Cornell U.). Emerita.
Assistant Professors
Sheila Benson, Ph.D. (U. of Iowa). English education, Literacy, Multiliteracies, Critical literacy.
*Sharon Hayes, Ph.D. (U. of Fla.). Elementary education, Action research, Professional development and literacy.
Barbara Mertins, M.S.L.S. (Syracuse U.). Emerita.
*Aimee L. Morewood, Ph.D. (U. of Pitt.). Reading education, Professional development, Effective teaching strategies.
*Eva Erdosne Toth, Ph.D. (U. of Ill.). Science education, Biology, Chemistry

Visiting Assistant Professors
Beth B. Satterfield, M.S. (WVU). Early Childhood education, Child development.

Educational Leadership Studies
Professors
*Helen M. Hazi, Ph.D. (U. Pitt.). Legal issues affecting instructional supervision.

Associate Professor

Assistant Professors
*Jason Johnson, Ph.D. (U. Wisc.). Leadership, Discourse analysis, qualitative research.
*Ted Price, Ph.D. (U. So. Ca.). Superintendency, Dynamics of educational organizations.
*Adriane Williams, Ph.D. (U. Wisc.). Policy studies, Ethics in education, Community and media relations.

Adjunct Teaching and Field Practice Resource Personnel
Mary Brandt J.D. (WVU). Higher education law.

Educational Psychology
Professors
*Anne H. Nardi, Ph.D. (WVU). Developmental psychology, Problem solving, Adult learning.

Associate Professors

Assistant Professor

Teaching Assistant Professor
Instructional Design and Technology

Professors

Associate Professors
†Terence C. Ahern, Ph.D. (Penn. St. U.). Instructional systems design.
†R. Neal Shambaugh, Ph.D. (Va. Tech.). Instructional design, Instructional technology integration, Cognition.

Assistant Professors
†Ugur Kale, Ph.D. (Ind. U. Bloomington). Instructional technologies, Instructional design, Professional development, Online communication, Teacher education, Content analysis, Social network analysis.

Social and Cultural Foundations

Professors
Mary I. Yeazell, Ed.D. (U. Ill.) Emerita.

Special Education

Professors

Associate Professor

Assistant Professors
†David Hoppey, Ph.D. (UF). Elementary special education, Inclusive schools, Professional development.

Speech Pathology and Audiology

Professors

Associate Professors
†Ann M. Richards, Ph.D. (U. of Az.). Multicategorical special education, Transition, Law and policy issues.

Assistant Professors
†Kimberly K. Floyd, Ph.D. (ODU). Early intervention/early childhood special education, Inclusive preschools, Assistive technology.
†David Hoppey, Ph.D. (UF). Elementary special education, Inclusive schools, Professional development.
Speech Pathology and Audiology

Professors

†Mary Ellen Tekieli Koay, Ph.D. (U. Okla.). Speech pathology. Cleft palate, Neurophysiology, Neuropathologies, Clinical supervision.
†Robert F. Orlikoff, Ph.D. (Columbia U.). Speech pathology. Speech and voice physiology, Assessment and management of voice disorders, Clinical measurement.
†Dennis M. Ruscello, Ph.D. (U. Az.). Speech pathology. Phonology, Cranio facial anomalies, Clinical supervision.
†Kenneth O. St. Louis, Ph.D. (U. Minn.). Speech pathology. Fluency, Voice, Clinical supervision.

Associate Professor


Assistant Professors


Teaching Assistant Professor


Clinical Instructors


Department of Counseling, Rehabilitation Counseling, and Counseling Psychology

Margaret K. Glenn, Chair
Allen Hall, P.O. Box 6122

Degrees Offered

Master of Arts in Counseling
Master of Science in Rehabilitation Counseling
Doctor of Philosophy in Counseling Psychology

Counseling

Edward E. Jacobs, Program Coordinator
Allen Hall, P.O. Box 6122
http://counseling.wvu.edu

Degree Offered

Master of Arts

Master of Arts in Counseling

The Department of Counseling, Rehabilitation Counseling, and Counseling Psychology of the College of Human Resources and Education offers a master’s program in counseling. The counseling M.A. program is fully accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) and is a WVU program of excellence. Variations of the curriculum allow emphasis in school counseling and community counseling. All applicants must comply with University, the College of Human Resources and Education, and departmental requirements.

A degree in counseling provides a broad opportunity to work with children at the elementary-school level, adolescents at the secondary-school level, and all ages at the community level. The school counselor is involved in personal counseling, career guidance, vocational
and educational counseling, family counseling and consultation on classroom problems with teachers and administrators. Community counselors work with all ages and populations in various community settings such as correctional facilities, treatment centers, mental health agencies, etc. Counselors must be equipped to work with both individuals and groups.

Students are encouraged to pursue their studies on a full-time basis; however, part-time students are accepted. Part-time admission is meant only for those who plan to take one or two courses a semester. If admitted with part-time status, students will NOT automatically be able to move into the full-time program. There are no summer practicum or internship placements.

**Required Courses**

All students who are candidates for a master’s in counseling are required to take the following core courses:

- COUN 501 *Counseling Theory and Techniques 1*
- COUN 505 *Theory and Practice of Human Appraisal*
- COUN 536 *Theories of Human Development*
- EDP 612 *Introduction to Research*
- COUN 606 *Counseling Theory and Techniques 2*
- COUN 608 *School Counseling Services* *
- COUN 609 *Group Counseling Theory and Techniques*
- COUN 620 *Lifespan Career Counseling*
- COUN 622 *Community Counseling* **
- COUN 630 *Counseling Children and Adolescents*
- COUN 632 *Counseling Adolescents and Adults*
- COUN 634 *Cultural Issues*
- COUN 640 *Addictions Counseling*
- COUN 645 *Couples and Family Counseling*
- COUN 664 *Ethical Issues in Counseling*
- COUN 665 *Abnormal Behavior*
- COUN 685 *Practicum*
- COUN 686 *Counseling Internship*

*Required for school counselor certification only. A special school counselor certificate is available for individuals without a teaching background. The program includes an additional six hours of coursework.

**Required for community counseling students only. Note: doctoral-level courses in counseling have the prefix CPSY.

**Application**

Applications for admission to the counseling program should be made to WVU’s Office of Admissions. In addition to the admission requirements of the University and the College of Human Resources and Education, the Department of Counseling, Rehabilitation Counseling, and Counseling Psychology has the following admission requirement.

- A baccalaureate degree with coursework in appropriate areas.
- A minimum undergraduate grade point average of 2.8, based on a 4.0 system.
- GRE scores (900 preferred; minimum of 800).
- Three letters of reference.
- Completion of the departmental application to the counseling program.

**Admission**

The West Virginia University counseling department’s admission process is a two-step procedure. Step 1 is a review of paper credentials including references, department application (relevant major, general quality of application), work experience, GRE scores, and GPA. The initial screening decision is based upon this information. Successful applicants are then interviewed by program faculty.

Step 2 is the department interview, which considers interpersonal style relevant to working as a counselor, communication skills, capacity for empathic understanding and communication, ability to articulate professional goals, goals congruent with department focus, knowledge, and understanding of counseling, and assessment of applicants’ capacity to complete the counseling curriculum successfully.
Application deadline for fall admission is March 1 with review of completed applications beginning February 15. We only accept students once a year.

Degree Requirements

Degree requirements include completion of the required counseling coursework, including practicum and internship. A minimum of 60 hours of coursework with a 3.0 grade point average is required.

In addition to completing all coursework and the practicum and internship satisfactorily, the candidate must demonstrate the ability to assume the responsibility required of a professional counselor and the personal characteristics and ethical standards essential to effective working relationships with others.

These personal characteristics are assessed throughout the entire program with special emphasis during the clinical coursework components of the program and during the field experience. Students who do not meet professional and clinical standards in these areas are provided feedback, and resources for remediation are recommended. In these cases, successful remediation is required as a prerequisite for successful program completion. Students who violate ACA ethical standards will be evaluated for possible dismissal from the program.

In reviewing the curriculum available in counseling, the applicant will note that much of the coursework provides the background applicable for employment in general community agency work. Graduates seek employment in school settings and in community settings such as mental health centers, drug and alcohol agencies, corrections, and private practice.

Certification

Certification requirements in school counseling are the same as for the master’s of arts in counseling, except as noted below.

- A minimum grade point average of 3.0.
- Recommendation of the faculty.
- A valid professional teaching certificate at the level for which counseling and guidance endorsement is desired, or the completion of a six-hour block of professional education coursework (see department for list) and competency assessment in addition to the 60-hour master’s degree program.
- Specialization area examination. Satisfactory performance is required for certification eligibility. This examination is administered under the auspices of the State Department of Education.

Counseling Psychology

James W. Bartee, Director of Training
Allen Hall, P.O. Box 6122

Degree Offered

Doctor of Philosophy

Doctor of Philosophy in Counseling Psychology

All applicants must comply with the graduate requirements of the College of Human Resources and Education and the program of counseling psychology. The program includes coursework hours in addition to the College of Human Resources and Education requirements for the Ph.D. degree.

The area of specialization for the doctoral degree is oriented primarily toward training practitioner-scholars who have a substantial background in the philosophy and methods of psychology as a comprehensive science. Students are expected to work closely with faculty in doing research and in supervised therapy practice. Successful completion of the program requires core coursework in counseling psychology, as well as in foundations of psychology, statistics and research, and supervised practice.

The counseling psychology program at West Virginia University is fully accredited by the American Psychological Association to offer the doctor of philosophy in this specialty area of professional training in psychology. Our next program review is scheduled for 2010. Accreditation is a process that reflects the commitment of the institution to self-study, external-review by
one’s peers in seeking not only to meet professional standards but also to continuously seek ways in which to enhance the quality of education and training provided by the program.

For more information please refer to: The Office of Program Consultation and Accreditation, American Psychological Association, 750 First Street, NE, Washington, DC 20002-4242, phone: (202) 336-5979, fax: (202) 336-5978, E-mail: apaaccred@apa.org.

**Admission** The admission process is a two-stage procedure. Each fall, applications received by December 1 are reviewed for admission to the next academic year.

Applicants are screened based on written information and credentials provided to the Admissions Committee, including the following:

- Completion of a master’s degree in an area related to counseling psychology.
- Graduate grade point average of 3.5 or higher, verified by official transcripts of graduate coursework.
- Three letters of recommendation to support applicant’s competency in counseling, testing, research, and personal qualities of readiness for completion of a doctoral degree.
- A recommended total combined score of at least 1,000 on the verbal and quantitative sections of the Graduate Record Examination. A score of three or better on the Analytic Writing section is taken into account in evaluating the GRE scores.
- Two years of relevant work experience is desirable.

Those persons who are successful in the Stage I process are invited to campus for a personal interview with the program faculty. The personal interview is required for a final admission decision. The interview helps to determine the applicant’s interpersonal and clinical skills, which are predictive of success in graduate study, internship, and post-degree placement.

Announcements regarding admission are made before April 15. Materials received after December 1 is not reviewed until the following year, unless space is available.

**Candidacy** Students are accepted for study toward the Ph.D. degree upon admission into the programs. Requirements for doctoral candidacy are the following:

- Completion of prerequisite doctoral coursework with a 3.25 grade point average.
- Passing scores on the written comprehensive examination of major areas in counseling psychology and research.
- Completion of an approved research prospectus.

**Internship** After admission to candidacy, students are required to enter the national psychology predoctoral internship competition. APA-accredited internships are typically off-campus, often out of the area, and are full-time, 12-month, paid positions. After successful completion of the internship and the research dissertation, students take a final oral examination regarding their dissertation research.

**Rehabilitation Counseling**
Margaret K. Glenn, Program Coordinator
Allen Hall, P.O. Box 6122

**Degree Offered**

*Master of Science*

**Master of Science in Rehabilitation Counseling**

The rehabilitation counselor education program in the College of Human Resources and Education offers a curriculum at the master’s degree level. All students complete coursework related to rehabilitation and disability issues as well as coursework in counseling.

This professional counseling specialty assists individuals with physical, mental, developmental, cognitive, and emotional disabilities to achieve their personal, career, and independent living goals in the most integrated setting possible through the application of the counseling process. The counseling process involves communication, goal setting, and beneficial growth or change through self-advocacy, psychological, vocational, social, and behavioral interventions. The objectives of our program are linked to provide: Educational experiences for every student that facilitates the development of knowledge, skills, and beliefs necessary to practice as a qualified rehabilitation counselor; learning opportunities to support students’ ability to implement culturally responsive and ethically sound rehabilitation counseling practices; and clinical training environments that are focused on real world expectations. Graduates also work in mental health and substance abuse
service agencies. The program is fully accredited by the Council on Rehabilitation Education and is a WVU Program of Excellence.

The program of study includes 51 credit hours or coursework including 12 didactic courses, a practicum (150 hours), then a faculty-supervised internship (600 hours) in the final semester. Graduation is contingent upon completion of these 51 credit hours with a 3.0 grade point average. In addition to completing coursework satisfactorily, a candidate must demonstrate the ability to assume the responsibilities required of a professional rehabilitation counselor and the personal characteristics essential to effective working relationships with others.

The rehabilitation counseling program is available for both full- and part-time students. An e-campus version of the program is offered through Extended Learning. On-campus and e-campus programs start in the fall.

Students may take the professional examination to obtain national certification as a rehabilitation counselor during their internship semester. Graduates who take additional coursework (leading to 60 hours) and undertake the appropriate level of supervised experience after completion of their degree are typically eligible for licensure as a counselor in West Virginia and many other states.

**Required Courses**

All students are required to take the following core courses:

- **COUN 501** Counseling Theory and Techniques 1
- **COUN 505** Theory and Practice of Human Appraisal
- **COUN 606** Counseling Theory and Techniques 2
- **COUN 609** Group Counseling Theory and Techniques
- **REHB 600** Introduction to Rehabilitation Services
- **REHB 610** Medical Aspects of Rehabilitation
- **REHB 612** Disability Across the Lifespan
- **REHB 620** Career Development and Job Placement
- **COUN 664** Ethical Issues in Counseling
- **REHB 672** Counseling Practicum
- **REHB 675** Clinical Practice
- **REHB 680** Research Seminar
- **Elective**

**Application**

Applications for admission to the rehabilitation counseling program should be made to the WVU Office of Admissions. In addition to the admission requirements of the University and the College of Human Resources and Education, the rehabilitation counseling program has the following admission requirements.

- A baccalaureate degree with coursework in appropriate areas.
- A minimum undergraduate grade point average of 2.8 based on a 4.0 system (students with a lower grade point average and otherwise exceptional credentials may be admitted provisionally); under 2.5 GPA cannot be admitted.
- GRE or MAT scores.
- Three letters of reference.
- Completion of the application to the rehabilitation counseling program.

The initial screening decision is based upon this information as well as considering the applicant’s previous work or related experiences related to persons with disabilities. Successful applications are then interviewed by program faculty. Final decisions about admission are based on both the requirements and the interview process.

**Admission**

Admission to the program is a two-step procedure. Step one involves a review of credentials presented in the application materials including references, department application (relevant major; general quality of application), GPA, and GRE scores (verbal, quantitative, and analytical writing). Step 2 is the department interview which considers personal style relevant to working as a counselor, communication skills, capacity for empathic understanding and communication, ability to articulate professional goals, goals congruent with department focus, knowledge and understanding of rehabilitation counseling as well as an assessment of applicants’ capacity to complete the rehabilitation counseling curriculum successfully.
The preferred application deadline for receiving completed materials is March 15. However, applications are accepted until April 15.

**Curriculum and Instruction—Literacy Studies**  
Joy Faini Saab, Interim Chair  
602 Allen Hall  
http://depts.hre.wvu.edu/c&ils

**Degrees Offered**  
*Master of Arts*  
*Area of Emphasis for Doctor of Education*

**Curriculum and Instruction**  
*Doctor of Education*

The curriculum and instruction area of emphasis for the doctoral degree is designed to prepare candidates to teach at college or university levels, work with school districts, or other agencies in curriculum areas, or to hold leadership positions in organizations that emphasize teaching and learning. Program flexibility allows candidates to design programs that meet their career goals. All programs are approved by an advisor and Faculty Committee.

The program requires a minimum of 72 hours beyond the baccalaureate degree, including 42 hours beyond a master’s degree; 33 of the 42 hours must be taken at WVU. In addition to the major area coursework in curriculum and instruction, students must (a) have coursework in an area of specialization; (b) must complete a core of foundations and research courses; (c) successfully complete a comprehensive examination; (d) seek approval of a dissertation topic; and (e) successfully defend dissertation research.

**Admission**

All applicants must comply with the requirements of West Virginia University, the College of Human Resources and Education, and the curriculum and instruction program area. Requirements for the curriculum and instruction area for the Ed.D. are as follows:

- Completion of a master’s degree from an accredited school.
- Graduate grade point average of a 3.25 or higher.
- A goals statement that describes the extent to which the applicant’s goals may be accomplished through the program.
- Three letters of references.
- Graduate Records Examination (GRE) or Millers Analogy Test (MAT) are required for admission (score cannot be more than five years old). Please contact department for minimum score requirements and/or program changes.
- International students from a country in which English is not the native language must have a TOEFL score of at least 550.
- Related teaching and/or other appropriate professional experience.

Applications are reviewed and admission recommendations are made by the program’s Doctoral Admissions Committee. The number of students accepted into the program in each admission period is determined by available resources. For additional information or requirements visit http://www.hre.wvu.edu/C%26ILS/index.html.

Submission and completion of all of the above does not guarantee admission into the program.

**Candidacy**

Students are accepted for study toward the Ed.D. with an emphasis in curriculum and instruction upon admission into the program. To advance to candidacy for the doctorate, the student must:

- Complete prerequisite doctoral program coursework with at least a 3.0 grade point average.
- Pass a written comprehensive and oral examination.
- Have a research prospectus approved by the Dissertation Committee.
For additional information concerning admission criteria, program requirements, deadlines, and timelines, please direct inquiries to the Chair, Department of Curriculum and Instruction—Literacy Studies, 602 Allen Hall, College of Human Resources and Education, West Virginia University, P.O. Box 6122, Morgantown, WV 26506-6122; or phone (304) 293-3441.

**Elementary Education Master of Arts**

The Department of Curriculum and Instruction—Literacy Studies provides opportunities for graduate study and research leading to the degree of master of arts (M.A.) for educators and other professionals with educational responsibilities. Teacher certification requirements are based on the West Virginia Department of Education’s Policy 5100 Approval of Educational Personnel Preparation Programs and Policy 5202 Licensure of Professional/Paraprofessional Personal. The master of arts in elementary education has three areas of emphasis: elementary education for initial certification, elementary education with an emphasis on early childhood education; and advanced study in elementary education.

Students pursuing a master of arts degree in elementary education may choose one of three program areas of emphasis. Each program area is designed to meet the educational and career goals of students who pursue this degree area. Student may choose a thesis option with this degree.

**I. Master of Arts Elementary Education (Advanced Program of Study)**

This program is designed for individuals who already hold a bachelor’s degree in elementary education in addition to teaching certification in elementary education and for educators or other professionals who have curriculum and instructional responsibilities. Students have the opportunity to advance their knowledge and skills applicable to student learning.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;I 604</td>
<td>School Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 605</td>
<td>21st Century Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>SCFD 620</td>
<td>Philosophy of Education</td>
<td>3</td>
</tr>
<tr>
<td>or SCFD 640</td>
<td>History of Education</td>
<td>3</td>
</tr>
<tr>
<td>or Approved C&amp;I Course</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 631</td>
<td>Math in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 648</td>
<td>Science/Technology/Society</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 757</td>
<td>Social Studies Curriculum Development</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 688</td>
<td>Classroom Organization and Management</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 621</td>
<td>Reading and Writing Inst Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 680</td>
<td>Technology Integration-Capstone Experience</td>
<td>3</td>
</tr>
<tr>
<td><strong>Required hours</strong></td>
<td></td>
<td>27</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td><strong>Total hours for the master’s degree</strong></td>
<td></td>
<td>36</td>
</tr>
</tbody>
</table>

**II. Master of Arts Elementary Education with Initial Teaching Certification**

This program is available to those students who hold a bachelor’s degree in non-education fields or other education fields, and choose to pursue a degree and certification in teacher education. This program is also designed for career changers; those individuals who choose to change careers after several years on the job.

**Required Professional Graduate Education Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;I 631</td>
<td>Mathematics in Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 602</td>
<td>Curriculum and Teaching Principles</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 640</td>
<td>Science in Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 650</td>
<td>Social Studies in Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 689</td>
<td>Cultural Diversity in the Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EDP 600</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 403</td>
<td>Children’s Literature</td>
<td>3</td>
</tr>
<tr>
<td>or RDNG 694</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 621</td>
<td>Reading and Writing Instruction-Elem Schools</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 640</td>
<td>Instructing Students with Reading Difficulties</td>
<td>3</td>
</tr>
</tbody>
</table>
III. Master of Arts Elementary Education Early Childhood Education (Pre K-4)

This program is designed for those individuals who choose to become experts in early childhood education. Students gain practical experience by working with young children throughout their educational experience.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;I 612</td>
<td>Early Childhood Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 614</td>
<td>Early Childhood Instruction</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 414</td>
<td>Promoting Creative Expr in Elem-Erly Childhood</td>
<td>3</td>
</tr>
<tr>
<td>THET 461</td>
<td>Creative Dramatics.</td>
<td>3</td>
</tr>
<tr>
<td>PET 493</td>
<td>Special Topics: Kinderskills</td>
<td>3</td>
</tr>
<tr>
<td>PET 668</td>
<td>Motor Development</td>
<td>3</td>
</tr>
<tr>
<td>PET 670</td>
<td>Infant/Early Childhood Motor Development</td>
<td>3</td>
</tr>
<tr>
<td>SPA 278</td>
<td>Speech-Language-Hearing: Development-Disorders</td>
<td>3</td>
</tr>
<tr>
<td>SPA 608</td>
<td>Hearing Impaired Children in Schools</td>
<td>3</td>
</tr>
<tr>
<td>SPED 500</td>
<td>Survey of Exceptional Children and Adults</td>
<td>3</td>
</tr>
<tr>
<td>SPED 601</td>
<td>Special Education Curriculum/Methods</td>
<td>3</td>
</tr>
<tr>
<td>CDFS 212</td>
<td>Early Childhood Development</td>
<td>3</td>
</tr>
<tr>
<td>*CDFS 316</td>
<td>Child Development Practicum</td>
<td>3</td>
</tr>
<tr>
<td>*C&amp;I 587</td>
<td>Clinical Experience Early Childhood</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>Graduate Course in Child Development or equivalent experience</td>
<td>3</td>
</tr>
<tr>
<td>Total required hours</td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>Approved restricted elective hours</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Total graduate hours</td>
<td></td>
<td>36</td>
</tr>
</tbody>
</table>

An additional birth to pre k option adds the following requirement:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDFS 211</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

*Meets performance assessment requirement for field experience: C&I 410, C&I 411, C&I 587, or CDFS 316.

Other Requirements:

Graduate students applying for a birth-K certification are required to complete three hours of performance assessment credits in a pre-K classroom or approved equivalent experience. They must also pass the Early Childhood Education Exam #0530. (All elective courses must be approved by the advisor before enrollment.)
IV. Master of Arts Elementary Education (Thesis Option)
This thesis option is available to those who choose to advance their career through the intensive study of their area of interest while creating an individualized research agenda. Students interested in pursuing this option should contact the chair of the department for program options.

Requirements All applicants must comply with the general requirements of the University and the College of Human Resources and Education.

Graduation All students must apply for graduation. Please contact the Center for Student Advising and Records, Room 710 Allen Hall, PO Box 6122, Morgantown, WV 26506-6122.

Program Policies and Matriculation Benchmarks—Elementary Teaching Certification Programs
All students enrolled in post B.A. initial certification programs in the Department of Curriculum and Instruction—Literacy Studies must adhere to the following policy. Please consult with your advisor to discuss your program plan.

Matriculation Benchmarks
Phase One Admission to the M.A. program in elementary/secondary education
Criteria
• Bachelor’s degree
• GPA 2.75
• TOEFL (international students)
  TOEFL score must be at least 550 (paper) or 213 (computer) for international students.
  (76 after July 2006)

Phase Two Admission to certification teacher education
Criteria
• 3.0 GPA in graduate coursework
  Successful completion of C&I 602 (Must complete class with a grade of B or above.)
  Successful completion of: PPST (Pre Professional Skills Test -PRAXIS I) unless the student has an M.A. or 26 on ACT or 1125 on the SAT (see State Policy 5100). This policy can be found on the WV department website, under State Board (policies – 5100): http://wvde.state.wv.us.
  Test scores must be submitted to department.
• Begin collection of artifacts for an exit portfolio

Phase Three Student teaching placement (pre-requisites)
Criteria
• Completion of all professional education and subject content coursework.
• Completion and submission of Student Teaching Application.
• Successful passing the PRAXIS II. Test scores must be submitted to the Center for Student Advising and Records.
• Completion of a minimum 125 hours of field-based experience.

State Policy # 5100
6.2.3. PPST Waivers. In lieu of taking the WVBE-approved PPST, prospective educators completing WVBE-approved programs may provide evidence of:
1. A master’s degree from an accredited institution of higher education; or
2. Currently holding or having held a West Virginia professional teaching, administrative, or student support service license; or
3. Attainment of WVBE-approved composite scores from a single administration of the American College Testing (ACT) Program or the Scholastic Achievement Test (SAT).

See Appendix E of this policy for currently approved ACT and SAT scores. Waivers A and C do not apply to the institution’s required assessments of speaking, listening, and educational technology knowledge and skills. Individuals who currently hold or have held a West Virginia professional teaching, administrative, or student support services license are not required to complete any of the pre-professional skills assessments (WVDOE Policy 5100).
**Additional Notes**

1. C&I 602 must be taken in the first or second semester after admission into the program.
2. No more than 14 hours at a 400 level plus student teaching may count toward a 36-hour master’s degree.
3. Application for transient credit for graduate courses taken at other institutions must be approved by the advisor and the associate dean for academic affairs.
4. Elective courses must be approved by the advisor prior to enrollment.
5. Prior to enrollment in C&I 584 Student Teaching:
   - All coursework must be completed.
   - All students must complete 125 hours of approved fieldwork.
   - All students must submit passing scores (as determined by the West Virginia Department of Education) and copies of the subtest scores for the appropriate PRAXIS II (content area) to the Center for Student Advising and Records test prior to student teaching.
6. All students must successfully complete a professional portfolio that demonstrates mastery of WV Professional Teaching standards and specialization content. Students submit the portfolio in C&I 680

**Capstone Experience**

1. All students must submit passing scores for the PLT to the Center for Student Advising and Records prior to certification.
2. As state certification requirement change, additional coursework may be required.

**Reading**

Joy Faini Saab, Interim Chair,
Curriculum and Instruction—Literacy Studies
602 Allen Hall
http://depts.hre.wvu.edu/c&ils/lit/index.html

**Degree Offered**

*Master of Arts*

The primary purpose of the master’s program in reading is to provide increased knowledge, skill, and competence for teachers or those who work in the field. The program contains a number of related options for emphasis within its framework, making it flexible enough to meet a wide variety of needs. Advanced teacher certification requirements are based on the West Virginia Department of Education’s Policy 5100 Approval of Educational Personnel Preparation Programs and Policy 5202 Licensure of Professional/Paraprofessional Personnel.

**Requirements**

All applicants must comply with the general West Virginia University requirements, requirements of the College of Human Resources and Education, and the reading program. As state certification requirements change, additional coursework may be required.

Professionals with successful teaching experience at the elementary, secondary, or college level may elect to enroll in these courses to increase their competencies as reading teachers, to keep themselves informed of the latest trends and developments in reading education, or to prepare for positions of greater responsibility. Students who plan to enter the teaching field may also wish to enroll in these courses to increase their overall skills and knowledge.

**Courses**

Course offerings provide opportunities to become familiar with the organization, implementation, and administration of pre-adult reading programs. Practical opportunities for teachers and specialists-in-training are provided in the University Reading Clinic.

For further information on admission and program requirements, write Chairperson, Department of Curriculum and Instruction—Literacy Studies, College of Human Resources and Education, 602 Allen Hall, P.O. Box 6122, Morgantown, WV 26506-6122.
• Students must complete six or more hours in reading within two years after admission (probationary or regular) or admission will be invalidated and the student will be required to reapply.
• The course requirements in the program lead to reading specialist certification for qualified candidates.

### Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDNG 621</td>
<td>Reading and Writing in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 622</td>
<td>Content Area Literacy Instruction</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 624</td>
<td>Foundations of Literacy</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 627</td>
<td>Developing Reading Interests</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 640</td>
<td>Instructing Students Who Have Reading Difficulties</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 641</td>
<td>Problems in Reading</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 682</td>
<td>Assessment of Reading Ability</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 685</td>
<td>Practicum: Clinical Teaching</td>
<td>6</td>
</tr>
<tr>
<td>RDNG 726</td>
<td>Literacy Leadership</td>
<td>3</td>
</tr>
</tbody>
</table>

### Electives

<table>
<thead>
<tr>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
</tr>
</tbody>
</table>

### Total

<table>
<thead>
<tr>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
</tr>
</tbody>
</table>

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### Secondary Education

Joy Faini Saab, Interim Chair  
602 Allen Hall  
Curriculum and Instruction/—Literacy Studies  
http://depts.hre.wvu.edu/c&iils

#### Degree Offered

**Master of Arts**

#### Program

The purpose of the secondary program is to provide academic experiences to increase skills in teaching and curriculum development and knowledge of a teaching specialization. Students pursuing a master of arts in secondary education may choose one of five content specialization areas (English, foreign language, math, science, social studies). In addition students may elect to enroll in the advanced secondary education option. Teacher certification requirements are based on the West Virginia Department of Education’s Policy 5100 Approval of Educational Personnel Preparation Programs and Policy 5202 Licensure of Professional/Paraprofessional Personnel. Student may choose a thesis option with this degree. The Master of Arts in Secondary Education has three areas of emphasis: secondary education for initial certification; secondary education with an emphasis on higher education, and advanced study in secondary education.

#### Masters of Arts - Secondary Education (Advanced Program of Study)

This program is designed for individuals who already hold a bachelor’s degree in secondary education in addition to teaching certification in one of the five specialization areas. Additionally, it is also designed for those educators and or other professionals who are responsible for curriculum and instruction within their discipline and or expertise areas.

Students who choose this option will complete 36 hours of coursework that is designed to broaden their professional knowledge and technical skill set.

### Required Professional Graduate Education Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;I 604</td>
<td>School Curriculum (course title change)</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 605</td>
<td>21st Century Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>SCFD 620</td>
<td>Philosophy of Education or</td>
<td></td>
</tr>
<tr>
<td>SCFD 640</td>
<td>History of Education</td>
<td>3</td>
</tr>
</tbody>
</table>
or
C&I 680 Technology Integration-Capstone Experience ................................................. 3

**Required graduate hours** .......................................................................................... 12

**Electives** .................................................................................................................. 24

**Total graduate hours required** .................................................................................. 36

**II. Master’s of Arts - Secondary Education**

**Secondary Education Program with Initial Teaching Certification**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;I 604</td>
<td>School Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 605</td>
<td>21st Century Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>SCFD 620</td>
<td>Philosophy of Education</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>SCFD 640 History of Education</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>C&amp;I 680 Technology Integration-Capstone Experience</td>
<td>3</td>
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<tr>
<td><strong>Required graduate hours</strong></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

**Total graduate hours required** .................................................................................. 36

**Education Core Coursework**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;I 602</td>
<td>Curriculum and Teaching Principles</td>
<td>3</td>
</tr>
<tr>
<td>EDP 600</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 622</td>
<td>Content Area Literacy</td>
<td>3</td>
</tr>
<tr>
<td>SPED 500</td>
<td>Legal/Educational Found: Special Education</td>
<td>3</td>
</tr>
<tr>
<td>SPED 601</td>
<td>Special Ed. Curriculum and Method</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 687</td>
<td>Advanced Teaching Strategies</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>C&amp;I 688 Classroom Management</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>C&amp;I 689 Cultural Diversity in the Classroom</td>
<td>3</td>
</tr>
<tr>
<td>*SCFD 620</td>
<td>Philosophy of Education</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>SCFD 640 History of Education</td>
<td>3</td>
</tr>
</tbody>
</table>

*Students who chose science as a specialization area do not take this course.

Contact the department for specialization requirements. Students may seek initial certification
in the following areas: English education, foreign language education, math education, science education, and social studies education. Contact the department for specific program information and program requirements.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;I 585</td>
<td>Student Teaching Secondary Education</td>
<td>7</td>
</tr>
<tr>
<td>C&amp;I 588</td>
<td>Professional Field Experience</td>
<td>2</td>
</tr>
<tr>
<td>C&amp;I 680</td>
<td>Technology Integration-Capstone Experience</td>
<td>3</td>
</tr>
</tbody>
</table>

**Program Policies and Matriculation Benchmarks—Secondary Teaching Certification Programs**

**Phase One** Admission to the M.A. program in elementary/secondary education

**Criteria**

- Bachelor’s degree
- GPA 2.75
- TOEFL (international students)
  TOEFL score must be at least 550 (paper) or 213 (computer) for international students. (76 after July 2006).

**Phase Two** Admission to certification teacher education

**Criteria**

- 3.0 GPA in graduate coursework
- Successful completion of C&I 602 (Must complete class with a grade of B or above.)
• Successful completion of:
  PPST (Pre Professional Skills Test - PRAXIS I) unless the student has an M.A. or 26 on ACT / 1125 on the – SAT (see State Policy 5100). This policy can be found on the WV department website, under State Board (policies – 5100): http://wvde.state.wv.us. Test scores must be submitted to department.
• Begin collection of artifacts for exit portfolio.

Phase Three  Student teaching placement (pre-requisites)

Criteria

• Completion of all professional education and subject content coursework.
• Completion and submission of Student Teaching Application.
• Successful passing the PRAXIS II. Test scores must be submitted to the Center for Student Advising and Records.
• Completion of a minimum 125 hours of field based experience.

State Policy # 5100
6.2.3. PPST Waivers. In lieu of taking the WVBE-approved PPST, prospective educators completing WVBE-approved programs may provide evidence of:
1. A master’s degree from an accredited institution of higher education; or
2. Currently holding or having held a West Virginia professional teaching, administrative, or student support service license; or
3. Attainment of WVBE-approved composite scores from a single administration of the American College Testing (ACT) Program or the Scholastic Achievement Test (SAT).
See Appendix E of this policy for currently approved ACT and SAT scores. Waivers A and C do not apply to the institution’s required assessments of speaking, listening, and educational technology knowledge and skills. Individuals who currently hold or have held a West Virginia professional teaching, administrative, or student support services license are not required to complete any of the pre-professional skills assessments (WVDOE Policy 5100). Due to periodic changes in state certification requirements, program content may change.

Additional Notes
1. C&I 602 must be taken in the first or second semester after admission into the program.
2. No more than 14 hours at a 400 level plus student teaching may count toward a 36 hour master’s degree.
3. Application for transient credit for graduate courses taken at other institutions must be approved by the advisor and the associate dean for academic affairs.
4. Elective courses must be approved by the advisor prior to enrollment.
5. Prior to enrollment in C&I 585 Student Teaching:
   • All coursework must be completed.
   • All students must complete 125 hours of approved fieldwork.
   • All students must submit passing scores (as determined by the West Virginia Department of Education) and copies of the subtest scores for the appropriate PRAXIS.

II. (Content area specialization) to the Center for Student Advising and Records prior to beginning the student teaching semester.
1. All students must successfully complete a professional portfolio that demonstrates mastery of WV Teaching Standards and specialization content. Students submit the portfolio in C&I 680.
2. All students must submit passing scores for the PLT to the Center for Student Advising and Records prior to certification. As state certification requirement change, additional coursework may be required.
Higher Education Curriculum and Teaching

Graduate Courses in Education ................................................................. 18-24
Required Courses in Education ................................................................. 5
SCFD 620 Philosophy of Education
or
SCFD 640 History of Education ................................................................. 3
C&I 701 Curriculum Development ........................................................... 3
C&I 687 Advanced Teaching Strategies .................................................... 3
C&I 789 Teaching in Higher Education ..................................................... 3
EDP 600 Educational Psychology ............................................................ 3
Approved Education Electives ................................................................. 3-9
Graduate Courses in an Academic Area ................................................... 12-18
Total ........................................................................................................ 36

III. Master of Arts Secondary Education (Thesis Option)

This option is available to those who choose to advance their career through the intensive study of their area interest while creating an individualized research agenda. Students interested in pursuing this option should contact the chair of the department for program options.

Graduation

All students must apply for graduation. Please contact the Center for Student Advising and Records, 710 Allen Hall, P.O. Box 6122, Morgantown, WV 26506-6122.

Department of Educational Leadership Studies

608 Allen Hall
http://www.wvu.edu/~edulead

Degrees Offered

Master of Arts (M.A.) Degree with emphasis in public school administration or higher education leadership
Doctor of Education (Ed.D.) degree with emphasis on public school administration or higher education leadership.

The educational leadership studies program at West Virginia University prepares individuals for leadership positions in elementary, secondary, and post-secondary educational institutions. Although most of the students pursue administrative careers, some prepare for college or university research, teaching, and/or staff positions. The department offers graduate programs leading to the master of arts degree and the doctorate degree in education with emphasis in public school or higher education leadership. In addition, programs leading to certification for elementary and secondary school principals, instructional supervisors, and superintendents are provided.

Admission

Students who possess a baccalaureate degree from a college or university with at least a grade point average of 3.00 on a scale of 4.0, a score of at least 410 on the Miller Analogies Test, or at least 460 on the verbal, 500 for the Quantitative, and 3.0 for the analytical sections of the Graduate Record Examination will be considered for admission. Standardized test scores must be taken within the past four years before the date of application. Applicants must also submit a writing sample, which includes a statement of goals, a CV, and two letters of recommendation. In addition, all applicants whose native language is not English must submit a score of at least 550 (paper-based) or at least 213 (computer-based), or at least 79 (Internet-based) on the TOEFL exam, except for those who have recently completed a bachelor’s degree in the United States. Students applying for the master’s in public school leadership must also possess a teaching certificate and at least two years teaching experience. To apply, students submit an
application for admission, all college transcripts, and a nonrefundable service fee to the Office of Admissions, West Virginia University, P.O. Box 6009, Morgantown, WV 26506-6009. Phone: (304) 293-2121, Fax: (304) 293-3080. Information is verified by the Office of Admissions and then applications are forwarded to the academic unit. The EDLS program admits students to the master’s degree program in both the fall and spring terms. See our website for deadlines. Certification applicants are reviewed monthly.

The University Graduate Council sets minimum standards for admission to graduate study. Beyond this point, however, faculty members in the graduate program decide who should be admitted to undertake graduate study under their supervision; and ultimately it is they who certify which students have demonstrated sufficient mastery of the discipline to qualify for a graduate degree. Although a student may be admitted for the purpose of enrolling in advanced coursework, only the program faculty may grant permission for the pursuit of a degree. Likewise, a student will not be recommended for a degree until the graduate faculty of a program has indicated in writing that the student has gained the desired knowledge and completed all the requirements for the graduate program.

Applicants for a master of arts degree in educational leadership studies must comply with the WVU requirements for admission to graduate studies, the requirements of the College of Human Resources and Education, and those of the educational leadership studies program Unit. Admission to all programs is contingent on assessment of complete official transcripts of all higher education work attempted and other evidence the faculty may deem necessary to judge probable success in the graduate program. Admission procedures are explained more completely on the EDLS program admissions page on the department’s website. In order to graduate, students must earn at least a 3.25 grade point average on all program work attempted.

**Doctor of Education (Ed.D.)**

The doctor of education degree (Ed.D.) is offered in educational leadership studies with an emphasis in either public schools or higher education, which includes related agencies such as state policy or governing boards. Consistent with the regulations of West Virginia University, the College of Human Resources and Education, and the educational leadership studies program, each emphasis area is designed by the doctoral student, the student’s advisor, and the Doctoral Committee.

For the doctoral higher education program, the course of study for the major may be completed through classes that meet monthly, usually on the weekends (Friday and Saturday). For the doctorate in public school leadership, courses are offered both on-campus and off-campus in sites around the state to accommodate the cohort’s logistical and programmatic needs. Courses are offered on weekends once per month. Students typically take at least two courses per semester and enroll continuously so they can complete the program expeditiously. Additional information about program options is available on the department website for the EDLS program secretary.

**Admissions Procedures**

For admission consideration, applicants are to submit the following documents:

1. Application for Admission to Graduate School
2. All official college transcripts, undergraduate and graduate. The undergraduate grade point average must not all below 3.0 (on a four-point scale). The graduate grade point average from the master’s degree must not be lower than 3.25 (on a four-point scale).
3. Graduate Record Examination scores taken within four years before the date of application. Applicants must score at least 460 for the verbal section, 550 for the quantitative, and 4.0 for the analytical section. GRE scores must be taken within four years before the date of application. In addition, all applicants whose native language is not English must submit a score of at least 550 on the TOEFL examination, except for those who have recently completed a bachelor’s degree in the United States.
4. Statement of professional experiences and career aspirations
5. Professional resume
6. Two reference letters
7. A writing sample (see below)
8. Campus interview (see below)
Directions: Send items 1, 2, and 3 to the Office of Admissions, West Virginia University, P.O. Box 6009, Morgantown, WV 26506-6009. Send items 4, 5, 6, and 7 to the EDLS Program Secretary, West Virginia University, PO Box 6122, Morgantown WV 26506-6122.

Admissions Requirements
The decision to admit a student to doctoral work constitutes a major commitment from the faculty of the department in the form of advising, teaching, chairing, and serving on the committee, preparing and evaluating examinations, and guiding the successful completion of the dissertation.

The applicant should note, however, that the decision to admit students to the doctoral program is a collective judgment of the faculty and represents their determination of the likelihood of the candidate to succeed in all major phases of the degree program. These judgments take into account the candidate’s professional experiences, communication and thinking skills, and other relevant capabilities. Thus, a candidate is not automatically admitted on the basis of meeting only the minimal criteria to be considered for admission.

The department will assess the applicant’s fluency, coherence, and clarity of written expression by means of his/her statement of professional experience and career aspirations and the writing sample.

Admissions Decision Procedures
Once a potential student’s application is complete, the program faculty and the department chair will review it. If applicants meet the minimum requirements, they may be invited to an on-campus interview. The student should receive an official letter within one month after the interview. At that time, students will be notified of their status and, if they are accepted, they will also receive information about their assigned advisor.

Appointment of Advisor
The notification of acceptance into the program shall include the name and contact information of the faculty member who will serve as advisor until the Doctoral Committee is constituted. The selection and approval of committee members should occur during the semester when 12–18 hours of program work taken after admission is completed. Either the student or the initial advisor may request that the department chair make a change in the faculty advisor at any time before the doctoral committee is constituted.

Public School Program Emphasis Areas
The EDLS doctoral program in public schools may focus on one of the following four administrative areas. The program focus depends upon past experience, career aspirations, personal aptitudes, doctoral program minor, and courses selected for the doctoral program major.
1. General Administration, Superintendency, or Principalship. The program concentration should be in an academic field such as law, sociology, anthropology, political science, or public administration. Public school administration experience is expected.
2. Central Office Supervisor or Assistant for Curriculum and Instruction. Several options are available for the concentration including: curriculum and instruction, educational psychology, special education of reading. Public school administration experience is expected.
3. Central Office Business Manager or Assistant Superintendent for Finance. Several options are available for the concentration including: business and economics, accounting, computer science, or public administration. Public school administration experience is expected.
4. Central Office Personnel Administration. Several options are available for the concentration including: industrial relations, psychology, student personnel administration, or counseling and guidance. Public school administration experience is expected.

The EDLS doctoral program in higher education leadership does not offer program emphases. However, students can tailor a program to meet their needs by carefully selecting appropriate elective courses.

Higher education leadership students who desire to be faculty members or researchers should consider applying for the Ph.D. program. Other students who aspire for administrative positions typically take internships to gain important learning experiences.
Doctoral Program Requirements

A minimum of 72 credit hours post baccalaureate, excluding dissertation hours, is required. A minimum GPA of 3.25 is required for all coursework beyond the master’s degree.

The academic program consists of three required components: major, minor, and research core; and it must be approved by the Doctoral Committee in a specially convened meeting with all members present. If a member of the committee is unable to attend the meeting, he or she must notify the major advisor and the student in advance and forward in writing all recommendations to be considered at the program approval meeting. No fewer than three members of the committee must be present at the meeting, two of whom must be from educational leadership studies.

1. Major Component. Consists of 24 to 36 hours of work taken in educational leadership studies. Students take formally approved courses, seminars, special topics, independent study, and internships. The more limited the education and experience in administration, the greater the number of credit hours that will be required. All students must take the foundation courses as listed in the higher education leadership or public school administration programs. A minimum of 24 hours exclusive of dissertation in the major must be taken following admission into the program. A minimum of 12 hours of dissertation research is required.

2. Minor Component. Consists of 18 to 24 hours of work in a stated area. This must be developed with the minor area committee member(s) and approved by the committee.

3. Research Core. All students must complete a minimum of 15 credits, which include statistics, introduction to educational research, qualitative research, and other advanced research courses. If a student can demonstrate competence in these areas, the committee may waive these course requirements.

Courses—Higher Education Leadership Majors

Foundation Courses (Required)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>603</td>
<td>Education Leadership</td>
</tr>
<tr>
<td>650</td>
<td>Higher Education Administration</td>
</tr>
<tr>
<td>708</td>
<td>Education Administration Theory</td>
</tr>
<tr>
<td>754</td>
<td>Critical Issues in American Higher Education from Historical and Policy Perspective</td>
</tr>
<tr>
<td>755</td>
<td>Higher Education Law</td>
</tr>
<tr>
<td>756</td>
<td>Higher Education Finance</td>
</tr>
</tbody>
</table>

Elective Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>651</td>
<td>College Student Development</td>
</tr>
<tr>
<td>652</td>
<td>Assessment in Higher Education</td>
</tr>
<tr>
<td>653</td>
<td>College Student and the Courts</td>
</tr>
<tr>
<td>654</td>
<td>College Student Affairs</td>
</tr>
<tr>
<td>655</td>
<td>Institutional Advancement</td>
</tr>
<tr>
<td>656</td>
<td>College Business Management</td>
</tr>
<tr>
<td>657</td>
<td>Community Colleges Leadership</td>
</tr>
<tr>
<td>659</td>
<td>Administrative Procedures in Adult Education</td>
</tr>
<tr>
<td>693</td>
<td>Special Topics by Independent Study</td>
</tr>
<tr>
<td>706</td>
<td>Organizational Analysis</td>
</tr>
<tr>
<td>707</td>
<td>Politics of Education</td>
</tr>
<tr>
<td>751</td>
<td>Academic Affairs Administration</td>
</tr>
<tr>
<td>752</td>
<td>Governance of Higher Education</td>
</tr>
<tr>
<td>753</td>
<td>Adult and Continuing Education</td>
</tr>
<tr>
<td>757</td>
<td>Institutional Research and Planning</td>
</tr>
<tr>
<td>758</td>
<td>Higher Education Collective Bargaining</td>
</tr>
<tr>
<td>760</td>
<td>Curriculum Development and Reform of Academic Program</td>
</tr>
<tr>
<td>785</td>
<td>Education Administration Internship</td>
</tr>
<tr>
<td>794</td>
<td>Seminars Course</td>
</tr>
</tbody>
</table>
Public School Administration Majors
Foundation Courses (Required)
603 Principle of Education Leadership
703 Economics/Education Funding
705 Public Education: Ethics/Law/Policy
707 Politics of Education
708 Education Administration Theory
796 Orientation Seminar

Elective Courses
601 Dynamics of Educational Organizations
602 Human Resources Dynamics
610 School Business Management
611 Principles of Supervision
612 School: Policy/Politics/Laws
613 Planning/Research/Evaluation for School Leaders
614 Community and Media Relations
620 Site Based Leadership
625 Topics in Supervision
693 Special Topics by Independent Study
701 Advanced Supervision
702 Superintendency: Role/Responsibility
704 Educational Facilities: Planning/Evaluation
706 Learning Organizations: Culture/Technology/Change
785 Education Administration Internship

Doctoral Committee
An important part of the doctoral program for the student is choosing the Doctoral Committee. Members approve the program, write and evaluate the comprehensive examination questions, approve the dissertation prospectus, and approve the dissertation. The student typically takes the first 12 to 18 hours in education leadership studies from several faculty members. This helps the student select the chairperson. Students are not required to choose the temporary advisor as the major advisor for their Doctoral Committee.

The major advisor must be a member of the graduate faculty from the major program area and must be willing to accept the advising assignment. The role of the major advisor is to assist the student in thinking about potential dissertation topics and helps the student select an appropriate doctoral committee. Before the student has completed 18 hours of doctoral coursework, the student must select a major advisor and a Doctoral Committee. The temporary advisor and/or the permanent major advisor shall assist the student in the selection of the student’s Doctoral Committee which must meet the following minimum standards.

1. The Doctoral Committee must be composed of a minimum of five members, at least three of whom shall be regular members of the graduate faculty.
2. The committee must contain three faculty members from the major ELDS program, one from the minor area, and one additional member who may be a practicing administrator from outside the department. All committee members must hold a terminal degree.
3. The student’s major advisor must be from the major program area and must be a regular member of the graduate faculty. No more than two other members may be from the major program area of study.
4. No more than one person may be a non-member of the graduate faculty.

In cooperation with the major advisor, the other committee members will be chosen. Each person agreeing to serve on the committee shall sign the Doctoral Committee form. This form also requires the signatures of the EDLS program coordinator, the department chair, the dean of Human Resources and Education, and the doctoral student. The approved program of study and any approved changes shall be filed in the Center for Student Advising and Records after all required signatures have been affixed.

A change in committee membership may be initiated by the student with the approval of the student’s major advisor. This change must be agreed to by the member being replaced (if still available to serve), the student, the major advisor, the new committee member, the department chair, and the dean’s office. After approval, a record of the new committee composition shall be filed in the Center for Student Advising and Records.
Comprehensive Examination

Evaluative procedures for assessing student competency are required in specific areas of the academic program. The comprehensive examination shall include written components. This examination covers the areas specified in the program of study. It is to be administered after most formal studies have been completed. The method(s) of assessment must be listed on the academic program form before it is signed. The comprehensive examination may be taken separately on the major and minor. The committee member writing each component is responsible for grading the student’s product. Scheduling and results of the examination must be reported to the Center for Student Advising and Records.

It must be the consensus of the doctoral committee that the student has passed the examination, although the committee may permit one dissenting vote. Students who fail one or more questions may petition to retake those questions one more time. If they do not succeed in that stage, they will be dismissed from the doctoral program. It is anticipated that a waiting period will be specified by the committee during which the student will have opportunity to correct deficiencies.

Higher Education Doctoral Comprehensive Exams

The Higher Education Doctoral Comprehensive Exams are administered at the beginning of fall and spring semesters. A two-page form is required for submission to sit for the exam. To request the form, please contact program secretary at 293-3707 x1421.

Admission to Candidacy and Time Limits to Complete the Degree

The student is admitted to candidacy for the doctorate upon successful completion of the comprehensive examination. Doctoral candidates are allowed no more than five years beyond admission to candidacy to complete the remaining degree requirements. In the event a student fails to complete the doctorate within five years after admission to candidacy, an extension of time (not to exceed one year) may be obtained only by repeating comprehensive examinations and meeting other requirements specified by the student’s committee.

Students admitted to candidacy must register for EDLS 797 every fall and spring semester until degree completion or they may be dropped from the program. Students not yet admitted to candidacy may be dropped from the program if they fail to enroll for at least one course in any two-year period. After being admitted to candidacy, all students must enroll for at least 12 credit hours of dissertation research credit (797) before graduation.

Mandatory Ethics Training for All Researchers

An online ethics training module must be completed by every research prior to submitting his or her next proposal to the Institutional Review Board (IRB) for course-related or dissertation research. After the training has been completed, verification can be provided for subsequent requests for IRB approval without repeating the module. The training module has been developed by National Institutes of Health (NIH), and takes about two hours to complete. The URL to access the module is: http://www.wvu.edu/~rc/irb/ethi_tr.htm.

Dissertation Prospectus

The culminating activity of the doctoral program is a dissertation of a significant and specific area of research that contributes to the knowledge base in the field of educational administration. The prospectus is the examination of the proposed project in careful detail before the student begins any data collection. The prospectus should make clear what is already known about the question(s) to be investigated and what doubtful points remain. It should include:

1. An introduction.
2. Statement of the problem. This should be a very specific problem sentence which lucidly and succinctly presents the main thesis of the study. It may be followed by a series of hypotheses or sub-problem statements.
3. Justification of the study. This section should explain the purpose and rationale for the study. It should specify reasons as to why the problem is worthy of study, including a statement of the theoretical and practical need for the study. This will include logic and a brief review of the literature relating to the problem.
4. A critical review of literature supporting the study and demonstrating the need for the dissertation.
5. Research questions, objectives, and/or hypotheses.
6. Research Procedures. This should be summarized in a conceptual model and followed by an expanded narrative. Quantitative studies should include the following as appropriate: a) population, b) sample, c) needed return, d) statistical treatment, e) methodology for securing data, f) sample tables. Qualitative or non-empirical studies should assume a format appropriate to the nature and design of the study.

Close cooperation with the major advisor is essential in developing a prospectus. Most students will develop several drafts before one is accepted. When the major advisor and the student believe the prospectus is ready, a meeting of the doctoral committee will be held at which time the student presents and defends the prospectus. All committee members must be present for the meeting. When approved, a copy of the prospectus signed by each of the committee members is filed with the Center for Student Advising and Records and a copy provided for each member of the committee.

The student must apply for and receive human subjects' approval from their dissertation chair, department chair, and the central compliance office (contact EDLS program secretary for e-mail and phone for the latter). It is strongly recommended that in the development of a prospectus the student consult one of these publications, using the most current edition of the style manual:


**Dissertation**

The dissertation advisor may be other than the doctoral major advisor. All dissertations completed by students in the department shall follow “Regulations Governing the Preparation of Dissertations and Theses.” In conducting the research, analyzing the data, and preparing the initial draft, the student works closely with the major advisor and any other committee members deemed necessary. After the major advisor reviews and approves a draft, copies are distributed to all committee members. The application for a shuttle sheet is signed by each committee member indicating approval for the defense, and the date, time, and place of the defense. This should be done at least one month before the defense.

Before the defense, the student should check with the major advisor to make sure the shuttle sheet has arrived and that two original copies of the dissertation signature page are in the chairperson’s possession. All members of the committee must be present for the defense. If a committee member cannot attend the dissertation defense, permission from the student, the program coordinator, the chair, and the dean (or designees) are required for approval of a substitute member to serve at the defense. There can be no substitute for the major advisor. Only one substitute is allowed, and the request for the substitute must be made in writing before the examination. The request for a substitute should be signed by both the original faculty member and the substitute. A substitute must have the same or higher graduate faculty status as the original faculty member and represent the same academic discipline or specialization.

The dissertation must bear the original signatures of at least all but one of the committee members. If more than one member of the committee, whatever the size of the committee, dissents from approving the dissertation, the degree will not be recommended. If a substitute attends the final defense, the substitute signs the shuttle sheet; however, the original committee member must sign the dissertation.

After the defense, the shuttle sheet is signed (pass or fail) by every committee member and is sent to the Center for Student Advising and Records. The student is responsible for making all required changes in the dissertation and for completing all required forms. The professional expectation is that every dissertation will be published in whole or in a series of articles. Major advisors are available to assist in the project.
Residency Requirements
Residency requires two consecutive semesters of full-time work (at least nine hours per term) after being admitted to the doctoral program. The two consecutive semesters may be fall-spring, spring-fall, spring-summer, or summer-fall. Courses taken for non-degree credit will not count for graduate residency.

It is also recognized that experiences of equal value may be obtained in situations other than those available on a university campus. Therefore, an individual’s program of study may include an alternative residency program. Such an alternative must be described and attached to the program of study form and must be approved by the Doctoral Committee, the Academic Affairs Committee, and the College of Human Resources and Education.

Special Education
Barbara L. Ludlow, Chair
509 Allen Hall
Department of Special Education
http://depts.hre.wvu.edu/sped/

Degrees Offered
Master of Arts
Area of Emphasis for Doctor of Education

The graduate program leading to the M.A. in special education is designed to prepare master teachers of infants, toddlers, children, and adults with exceptionalities and to provide initial training for the preparation of future supervisors and administrators of public-school special education programs. The College of Human Resources and Education awards the doctor of education, which may include an emphasis in special education. The Ed.D. with emphasis in special education has two program options: the program option in personnel preparation in special education is designed to prepare graduates for roles as faculty members and researchers, while the program option in school leadership for special education is designed to prepare graduates for roles as administrators or supervisors in public schools or community agencies. The program also prepares professionals for emerging roles associated with interdisciplinary services to persons requiring special education or disability services.

Application
All applications must comply with University, college, department, and program requirements. Teacher certification requirements are based on the West Virginia Department of Education’s Policy 5100 Approval of Educational Personnel Preparation Programs and Policy 5202 Licensure of Professional/Paraprofessional Personnel.

Certification and/or Master’s Degree Program Options
• Autism Spectrum Disorders (autism grades K–6 and/or 5–adult)
• Early Intervention/Early Childhood Special Education (preschool special needs grades 0–pre-K–K)
• Gifted Education (grades 1–12)
• Low Vision/Blindness (visual impairments grades Pre-K–adult)
• Multicategorical Special Education (grades K–6 and/or 5–adult)
• Severe/Multiple Disabilities (severe disabilities grades K–adult)

Applicants interested in one of the program areas should review the detailed information provided at http://depts.hre.wvu.edu/sped/ or contact sped@mail.wvu.edu for a brochure and application or an update on availability of specific courses.

Admission
All individuals seeking certification and/or a degree must be admitted into the special education program. Admission is granted on a competitive basis. Applications that are incomplete or fail to provide supporting documentation are NOT considered. Applicants who meet all regular admission criteria are NOT automatically admitted to the program since applications are
ranked and accepted in order until all available program openings have been filled. Applicants who meet criteria for provisional are ONLY considered IF additional openings remain at that point. Under NO circumstances will ANY requirement be waived. Students are admitted as regular, provisional, or non-degree students as follows:

**Regular Status** The individual who meets all admission requirements is granted regular status as a certification and/or degree-seeking student.

- An earned baccalaureate degree from a regionally accredited college or university with a minimum grade point average of 3.0.
- *Passing scores on a nationally standardized test of academic ability within a 10–year period (850 on GRE or 400 on MAT or 164/172/172 on PPST)
- *Recommendation for graduate study completed by a course instructor
- *Permission for field and clinical experiences form signed by a public school system
- Other requirements specific to each program option.

**Other Requirements in Certification Programs** The individual must also meet these additional requirements:

- PRAXIS Pre-professional Skills Tests (PPST) passing scores: 174 on 0710, 172 on 0720, 172 on 0730 within a 10–year period or certification through the National Board for Professional Teaching Standards (NBPTS) or prior certification in some area of education or a master’s degree from an accredited institution or a composite score of 25 (26 if enhanced) on the American College Test (ACT) or a score of 1035 (1125 if re-entered) on the Scholastic Achievement Test
- Prior certification in education (only in some programs): autism spectrum disorders: early childhood education (K–4) or elementary education (K–6 or K–8) (for K–6 option only); gifted education: early childhood education or elementary education; or secondary education with emphasis in biology, chemistry, English, general science, mathematics, physics, reading education or specialist, and/or social studies; multi-categorical special education: early childhood education (K–4) or elementary education (K–6 or K–8) (for K–6 option only).

**Provisional Status** The individual who has an earned baccalaureate degree from a regionally accredited college or university with a minimum GPA of 2.75 and prior certification (only in those programs where it is required) but who does not meet other admission requirements may be granted provisional status in the program. This status allows the student an opportunity to remediate deficiencies in grade point average or other requirements in order to achieve regular status. This decision will be made on an individual basis by program faculty. Contact the department for additional information. Deficiencies must be made up by the deadline set in the admission letter.

**Non-degree Status** The individual who has earned a baccalaureate degree from a regionally accredited college or university but who does not seek certification or a master’s degree may be admitted as a non-degree student. This status allows the student to take courses for additional endorsement to the professional teaching certificate and/or for professional development and/or personal growth.

**Additional Requirements for International Students** The individual who is not a native speaker of English must also meet these requirements:

- Test of English as a Foreign Language (TOEFL) score of 550 or higher (paper) or 215 or higher (computer) or 80 or higher (Internet)
- Personal interview and writing sample to document fluency needed for success in field experiences associated with many courses.

**Retention** Retention in any program requires completion of all required courses with a grade of A or B in all required courses, a passing score on all required performance assessments, and maintenance of an overall 3.0 GPA. Students who fail to maintain that average will be placed on academic probation and must achieve that average within the next semester or risk being dismissed from the program.
Culminating Practicum

All certification programs require completion of a culminating practicum experience. Practicum experiences are available through two options: On-the-job option involving supervision by a colleague in the work setting if the student is employed at a site that meets placement criteria; and full-time option involving placement in a classroom with a master professional who meets placement criteria if the student is not employed or on a leave of absence from another position.

To be eligible for practicum, students must meet the following requirements.
• Admission to the special education program and completion of all required coursework in the area of specialization with grades of A or B and an overall GPA of 3.0.
• Applicable criteria for one of the currently available practicum options
• Submission of an application for practicum and all supporting documentation no later than May 1 for Fall semester or November 1 for Spring semester.

Students should consult the program for a complete list of practicum eligibility requirements and practicum application materials.

A student who fails to achieve an acceptable level of performance in the practicum will have his or her individual performance deficits reviewed and will be given the opportunity to repeat the practicum once; such repetition may occur following completion of an indicated remediation and/or additional instruction. Any student who fails the first practicum and does not commit to a remediation plan will not be eligible to enroll in a second practicum. A student who fails the practicum on the second attempt will be dismissed from the program.

Certification

All students in a certification program must pass required tests in the Praxis series: the Pre-professional Skills (PPST) basic skills tests (before or immediately after admission) as well as the appropriate Principles of Learning and Teaching (PLT) grade-level test and the content specialization test(s) in their area of specialization prior to admission to the culminating practicum experience.

In some areas of specialization, prospective special education teachers also must hold or qualify for a teaching specialization in elementary or secondary education recognized on the professional teaching certificate.

Students are responsible for submitting an application for initial certification or additional endorsement to the appropriate state agency after they have completed all program requirements.

Note: Because of continual changes in federal mandates and state requirements, certification and degree programs in special education are always being revised, so requirements may differ from what currently appears in print; students should contact their faculty advisor for updates on all programs.

Culminating Project

All students in a degree only program must complete a culminating project at the end of the program.

To be eligible for the project, students must meet the following requirements.
• Admission to the special education program
• Completion of all required coursework in the area of specialization with grades of A or B and an overall GPA of 3.0.
• Completion of SPED 675 and SPED 680 in the same semester.
• Submission of an application for culminating project and all supporting documentation no later than April 1 for summer semester.

Students should consult the program for a complete list of project eligibility requirements and project application materials.

Graduation Requirements

To be eligible for graduation, students must meet the following requirements:
• Completion of all required courses in the program of study with a grade of A or B and an overall GPA of 3.0 within an eight year period from first course to last course.
• Enrollment in coursework during the semester in which graduation is planned.
• Application for graduation submitted prior to midterm of the semester for which graduation is planned.
Areas of Specialization

A. Autism Spectrum Disorders Requirements

Requirements for Certification or Master’s Degree with Certification (36 semester hours minimum)  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPED 500 Legal/Educational Foundations: Special Education</td>
<td>3</td>
</tr>
<tr>
<td>SPED 601 Academic Interventions for Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>SPED 603 Classroom/Behavior Management for Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>SPED 609 Technology Applications for Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>SPED 663 Collaborative-Consultative Inclusion Strategies</td>
<td>3</td>
</tr>
<tr>
<td>SPED 665 Mathematics for Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>SPED 666 Reading for Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>SPED 667 Elementary Content Methods</td>
<td>3</td>
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<tr>
<td>or</td>
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<tr>
<td>SPED 668 Secondary Content Methods</td>
<td>3</td>
</tr>
<tr>
<td>RDNG 622 Content Area Literacy Instruction</td>
<td>3</td>
</tr>
<tr>
<td>SPED 650 Learning Characteristics: Autism</td>
<td>3</td>
</tr>
<tr>
<td>SPED 652 Educational Interventions: Autism</td>
<td>3</td>
</tr>
<tr>
<td>SPED 659 Culminating Practicum: Autism Spectrum Disorders</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
</tr>
</tbody>
</table>

NOTE: Students seeking certification for grades 5–Adult must also complete 15 credits of coursework in at least one academic content area (biology, English, general science, mathematics, or social studies).

Requirements for master’s degree only (36 semester hours minimum)

SPED 500 Legal/Educational Foundations: Special Education             | 3    |
SPED 601 Academic Interventions for Special Needs                    | 3    |
SPED 603 Classroom/Behavior Management for Special Needs              | 3    |
SPED 609 Technology Applications for Special Needs                   | 3    |
SPED 663 Collaborative-Consultative Inclusion Strategies              | 3    |
SPED 667 Elementary Content Methods                                  | 3    |
| or                                                                   |      |
| SPED 668 Secondary Content Methods                                   | 3    |
| SPED 650 Learning Characteristics: Autism                            | 3    |
| SPED 652 Educational Interventions: Autism                           | 3    |
| Elective requirements for degree                                     | 6    |
| SPED 675 Research to Practice                                        | 3    |
| SPED 680 Culminating Project                                         | 3    |
| Total                                                                | 36   |

Electives are to be approved by the student’s advisor.

B. Early Intervention/Early Childhood Special Education

Requirements for Certification (33 semester hours minimum)

SPED 600 Instructional/Assistive Technology                            | 3    |
SPED 604 Characteristics/Educational Adaptations: Developmental Disabilities | 3    |
SPED 605 Family/Professional Collaboration: Developmental Disabilities | 3    |
SPED 606 Communication Intervention: Developmental Disabilities        | 3    |
SPED 607 Assessment: Developmental Disabilities                        | 3    |
SPED 610 Typical/Atypical Development: Early Intervention              | 3    |
SPED 611 Early Learning Curriculum: Early Intervention                | 3    |
SPED 612 Responsive Interventions; Early Intervention                 | 3    |
SPED 616 Behavior Guidance/Support: Early Intervention                | 3    |
SPED 619 Culminating Practicum: Early Intervention                    | 6    |
| Total                                                                | 33   |

Additional Requirements for master’s degree with certification (36 semester hours minimum)

Elective requirements for degree                                      | 3    |
| Total                                                                | 36   |

Electives are to be approved by the student’s advisor.
Requirements for master’s degree only (36 semester hours minimum)
SPED 600 Instructional/Assistive Technology .................................................. 3
SPED 604 Characteristics/Educational Adaptations: Developmental Disabilities 3
SPED 605 Family/Professional Collaboration: Developmental Disabilities .......... 3
SPED 606 Communication Intervention: Developmental Disabilities .................. 3
SPED 607 Assessment: Developmental Disabilities ........................................... 3
SPED 610 Typical/Atypical Development: Early Intervention .............................. 3
SPED 611 Early Learning Curriculum: Early Intervention .................................... 3
SPED 612 Responsive Interventions: Early Intervention ...................................... 3
SPED 616 Behavior Guidance/Support: Early Intervention ............................... 3
Elective requirements for degree ................................................................. 3
SPED 675 Research to Practice ................................................................. 3
SPED 680 Culminating Project ........................................................................ 3
Total........................................................................................................... 36

Electives are to be approved by the student’s advisor.

C. Gifted Education Area Requirements
Requirements for certification or master’s degree with certification (36 semester hours minimum)
SPED 500 Legal/Educational Foundations: Special Education ........................... 3
SPED 601 Academic Interventions for Special Needs ......................................... 3
SPED 602 Classroom-based Assessment for Special Needs ............................... 3
SPED 603 Classroom/Behavior Management for Special Needs ........................ 3
SPED 609 Technology Applications for Special Needs ....................................... 3
SPED 663 Collaborative-Consultative Inclusion Strategies ............................... 3
SPED 670 Introduction to Gifted Education ..................................................... 3
SPED 672 Teaching Strategies: Gifted Education .............................................. 3
SPED 674 Support for Special Populations in Gifted Education ........................ 3
SPED 676 Critical Thinking/Creativity in Gifted Education ............................... 3
SPED 679 Culminating Practicum: Gifted Education ........................................ 3
Total........................................................................................................... 36

Additional Requirements for masters degree with certification (36 semester hours minimum).
Requirements for Master’s Degree Only (36 semester hours minimum)
SPED 500 Legal/Educational Foundations: Special Education ........................... 3
SPED 601 Academic Interventions for Special Needs ......................................... 3
SPED 603 Classroom/Behavior Management for Special Needs ........................ 3
SPED 663 Collaborative-Consultative Inclusion Strategies ............................... 3
SPED 670 Introduction to Gifted Education ..................................................... 3
SPED 672 Teaching Strategies: Gifted Education .............................................. 3
SPED 674 Support for Special Populations in Gifted Education ........................ 3
SPED 676 Critical Thinking/Creativity in Gifted Education ............................... 3
Elective requirements for degree ................................................................. 6
SPED 675 Research to Practice ................................................................. 3
SPED 680 Culminating Project ........................................................................ 3
Total........................................................................................................... 36

Electives are to be approved by the student’s advisor.

D. Low Vision/Blindness Requirements
Requirements for certification or master’s degree with certification (42 semester hours minimum)
SPED 500 Legal/Educational Foundations: Special Education ........................... 3
SPED 600 Instructional/Assistive Technology .................................................. 3
SPED 601 Academic Interventions for Special Needs ......................................... 3
SPED 603 Classroom/Behavior Management for Special Needs ........................ 3
SPED 663 *Collaborative-Consultative Inclusion Strategies* ........................................... 3
SPED 630 *Introduction to Low Vision/Blindness* .......................................................... 3
SPED 631 *Introduction to Braille* ................................................................................... 3
SPED 632 *Braille Reading and Literacy Development* .................................................. 3
SPED 633 *Nemeth Code and Mathematics Development* ............................................. 3
SPED 635 *Instructional Strategies for Low Vision/Blindness* ....................................... 3
SPED 636 *Instructional Strategies for Multiple Impairments* ....................................... 3
SPED 637 *Orientation and Mobility Instruction* ............................................................ 3
SPED 639 *Culminating Practicum: Low Vision/Blindness* ............................................ 6
**Total** ............................................................................................................................ 42

Requirements for master’s degree only (36 semester hour minimum)

SPED 500 *Legal/Educational Foundations: Special Education* ............................ 3
SPED 600 *Instructional/Assistive Technology* ............................................................... 3
SPED 601 *Academic Interventions for Special Needs* .................................................. 3
SPED 603 *Classroom/Behavior Management for Special Needs* ............................... 3
SPED 663 *Collaborative-Consultative Inclusion Strategies* ......................................... 3
SPED 630 *Introduction to Low Vision/Blindness* .......................................................... 3
SPED 635 *Instructional Strategies for Low Vision/Blindness* ....................................... 3
SPED 636 *Instructional Strategies for Multiple Impairments* ....................................... 3
Elective requirements for degree ...................................................................................... 6
SPED 675 *Research to Practice* .................................................................................... 3
SPED 680 *Culminating Project* ..................................................................................... 3
**Total** ............................................................................................................................ 36

Electives are to be approved by the student’s advisor.

E. Multicategorical Special Education (Behavior Disorders and Learning Disabilities
  + Mild/Moderate Mental Impairments)

Certification requirements (33 semester hours minimum)

SPED 500 *Legal/Educational Foundations: Special Education* ............................ 3
SPED 601 *Academic Interventions for Special Needs* .................................................. 3
SPED 603 *Classroom/Behavior Management for Special Needs* ............................... 3
SPED 609 *Technology Applications for Special Needs* ................................................. 3
SPED 663 *Collaborative-Consultative Inclusion Strategies* ......................................... 3
SPED 665 *Mathematics for Special Needs* ................................................................. 3
SPED 666 *Reading for Special Needs* .......................................................................... 3
SPED 667 *Elementary Content Methods* ................................................................... 3
or
SPED 668 *Secondary Content Methods* .................................................................... 3
RDNG 622 *Content Area Literacy Instructions* ............................................................. 3
SPED 669 *Culminating Practicum: Multicategorical SPED* ........................................ 6
**Total** ............................................................................................................................ 33

Additional Requirements for master’s degree with certification (36 semester hours minimum)

Elective requirements for degree ...................................................................................... 3
**Total** ............................................................................................................................ 36

Electives are to be approved by the student’s advisor.

**Note:** Students seeking certification for grades 5–Adult must also complete 15 credits
of coursework in at least one academic content area (biology, English, general science,
mathematics, or social studies).
Requirements for master's degree only (36 semester hours minimum)

SPED 500 Legal/Educational Foundations: Special Education ....................3
SPED 601 Academic Interventions for Special Needs ..............................3
SPED 603 Classroom/Behavior Management for Special Needs .................3
SPED 609 Technology Applications for Special Needs ............................3
SPED 663 Collaborative-Consultative Inclusion Strategies .....................3
SPED 665 Mathematics for Special Needs ...........................................3
SPED 666 Reading for Special Needs ..................................................3
SPED 667 Elementary Content Methods .............................................3

or

SPED 668 Secondary Content Methods ..............................................3

Elective requirements for degree ......................................................6

SPED 675 Research to Practice .........................................................3

SPED 680 Culminating Project .........................................................3

Total ........................................................................................................36

Electives are to be approved by the student's advisor.

F. Severe/Multiple Disabilities Area

Requirements for certification (33 semester hours minimum)

SPED 600 Instructional/Assistive Technology .......................................3
SPED 604 Characteristics/Educational Adaptations: Developmental Disabilities ..............................3
SPED 605 Family/Professional Collaboration: Developmental Disabilities ........3
SPED 606 Communication Intervention: Developmental Disabilities .........3
SPED 607 Assessment: Developmental Disabilities ...............................3
SPED 620 Standards-based Curriculum: Severe Disabilities .................3
SPED 622 Instructional Programming: Severe Disabilities ......................3
SPED 625 Secondary/Adult Programs: Severe Disabilities ....................3
SPED 626 Positive Behavior Support: Severe Disabilities ....................3

SPED 621 Culminating Practicum: Severe/Multiple Disabilities ..............6

Total ........................................................................................................33

Additional Requirements for master’s degree with certification (36 semester hours minimum)

Elective requirements for Degree ......................................................3

Total ........................................................................................................36

Requirements for master's degree only (36 semester hours minimum)

SPED 604 Characteristics/Educational Adaptations: Developmental Disabilities ..............................3
SPED 605 Family/Professional Collaboration: Developmental Disabilities ........3
SPED 606 Communication Intervention: Developmental Disabilities .........3
SPED 607 Assessment: Developmental Disabilities ...............................3
SPED 620 Standards-based Curriculum: Severe Disabilities .................3
SPED 622 Instructional Programming: Severe Disabilities ......................3
SPED 625 Secondary/Adult Programs: Severe Disabilities ....................3
SPED 626 Positive Behavior Support: Severe Disabilities ....................3
SPED 675 Research to Practice .........................................................3

SPED 680 Culminating Project .........................................................3

Elective requirements for Degree ......................................................6

Total ........................................................................................................36

All electives are to be approved in writing by the student's advisor.
Doctor of Education

- Personnel preparation in special education
- School leadership for special education

Applicants interested in one of the program options should review the detailed information provided at http://depts.hre.wvu.edu/sped/ or contact sped@mail.wvu.edu for a brochure and application or an update on availability of specific courses.

Admission

All individuals seeking the doctoral degree emphasis in special education must be admitted into the special education program.

Regular Status The individual who meets all admission requirements is granted regular status as a degree-seeking student.

- An earned baccalaureate degree from a regionally accredited college or university with a minimum grade point average of 3.0.
- An earned master’s degree from a regionally accredited college or university in special education or disability services with a minimum grade point average of 3.2.
- Prior certification in some area of special education (for personnel preparation option) or in special education or disability services (for school leadership option).
- Submission of Graduate Record Examination or Miller Analogies Test scores in support of potential for success in doctoral-level study: MAT score of 400 (63 percentile) or GRE score of 1,000 total (verbal plus quantitative) with minimum score of 450 verbal and within a five-year period;
- Two years of documented experience providing direct service to children or adults with exceptionalities in special education and/or disability services either in instruction or intervention (for personnel preparation option) or in instruction or intervention, therapeutic interventions, assessment or behavior management, administration or supervision, or other activities (for school leadership option);
- Three letters of reference addressing the candidate’s past academic performance and qualities which would make the person suitable for doctoral-level study (contact program for specifications for reference letters).
- A personal goal statement illustrating a lifelong commitment to excellence in special education and/or disability studies and articulating career goals focused on a leadership position in personnel preparation in special education or school leadership for special education.
- An academic writing sample documenting knowledge of special education and/or disability services and skill in organizing and expressing ideas and citing current sources in the professional literature.

Additional requirements for international students:

- TOEFL score of 550 or higher (paper) or 215 or higher (computer) or 80 (Internet)
- Applicants who meet the criteria specified above will also be required to undergo:
  - A personal interview demonstrating communication and interpersonal skills.
  - A proctored writing sample to verify ability to express ideas with logic, clarity, and correct grammar.

Provisional status admission to the program with provisional student status is not permitted at the present time.

Admissions criteria are based on qualifications associated with academic success in doctoral study as well as qualifications that candidates applying for leadership positions are expected to have when seeking employment as faculty at colleges and universities (personnel preparation option) or administrators and supervisors of special education or disability services programs (school leadership option). In recognition of the fact that no single criterion is an adequate predictor of satisfactory completion of a program of study or subsequent success in a professional career, faculty endorses multiple criteria for admission to this doctoral program. Requirements for admission are weighed using a +, 0, - system in judging each applicant and are considered necessary but not sufficient eligibility criteria for admission.

Applicants who meet all criteria are NOT automatically granted admission to the program. Admission is contingent upon number of applicants, number of current students, and availability of graduate faculty.
Program of Study
Programs are designed by the doctoral student, the student’s advisor, and the Doctoral Committee to meet the student’s career goals. Programs of study comply with all applicable institutional requirements, but typically they include coursework in excess of the minimum college requirements to meet these goals.

The leadership training provided through this program draws on the many available strengths and resources of a major university. Development of research skills is a major focus of the program, along with advanced training related to the development, education, and habilitation of persons with exceptionalities. Students may complete coursework in a number of programs and colleges in order to take advantage of available interdisciplinary resources. The program encourages study and involvement with faculty from a broad range of disciplines in order to best prepare doctoral students to meet their individual career aspirations as leaders in special education and disability services.

Retention
Retention in any program requires completion of all required courses with a grade of A or B in all required courses, a passing score on all required performance assessments, and maintenance of an overall 3.25 GPA. Students who fail to maintain that average will be placed on academic probation and must achieve that average within the next semester or risk being dismissed from the program.

Graduation Requirements
To be eligible for graduation, students must meet the following requirements:
• Completion of all required courses in the program of study with a grade of A or B and an overall GPA of 3.25 within an eight year period from first course to last course and successful defense of the dissertation research within five years after admission to candidacy.
• Enrollment in coursework during the semester in which graduation is planned.
• Application for graduation submitted prior to midterm of the semester for which graduation is planned.

Doctoral Program Emphasis in Special Education
Requirements for Program Option: Personnel Preparation in Special Education
SPED 770 Policy Analysis and Development...............................................................3
SPED 771 Personnel Preparation Strategies..............................................................3
SPED 772 Professional Writing and Grant Writing..................................................3
SPED 773 Professional Development Models ........................................................3
SPED 774 Analysis and Interpretation of Research..................................................3
SPED 779 Contemporary Issues and Trends..............................................................3
SPED 781 Orientation to Doctoral Study.................................................................1
SPED 782 Professional Practice in Advocacy Efforts...............................................1
SPED 783 Professional Practice in College Instruction..........................................1
SPED 784 Professional Practice in Clinical Supervision.........................................1
SPED 785 Professional Practice in Empirical Research..........................................1
SPED 786 Professional Practice in Service Activities.............................................1
SPED 797 Research (Comprehensive Exam and Prospectus).................................6
SPED 798 Dissertation (Dissertation and Defense)................................................6–12

Requirements for Program Option: School Leadership for Special Education
SPED 770 Policy Analysis and Development...............................................................3
SPED 773 Professional Development Models ........................................................3
SPED 774 Analysis and Interpretation of Research................................................3
SPED 775 Program Administration and Supervision..............................................3
SPED 776 Leadership for Systems Change.............................................................3
SPED 779 Contemporary Issues and Trends..............................................................3
SPED 781 Orientation to Doctoral Study.................................................................1
SPED 782 Professional Practice in Advocacy Efforts...............................................1
SPED 786 Professional Practice in Service Activities.............................................1
SPED 787 Professional Practice in Program Administration ...........................................1
SPED 788 Professional Practice in Personnel Support ..................................................1
SPED 789 Professional Practice in Evaluation Practices ..............................................1
SPED 787 Research (Comprehensive Exam and Prospectus) .......................................6
SPED 798 Dissertation (Dissertation and Defense) ....................................................6-12

Students must also complete college-wide requirements for the doctor of education degree
including 15 credits of research core courses and 6 credits of foundations courses.

All students are expected to pass a comprehensive examination designed in cooperation
with doctoral program committee members and administered after they have completed all
required courses to be admitted to candidacy for the doctoral degree.

All students are expected to propose, conduct, and defend original research approved
by the doctoral program committee to satisfy the requirements for the doctoral degree.

Disability Studies
Mary Ellen Zeppuhar
E-mail: mzeppuhar@hsc.wvu.edu
http://depts.hre.wvu.edu/sped/DisStudiesHome.htm

The WVU Center for Excellence in Disabilities, in collaboration with the Department of
Special Education, offers a graduate certificate program in disability studies. The certificate
in disability studies prepares students, as citizens, to cope with the complex economic and
social issues related to disabilities by learning directly from persons with disabilities and their
families. Students will be trained to enter the workforce with the knowledge, skills, and experi-
ence needed to provide state-of-the-art services to persons with disabilities and their families,
and to interact with co-workers who have disabilities.

Through the certificate program, students collaborate with, and learn from experts in the
disability arena, including pediatric neurologists, geneticists, speech-language pathologists,
audiologists, special education leaders, social workers, physical and occupational therapists,
and others. These professionals, who are experienced clinicians, researchers, and educators,
provide didactic instruction, clinical instruction, and mentorship to students.

Students will also have the opportunity to gain leadership and management skills that
prepare them to enter the workforce with increased professional independence. The certifi-
cate program exposes students to social justice issues, Appalachian concerns, principles of
practice, and cultural diversity while developing their expertise in rural practice environments.
As part of the program, students have the opportunity to observe programs that serve those
with disabilities and their families.

• Students must take two 3-credit hour mandatory interdisciplinary courses: DISB 580
  Disabilities and the Family and DISB 585 Disability and Society.
• Six hours may be elective courses that cover subject matter related to persons with dis-
  abilities or courses within the student’s own academic discipline for which they have
  received prior approval from the certificate program director and the course instructor.
  Students will be required to complete a project that applies coursework to issues relat-
  ing to persons with disabilities.
• Two credit hours are earned through 30 volunteer hours (DISB 682) in which the student
  has direct interaction with persons who have disabilities.
• One credit hour is the capstone experience (DISB 685), which includes samples of the
  student’s accumulated work in disabilities, a final essay, and an oral presentation.
Department of Speech Pathology and Audiology
Robert Orlikoff, Chair
805 Allen Hall
http://spa.wvu.edu

Degrees Offered
- Master of Science in Speech Pathology
- Doctor of Audiology

Admission
Students applying for programs leading to degrees in speech pathology and audiology must comply with general WVU requirements and the requirements of the College of Human Resources and Education and of the Department of Speech Pathology and Audiology.

The speech pathology and audiology Graduate Affairs Committee accepts those applicants it believes will be successful in the graduate program. The number of applicants accepted depends upon the number of qualified applicants, the number of the speech pathology and audiology graduate faculty, and the facilities available for acceptable academic, clinical, and research training. A minimum overall undergraduate grade point average of 3.0 is required for consideration for admission.

The master of science degree in speech pathology and the doctor of audiology are competency-based programs. Students are expected to achieve a minimum competency level of B or S in each required course. If a student receives a grade of C (or lower) or U in a required course, he/she must meet with his/her academic advisor and/or Academic Graduate Committee before beginning additional coursework. The course instructor in conjunction with the academic advisor or committee will recommend the appropriate steps to meet the minimum standards of professional competency.

Requirements
In addition to the requirements listed in the human resources and education introduction, the M.S. in speech pathology requires the following.

- A minimum of 42 semester hours of approved graduate courses (including six hours of clinical practicum) in speech and hearing sciences, speech-language pathology, audiology, and other related areas to attain professional competence.
- Each semester students register for clinical practicum for a varying amount of credit that corresponds to their experience level. Six of these hours may count toward the 42 semester-hour requirement.
- A 3.0 grade point average for all courses taken for credit toward the graduate degree with a minimum competency level of B or S in all courses and clinical practicum.
- Demonstration of professional competence in speech and/or hearing as measured by fulfillment of the academic and clinical practicum requirements established by the faculty.
- Successful completion of comprehensive examinations in the area of speech-language pathology.
- Successful completion of the Praxis II examination in the area of speech-language pathology.

A minimum of five consecutive semesters (including summer sessions) is required for master’s candidates with a background in speech and hearing. For candidates without a background in speech and hearing, a minimum of seven semesters is required for completion of the master’s degree.

The doctor of audiology (Au.D.) program is a four-year post-baccalaureate degree. Requirements for completion of the degree include the following:

- A minimum of 116 semester credit hours including academic coursework and clinic practica.
- All required courses in the audiology curriculum.
- A scholarly work submitted in written form, presented orally before a forum of SPA faculty and students and approved by the student’s advisory committee.
- Successful completion of the PRAXIS examination in audiology is required prior to approval for a residency experience.
an overall graduate grade point average of at least 3.0 (A = 4.0) with a minimum competency level of B or S in all courses and clinical practicum.

• Successful completion of ASHA-approved practicum experience that is equivalent to a minimum of 12 months of full-time supervised experience. All regular students in the doctor of audiology (Au.D.) program must be full-time in residence during the program of study. The minimum duration for graduate study is 11 consecutive terms (including summer sessions) for students with an undergraduate background in speech-language pathology and audiology. Two additional terms are required for students with an undergraduate background in speech-language pathology and audiology to complete prerequisite coursework.

The Department of Speech Pathology and Audiology is accredited by the Council of Academic Accreditation in Audiology and Speech-Language Pathology for both the speech-language pathology and audiology training programs.

Child Development and Family Studies (CDFS)
Carol Markstrom, Program Coordinator
Allen Hall
http://www.cdfs.wvu.edu/cdfs/cdfsindex.html

Degrees Offered

Master of Arts in Educational Psychology
Major in Child Development and Family Studies

The child development and family studies graduate program is an area of emphasis option within the educational psychology EDP program. The major provides students with opportunities for conducting research and working with families and children in both educational and clinical settings. Courses in child development, family studies, parenting strategies, and interpersonal communication skills are supplemented with field experiences in a variety of settings. Students also are prepared for continuing study in doctoral programs in child development and family studies, sociology, special education, psychology, and counseling.

The M.A. in educational psychology (Ed.P.) with an area of emphasis in child development and family studies (CDFS) prepares students to work with children, adolescents, or families in educational, applied, or other clinical settings, as well as preparing students for doctoral-level studies. Relative to employment opportunities, students have obtained positions for which they generally would not have been competitive with the bachelor’s degree, unless they had many years of related experience. Upon graduation, graduates have been hired as directors of child care programs in corporations, hospitals, and the private sector. Some students have obtained positions as instructors and faculty members at four-year colleges and branch campuses of major universities teaching classes in child/human development and family studies. Still other students have become specialists in parenting and curriculum development for Head Start and similar agencies. Graduates have also obtained employment as parenting and family specialists in community-based family agencies and community health care agencies. Some graduate students have entered the program with teaching certificates, and have used their master’s degree in CDFS to broaden the scope of their teaching in elementary and secondary education. Graduates of the master’s degree in CDFS have also successfully pursued positions as Extension agents through land-grant universities. Salaries for CDFS graduates with master’s degrees are highly variable depending on the nature of the position and the location of employment. However, salaries are generally higher than students with only the bachelor’s degree.

In addition to educational and applied careers, some students have entered the program with the aim of pursuing doctoral studies. Through rigorous coursework and the requirement to complete a research-based master’s thesis, students are prepared to pursue doctoral studies in human development, family studies, sociology, special education, developmental psychology, counseling, and related fields.
Admission Requirements and Performance Standards

Ideally, prospective students should have completed an undergraduate curriculum in an area of specialization related to CDFS, such as psychology, sociology, education, or social work. A student whose undergraduate degree is in an unrelated field and/or who lacks preferred foundation courses for graduate studies in CDFS will likely be required to take supplemental undergraduate courses if accepted into the program.

All CDFS faculty members review every graduate application and jointly determine whether a student will be admitted as a regular graduate student, admitted provisionally, or not admitted into the program. A majority of faculty members must indicate acceptance and one faculty member must be able to serve as the major advisor to the student. Final approval for admission rests with the graduate coordinator of the CDFS program. Application materials include the following:

- Completed application
- Undergraduate transcript
- GRE Scores (while a cut-off has not been established, GRE is examined vis-à-vis undergraduate transcript)
- Personal statement of interest
- Three letters of recommendation
- Resume or Curriculum Vita

Program Requirements

The CDFS major requires coursework in child development, family studies, statistics, research methods, elective hours, and thesis credits for a total of 33 hours. Six credits of electives are selected in consultation with the student’s faculty advisor and are based on the particular interests of individual students. For instance, students may take their electives in educational psychology, curriculum and instruction, counseling and guidance, psychology, special education, sociology, women’s studies, social work, public administration, and related disciplines.

Six credit hours are assigned to the completion of the required research-based thesis. The student and his/her major professor determine the research topic with input from other committee members. The thesis requires six research credits, an extensive literature review, development of a research design with associated methodological procedures, data collection or use of faculty data sets, in-depth analysis of data, and analytic discussion of the results. Most students conduct quantitative/statistically-based theses. However, qualitative research designs are permitted, with appropriate rigorous application of qualitative research methods in the collection and interpretation of data. The format for a thesis must meet the requirements outlined in the CDFS Thesis Manual, available at the WVU Book Store and is written in the style of the Publication Manual of the American Psychological Assn. (6th ed.). Theses at WVU are electronically submitted upon their approval.

Graduate Assistantships

Prospective students can apply for graduate assistantships (GA) in CDFS, which may include teaching or research activities. One graduate student who has demonstrated competence in preschool education is awarded an assistantship to work in the West Virginia University Child Development Laboratory. Graduate students in CDFS also have had success in acquiring assistantships in other academic units in the College of Human Resources and Education and other Colleges at WVU. However, within CDFS, a limited number of graduate assistantships are available on a competitive basis. Awards, granted for a one-year period with consideration for a second year, include tuition waiver and a monthly stipend. Graduate assistants work 20 hours per week, assisting CDFS faculty members in their teaching or research activities. Students recognized for academic excellence and not awarded an assistantship may qualify for a limited number of meritorious hours which results in a tuition reduction.
Educational Psychology
Daniel E. Hursh, Chair and Program Coordinator
Allen Hall
http://tlc.wvu.edu/academics/edpsych

Degree Offered
Master of Arts in Educational Psychology

Master's Program General Description
The educational psychology program in the College of Human Resources and Education offers opportunities for graduate study and research leading to the master of arts (M.A.) degree. Professional preparation focuses on learning, development, instruction, and research. Accordingly, students are expected to achieve competencies in these areas. The student plans programs jointly and the student's advisor to meet the student's particular career needs. The educational psychology program in the College of Human Resources and Education offers opportunities for graduate study and research leading to the master of arts degree. The principal goal of the program is the education and training of professionals who will focus on teaching and learning environments as they carry out their missions associated with instruction, service, and research. Professional preparation centers on the following three content areas: Learning and development; instructional development; measurement, research, and statistics.

Accordingly, students are expected to achieve competencies in these areas.

The student and the student's advisor plans programs jointly with the student's committee to meet particular career needs. In addition to the general requirements of the University and the College of Human Resources and Education, there is a core of courses and supporting competencies required of all graduate students in the department.

Educational psychologists function in a variety of settings. The program is dedicated to the preparation and placement of competent educational psychologists for positions in educational settings at all levels; educational agencies at local, state, and federal levels; public and private human service centers; medical centers; business and industrial settings; and other settings.

Admission Requirements and Performance Standards
All applicants must have an undergraduate degree from an accredited institution. Each applicant is required to submit official transcripts of undergraduate and prior graduate work completed, a 500-word written goal statement, a personal vita, and three letters of recommendations. All applicants must submit official scores for either the Graduate Record Examination (GRE) or the Miller Analogy Test (MAT). All faculty members affiliated with the program screen the credentials for all applicants. The following criteria are used as guidelines to evaluate application credentials:

• Total GRE scores of 1,100 (on the verbal and quantitative combined) or MAT score of 55 (for an international student from a country in which English is not the native language -TOEFL score of at least 550 and a combined total score of at least 1,000 on the GRE verbal and the TOEFL scores),
• An undergraduate GPA of 3.0 or greater,
• Graduate GPA of 3.25 or greater for graduate work completed (if applicable),
• The extent to which the applicant's goals and objectives may be accomplished if admitted to the program, and
• Favorable recommendations and appropriate background experiences.

To remain in good standing, the student must have an average grade of B or better for all courses in the program and be making satisfactory progress toward the completion of the program competencies (as described in the following section).

In conference with the student's committee, directed by the advisor, with final approval by the committee, the student may complete one of the following two options (including at least 18 EDP credit hours):
Option A
At least 30 semester-hours of coursework, including six semester-hours of thesis research.

Option B
At least 30 semester-hours of coursework, including three semester-hours of practical product development.

Each student is expected to complete the following core courses as part of the master’s plan of study:
EDP 600 Advanced Educational Psychology
EDP 613 Statistical Methods I
EDP 611 Foundations of Educational Measurement
EDP 612 Introduction to Research

Area of Emphasis in Program Evaluation and Research
The area of emphasis in program evaluation and research (PER) is designed primarily for individuals with interest in conducting research and evaluation projects for private and public educational organizations and agencies. Emphasis is placed on developing proficiency in quantitative, qualitative, and mixed-methods inquiry, providing students with a breadth of methods to study varied educational, programmatic, and social research questions. All students will be required to design and conduct at least one full program evaluation during the course of their studies.

Program Outcomes
The competencies to be developed by this area of emphasis are listed above under Program Objectives. The more general outcomes for students and the state and region are a cadre of professionals prepared to conduct program evaluations and research in a variety of education and other human services settings. In addition, some of the graduates will directly or eventually enter doctoral programs in disciplines related to educational psychology, program evaluation, and research.

Program Delivery
The students in the area of emphasis will be a mix of full-time and part-time students. While most instruction and mentoring will be face-to-face, online instruction and mentoring of students will be arranged as circumstances require and permit. Specialized delivery technologies may well be utilized as needed on an individual student or learning activity basis.

Clientele and Need
The addition of an area of emphasis in program evaluation and research is unique within the state and will continue to provide a master’s program for students seeking to attain a strong foundation from which to pursue doctoral study. This area of emphasis will additionally appeal to students seeking a “quasi”-terminal degree with which to pursue employment in schools and other education oriented entities.

Employment Opportunities
With the current strong emphasis on data based decision-making driven by the No Child Left Behind legislation, Individuals with Disabilities Education Act, and other regulatory mandates, graduates of this program will be in high demand.
Admission Requirements and Performance Standards

All PER faculty members review every graduate application to the program and jointly determine whether a student will be admitted as a regular graduate student, admitted provisionally, or not be accepted into the program. A majority must indicate acceptance and one faculty must be willing to serve as the major advisor. Final approval for admission rests with the coordinator of the educational psychology program. Application materials include the following:

- Application
- Undergraduate transcript (GPA of 2.75)
- GRE (1,000) or MAT (50) and TOEFL (550 for students whose primary language is not English)
- Personal statement of interest
- Three letters of recommendation
- Vita

To remain in good standing, the student must have an average grade of B or better for all courses in the program and be making satisfactory progress toward the completion of the program competencies (as described in the following section).

All applicants must comply with the general requirements of the University and the College of Human Resources and Education. The applicant must have an undergraduate degree from an accredited institution and is required to submit official transcripts of the undergraduate work and the official scores for either the Graduate Record Examination (GRE) or the Miller Analogy Test (MAT), a 500 word written goal statement, a personal vita, and three letters of recommendation.

Program Objectives, Student Competency Expectations, and Opportunities to Learn

Student Competency Expectations

Graduates will be able to: Demonstrate understanding of the philosophical and historical foundations of inquiry, and; apply appropriate quantitative, qualitative, and mixed-methods research tools to answer practical educational, programmatic, and other social research questions.

They will also: Apply appropriate program evaluation tools to conduct formative and summative evaluations of existing and prospective educational programs. Demonstrate understanding of ethical issues in research and evaluation. Create informative reports of research and evaluation studies tailored appropriately for multiple stakeholders and decision-makers.

Opportunities to Learn

EDP 612 Introduction to Research
EDP 694 Seminar: The Nature of Inquiry
EDP 611 Measurement/Evaluation in Educational

Psychology

EDP 613 Statistical Methods I
EDP 617 Program Evaluation
EDP 693 Special Topics: Mixed Methods Research and Evaluation
EDP 685 Practicum I
EDP 698 Thesis
SCFD 615 Qualitative Research Methods
EDP 611 Measurement/Evaluation in Educational Psychology
EDP 617 Program Evaluation
EDP 685 Practicum I
EDP 693 Special Topics: Mixed Methods Research and Evaluation
EDP 698 Thesis
EDP 612 Introduction to Research
EDP 617 Program Evaluation
EDP 685 Practicum I
EDP 698 Thesis
SCFD 615 Qualitative Research Methods
EDP 617 Program Evaluation
EDP 685 Practicum I
EDP 698 Thesis

Instructional Design and Technology
Neal Shambaugh, Program Coordinator
504N Allen Hall
http://www.wvu.edu/~techedu

Degrees Offered

Master of Arts and Doctor of Education in Instructional Design and Technology (IDT)
Area of Emphasis in Doctor of Education

A master’s level IDT degree is designed for those interested in the design, use, and evaluation of technology in any educational setting. Major features of the program include course preparation in educational psychology, instructional technology, and program evaluation. Information concerning program requirements, course sequence, and advising sequence is available.

Entrance Requirements

• Undergraduate GPA of 2.75 or greater
• GRE 1000 minimum; or MAT 410 minimum (or a 50 score from earlier MAT version)
• GRE or MAT scores must be no older than five years old
• TOEFL 550 minimum (for international students)
• Cover letter explaining your interest and motivation for an IDT master’s degree
• Three letters of reference

Program Features

• Thirty-six course hours are prescribed (a University policy when no thesis is required). All courses are required. A two-year sequence is visualized below for those taking a full-time load (nine hours):

Fall
EDP 600 Educational Psychology
IDT 691 IDT Foundations
EDP 640 Instructional Design

Spring
IDP 694 The Nature of Inquiry
IDT 744 IDT Integration
IDT 750 Web-Based ID

Summer
IDT 600 Instructional Materials
IDT 693 Prototype Studio

Fall
IDT 611 Computer-Mediated
IDT 693 Prototype Studio
IDT 740 Design Studio

Spring
EDP 617 Prog. Evaluation Comm. (CMC)
IDT 601 Distance Education
IDT 693 Prototype Studio

• A two-semester developmental capstone experience is designed into the program. A program evaluation course and application experience are necessary to develop graduates who know how to “evaluate technology innovations.”
• Prototype studio will be scheduled fall, spring, and summer. The course is required to be taken only once, but can be enrolled in multiple times as needed to complete projects.
Developmental Capstone Sequence

Fall
IDT 740 Design Studio Develop an IT-based prototype

Spring
IDT 693 Prototype Studio Implement, revise prototype

Spring
Develop a plan to evaluate the prototype; conduct the evaluation

Doctor of Education

The Ed.D. program is designed to allow a student to immediately apply knowledge and skills to pragmatic needs in education. Knowledge and skill-building are designed into the courses and are developed over the length of the program, and specifically address three areas of concern in educational settings, including interconnectivity, instructional design, software and multimedia design and deployment. Research is framed around the pragmatic needs of students, programs, and institutions. Information concerning program requirements, structure, and advising sequence is available.

Entrance Requirements

• Undergraduate GPA of 2.75 or greater
• GRE 1,100 minimum; or MAT 424 minimum (or a score of 60 on the older version)
• GRE or MAT scores must be no older than five years old
• TOEFL: 550 minimum (additional requirement for international students)
• Master’s degree
• Letter of application explaining your purpose and motivation for an IDT Ed.D. degree
• Three letters of references
• Scholarly writing sample
• Vita
• Optional interview

Program Features

• The 72-hour doctoral IDT program (not counting dissertation) requires 42 hours past the master’s degree.
• Advising on a dissertation begins on the first day of the program. Students are encouraged to identify topics of interest and to develop an appropriate topic for inquiry as one takes classes.
• Research in instructional technology is addressed throughout the courses and supplements the college research core requirements.
• The program features seminar courses that provide opportunities to conduct research and develop instructional interventions, including technological integration of tools.
• Teaching opportunities will be found working with faculty members, the college’s TLTC, and internships in corporate settings in the Morgantown/Fairmont area.

Program Components

• Common Core: foundations and seminars (12 hours)
• HR&E Research Core: (15 hours) required for all college Ed.D. programs.
• Competencies/Constituencies: Competencies across three areas: interconnectivity (nine hours), instructional design (nine hours), and software and multimedia design and deployment (nine hours).
• Specializations: courses within HR&E and across the University (18 hours), subject to approval by your doctoral committee.
Program Structure
72-hr. Ed.D.

Common Core
EDP 700 Psychological Foundations of Learning ..................................................... 3
EDP 740 Principles of Instruction .............................................................................. 3
EDP 799 TLC Graduate Colloquium ........................................................................ 6
Total ......................................................................................................................... 12

HR&E Research Core
EDP 612 Introduction to Educational Research ....................................................... 3
EDP 613, 614 Statistics Sequence ............................................................................. 6
SCFD 615 Introduction to Qualitative Research ...................................................... 3

Research Elective
EDP 617 Program Evaluation Recommended ....................................................... 3
Total ......................................................................................................................... 15

Students will become competent in three major areas:
Competencies
Interconnectivity ..................................................................................................... 9
Instructional Design ................................................................................................ 9
Software and multimedia design and deployment ............................................. 9
Total ....................................................................................................................... 27

IDT 794 School Networks: Personal and Physical
EDP 640 Instructional Design
IDT 794 Visual Literacy
IDT 611 Computer Mediated Communication
IDT 744 Instructional Systems Design
IDT 600 Development of Instructional Materials
IDT 750 Web-based Instructional Design
IDT 740 Design Studio
IDT 794 Prototype Studio

Specialization
Courses within HR&E or across the University .................................................. 18

Note: IDT 794 courses are seminar courses and will include a 693x code on the online course listing.
Degrees Offered

Master of Science
Doctor of Philosophy

The College of Physical Activity and Sport Sciences is organized into two departments: Department of Coaching and Teaching Studies; and Department of Sport Science. The Department of Coaching and Teaching Studies includes the programs in athletic coaching education and physical education teacher education. The Department of Sport Sciences includes the programs in athletic training, sport and exercise psychology, and sport management.

The doctoral program in kinesiology administered through the College of Physical Activity and Sport Sciences has two major areas: sport and exercise psychology and physical education teacher education. The college’s master’s program allows specialization in teacher education, athletic training, athletic coaching education, and sport management leading to a master of science in physical education. The master’s degree program in teacher education is run using a hybrid distance education format. The master’s degree programs in athletic coaching and sport management have both on-campus and hybrid distance education cohorts.

The facilities of the College of Physical Activity and Sport Sciences include the gymnasium, dance studio, and swimming pool in E. Moore Hall; a gymnasium and fitness center in Stansbury Hall; bowling lanes in the Mountainlair; indoor track, sports area, in the Shell Building; outdoor areas include the stadium, tennis courts, soccer and field hockey fields, and outdoor track; and the Natatorium with its pool and diving well.

The Coliseum contains three technology classrooms and seminar rooms, faculty offices, a large gymnasium, a dance studio, and computer laboratory. Additional faculty and staff offices are in E. Moore Hall, Stansbury Hall, the Natatorium, and the Shell Building.

For additional information, contact the Graduate Coordinator, College of Physical Activity and Sport Sciences, 277 Coliseum, P.O. Box 6116, West Virginia University, Morgantown, WV 26506-6116. Telephone (304) 293-0850.

Graduate Faculty
† Indicates regular membership in the graduate faculty.
* Indicates associate membership in the graduate faculty.

Professors
†Andrew H. Hawkins, Ph.D. (Ohio St. U.). Teacher education, Behavior analysis.
†Lynn Houser, Ph.D. (U. Pitt.). Associate dean. Graduate coordinator, Teacher education, Research on teaching.

Associate Professors
†Dallas D. Branch, Jr., Ph.D. (Ohio U.). Sport management. Sport marketing.
†D. Floyd Jones, Ph.D. (U. of Pitt). Sport management.
Bruce Wilmoth, M.S. (Brigham Young U.). Teacher education.

**Assistants Professors**
^1Gonzalo Bravo, Ph.D. (Ohio St. U.). Organizational theory and international sports.
Damien Clement, Ph.D. (WVU). Psychology of injury, Professional issues in sport psychology and athletic training.
Emily Jones, Ph.D. (U Ga). Teacher education, Elementary physical education, Childhood obesity Prevention programming.
Aaron Livingston, Ph.D. (U. New Mexico). Leadership and internship.
Cindy Lee, Ph.D. (Ohio St. U.). Sport marketing, Sport economics, Sport finance.
Vanessa Shannon, Ph.D. (UT). Group cohesion, Retirement from sport, Youth sport.

**Master’s Programs**
Master’s programs are available in athletic coaching education, athletic training, sport management, and physical education teacher education. The master’s program in sport and exercise psychology is only available as part of the doctoral program in that field.

**Master of Science Admission Criteria**
The following criteria are used to evaluate applications for admission to the master’s programs:
- Undergraduate degree grade point average (2.75 minimum for regular status) from an approved institution
- TOEFL scores for international applicants (minimum required: 550 paper; 213 computer; 80 Internet based)
- Three letters of reference
- Resume
- Graduate Record Examination scores (athletic training—1000 minimum and athletic coaching education—800 minimum). Some programs may require a personal interview if feasible. The sport management program also requires the following:
  - Autobiographical description and professional goal statement (one to two pages on professional background, goals, and reasons for pursuing the master’s degree in sport management)

**Athletic Coaching Education**
This major is designed to develop the skills and knowledge necessary to be an athletic coach. The medical, legal, growth and developmental, psychosocial, biophysical, and technical aspects of coaching are emphasized. Application deadline is March 1 for fall on-campus admission, and March 1 for hybrid distance education program summer admission.

On campus master’s program is completed in four semesters (fall, spring, fall, and spring). The hybrid distance learning program is completed over six consecutive semesters (summer, fall, and spring). The program consists of on campus classes (summer two-weeks) and online coursework (fall and spring).

**Athletic Training**
The master of science degree in athletic training is completed over a two-year period, although a one-year option is available. Since this is a post-certification master’s program, all students must be NATA-BOC certified or certified eligible. Those in the two-year program complete 40 hours of graduate coursework, which includes an individual research project or thesis. Graduate assistantships are available for only NATA-BOC certified and qualified individuals in the two-year program. The one-year program requires completion of 25 graduate credit hours.
Applications to the program are reviewed immediately and continue until the class is filled. Only complete files are considered for admission. Selection process for assistantships begins in early January and continues until all positions are filled. Only those applicants who have been admitted to the program are considered for assistantships. Finalists for graduate assistantships are contacted for an on-campus personal interview starting in mid February.

**Sport Management**

The sport management major requires 36 credit hours, including a six-hour internship. Applicant’s deadline is January 15 for fall admission to on-campus program and May 1 deadline for summer admission for distance education program. The application for graduate school, official transcript(s), and application fee must be submitted to the Office of Admissions to be processed and reviewed in our office by the January 15 deadline for on-campus program and May 1 for distance education program. The selection process for the 15 applicants (on-campus program only) who are accepted into the program is conducted during the spring semester and a personal or phone interview is a part of the selection process. Applicants will be notified of their selection by April 1 and June 8 for distance education program.

A dual degree track between the sport management masters’ degree program and M.B.A. program in the College of Business and Economics also exist. This track requires two years to complete, as credits are used for each program to support the other. Students must complete the application for the dual program and be admitted separately to both programs.

**Teacher Education**

Students are eligible to apply for the physical education teacher education master’s program if they are certified or are certifiable to teach in the public schools. The master’s program includes a balance of online courses (taken during the spring and fall semesters) and on-campus courses (taken during the summer). Normal time to completion is four regular semesters and three summers (approximately two years). Practical application of research-based and developmentally appropriate teaching practices is emphasized by the program.

No more than 12 graduate hours may be taken toward the master’s degree as a non-degree graduate student.

**Provisional Admission**

Students who do not meet the 2.75 grade point average requirement can be admitted as provisional graduate students if their GPA is above 2.5; they are required to attain a 3.0 grade point average in the first 12 hours of advisor-approved coursework in order to be reclassified as a regular graduate student. In order to receive the degree, the student must have a minimum average of 3.0 in all coursework leading toward the degree and satisfy all department and University requirements.

**Doctoral Programs**

Graduate studies in physical education leading to a doctor of philosophy in kinesiology are available in two major areas: sport and exercise psychology and teacher education. The students admitted into the doctoral program in sport and exercise psychology also complete a master’s degree in community counseling. Students can be admitted into the doctoral program in sport and exercise psychology with either a baccalaureate degree or a master’s degree. The doctoral program in teacher education is available to students who have academic preparation in physical education or a field related to physical education.

**Application Deadline**

Application procedures for the Ph.D. in sport and exercise psychology must be submitted by to the Admissions office to be processed and received in the department by December 15. Incomplete applications will not be reviewed. International applicants are encouraged to submit their information by November 1 to allow extra time for processing. The teacher education doctoral program employs a rolling admission procedure and applications are accepted and reviewed at any time. Applications for the teacher education program should be submitted early in the calendar year for students interested in graduate assistant support beginning in the fall semester.
The application for graduate school, official transcript(s), and application fee must be submitted to the Office of Admissions. Upon receipt of the application, transcripts and materials related to the admission criteria, including the student’s credentials are reviewed by an appropriate screening committee. Students who seek a graduate assistantship should complete a Graduate Assistant Application by February 1. Information and applications for graduate teaching and research assistantships can be obtained from College of Physical Activity and Sport Sciences, Records Office, P.O. Box 6116, Morgantown, WV 26506-6116 or e-mail at: cstraig@mail.wvu.edu. Students also can visit the college website where the application can be printed in PDF format to mail to our office.

Admission Criteria

The following criteria are used to evaluate applications for admission to the doctoral programs:

- Undergraduate degree grade point average of 3.0 from an approved institution
- Master’s degree grade point average of 3.5 from an approved institution (if applicable)
- Graduate Record Examination scores–1,050 (verbal/quantitative) or 1,750 (verbal/quantitative/analytical for sport and exercise psychology doctoral program and 1,000 (verbal/quantitative) for physical education/teacher education doctoral program.
- TOEFL scores for international applicants (minimum required: 550 paper; 213 computer, 80 Internet based)
- Three letters of reference
- Professional goal statement (one to two pages on professional background, goals, and reasons for pursuing the doctoral degree)
- Curriculum vitae
- Personal interview

Additional information regarding admission criteria and procedures are available at http://www.wvu.edu/%7Ephysed/sportpsych/spdoc.htm (sport and exercise psychology) and at http://www.wvu.edu/%7Ephysed/petenew0103/Doctoral_index.htm (teacher education.)

Doctoral Degree Requirements

The sport and exercise psychology and teacher education faculties each have procedures and requirements which are specific to their programs. These processes are described in detail on the Web sites listed previously. In general, they include the following:

- Selection of an advisor. The program coordinator, in consultation with the student, and other faculty, assigns an advisor to assist in planning the student’s program
- Selection of a Plan of Studies Committee. The student, in consultation with the advisor, selects a Plan of Studies Committee. This committee assists the students in developing a plan of studies which will include relevant coursework, evaluation of competencies, and an estimated time frame for its completion.
- Plan of Studies approval. The Plan of Studies Committee will meet with the student within one year of beginning the program to ratify the plan. The approved plan of studies functions as the document against which completion of program requirements is assessed.
- Qualifying Exam. Doctoral students in the teacher education program take six credits of readings in their first year and must pass a written/oral examination in order to continue in the program.
- Completion of required coursework. The student completes the coursework required by the plan of studies. The number of credit hours required and the time required to complete the coursework varies by program, but at least two years (four semesters) of coursework is normally required for students entering with a master’s degree.
- Comprehensive Examination. At the completion of coursework, the student will take a written and oral comprehensive examination specified by the program. The purpose of the examination is to assess competency in research and content areas relevant to the particular program. The length of the examination varies by program.
• Prospectus Defense. Following the successful completion of the comprehensive examination, the student will write and defend a prospectus for the dissertation. The prospectus will be evaluated by the student’s Dissertation Committee. The Dissertation Committee is often identical to the student’s Plan of Studies Committee, though additions or changes may be made to the Plan of Studies Committee at this time in order to constitute the Dissertation Committee.

• Admission to Candidacy. Once the comprehensive examination and prospectus defense are successfully completed, the student is admitted to candidacy. Admission to candidacy is permission to proceed with dissertation research as described in the prospectus.

• Defense of the dissertation. The student will write and orally defend an original research project as described in the prospectus. Successful defense will be determined by the quality of the written document as well as by the quality of the oral defense in a forum open to the academic community. All members of the student’s Dissertation Committee must be present for the dissertation defense. Successful defense of the dissertation results in the awarding of the degree. The dissertation must be successfully defended within five years of admission to candidacy.
Davis College of Agriculture, Natural Resources, and Design
Cameron R. Hackney, Ph.D., Dean; Director, West Virginia Agricultural and Forestry Experiment Station
Dennis K. Smith, Ph.D., Associate Dean for Academic Affairs
Tim T. Phipps, Ph.D., Interim Associate Dean for Research and Outreach; Interim Associate Director West Virginia Agricultural and Forestry Experiment Station;
Steven W. Selin, Ph.D., Assistant Dean for Academic Affairs

http://www.davis.wvu.edu/

Degrees Offered

Division of Animal and Nutritional Sciences
- Master of Science in Animal and Nutritional Sciences
- Master of Science in Reproductive Physiology
- Doctor of Philosophy in Agricultural Sciences
- Doctor of Philosophy in Reproductive Physiology

Division of Forestry and Natural Resources
- Master of Science in Forestry
- Master of Science in Recreation, Parks, and Tourism Resources
- Master of Science in Wildlife and Fisheries Resources
- Doctor of Philosophy in Forest Resources Science

Division of Plant and Soil Sciences
- Master of Science in Genetics and Developmental Biology
- Master of Science in Plant and Soil Sciences
- Doctor of Philosophy in Agricultural Sciences
- Doctor of Philosophy in Genetics and Developmental Biology

Division of Resource Management
- Master of Science in Agricultural and Extension Education
- Master of Science in Agricultural and Resource Economics
- Master of Science in Landscape Architecture
- Doctor of Philosophy in Resource Management and Sustainable Development

Interdisciplinary Programs
- Master of Agriculture, Forestry and Consumer Sciences
- Master of Science in Genetics and Developmental Biology
- Master of Science in Reproductive Physiology
- Doctor of Philosophy in Agricultural Sciences Animal and Food Science, Plant and Soil Sciences
- Doctor of Philosophy in Genetics and Developmental Biology
- Doctor of Philosophy in Reproductive Physiology

The Davis College of Agriculture, Natural Resources, and Design is comprised of five divisions: Animal and Nutritional Sciences; Design and Merchandising; Forestry and Natural Resources; Plant and Soil Sciences; and Resource Management. The college’s faculty and staff are located in four buildings on the Evansdale campus, on farms administered by the Davis College of Agriculture, Natural Resources, and Design in Kearneysville, Morgantown, Reedsville, Union, and Wardensville, and at the University Forest on nearby Chestnut Ridge.

Students study many different subjects concerned with human behavior, plants, animals, trees, and microorganisms. Curricula in the college stress the life sciences, applied and basic research, and economic and social relationships among people as they live and work in a wide variety of settings. Courses offered in the college give students a comprehensive understanding of the natural environment and resources from which we produce our food, fiber, and wood, energy, and leisure activities.

The Davis College of Agriculture, Natural Resources, and Design research is conducted in the West Virginia Agricultural and Forestry Experiment Station. Research proposals are generated, evaluated, approved, and funded through the Experiment Station. The University controls extensive lands, which are administered by the college, with specific areas set aside for research.
and teaching purposes in livestock, poultry, forestry, wildlife management, organic production, horticulture, agronomy, entomology, and soils. Graduate students in the Davis College benefit from a variety of educational and research settings and from extensive opportunities for hands-on learning.

**Master’s Programs**

The Davis College of Agriculture, Natural Resources, and Design offers ten degree programs at the master’s level. Students can choose from the following majors for a master’s degree: agricultural and extension education; agricultural and resource economics; agronomy; animal and nutritional sciences; entomology; environmental microbiology; horticulture; forestry; plant pathology; recreation, parks, and tourism resources; or wildlife and fisheries resources. In addition, students may choose to pursue a master of science in the interdisciplinary programs in genetics and developmental biology or reproductive physiology or the master of agriculture, forestry, and consumer sciences.

For additional information concerning any of the graduate programs in the college, contact the Associate Dean for Academic Affairs, Davis College of Agriculture, Natural Resources, and Design, P.O. Box 6108, West Virginia University, Morgantown, WV 26506-6108; telephone (304) 293-2691; e-mail dsmith3@wvu.edu.

**Doctoral Programs**

The Davis College of Agriculture, Natural Resources, and Design currently offers five doctoral programs:

- **Ph.D. in Agricultural Sciences** – Doctoral students may major in animal and food sciences or plant and soil sciences.

- **Ph.D. in Forest Resources Science** – Doctoral students may choose from the following areas of emphases: forest resource management; recreation, parks, and tourism resources; wildlife and fisheries management; or wood science and technology.

- **Ph.D. in Resource Management and Sustainable Development** – Doctoral students may choose from the following majors: agricultural and extension education; human and community development; natural resource economics; or resource management.

- **Ph.D. in Genetics and Developmental Biology** – Doctoral students may select areas of study related to human, plant, and animal genetics, and developmental biology in this interdisciplinary program.

- **Ph.D. in Reproductive Physiology** – Doctoral students may select courses in biochemistry, developmental embryology, endocrinology, pharmacology, physiology, reproductive physiology, and statistics in this interdisciplinary program.

**General Admission Requirements and Information**

**Regular** – A regular graduate student is a degree-seeking student who meets all of the criteria for regular admission to a program of his/her choice. The student must possess a baccalaureate degree from a college or university, have at least a grade point average of 2.75 on a 4.0 scale (or an average of 3.0 or higher for the last 60 credit hours), meet all criteria established by the degree program, and be under no requirements to make up deficiencies.

The student must:

- Have an adequate academic aptitude at the graduate level as measured by the Graduate Record Examination (GRE), or the New Medical College Admissions Test (New MCAT).

- Provide three letters of reference from persons acquainted with the applicant’s professional work, experience, or academic background.

- Submit a written statement of 500 words or more indicating the applicant’s goals and objectives relative to receiving a graduate degree.

- International students have the additional requirement to submit a minimum score of 550 on the paper TOEFL examination or 213 on the electronic TOEFL examination if their native language is not English.

- The specific graduate programs may have additional requirements for admission.
Provisional – A student may be admitted as a provisional graduate student when the student possesses a baccalaureate degree but does not meet the criteria for regular admission. The student may have incomplete credentials, deficiencies to make up, or may have an undergraduate scholastic record that does not meet grade point requirements for regular admission. After successful fulfillment of the deficiencies, the student will be granted regular graduate student status.

Non-Degree – A non-degree student is a student not admitted to a program. Admission as a non-degree student does not guarantee admission to any course or program. A student must present evidence of a baccalaureate degree. A maximum of 12 credit hours of work as a non-degree student may be applied to a graduate degree if the student is later accepted into a graduate program.

Graduate Faculty
* Indicates associate membership in the graduate faculty.
† Indicates regular membership in the graduate faculty.

Division of Animal and Nutritional Sciences

Professors
†Robert A. Dailey, Ph.D. (U. Wisc.). Reproductive physiology.
†E. Keith Inskeep, Ph.D. (U. Wisc.). Reproductive physiology.
†Paul E. Lewis, Ph.D. (WVU). Director, Reproductive physiology, Nutrition.
*Phillip I. Osborne, Ph.D. (Clemson). Extension specialist, Livestock marketing and production.

Associate Professors
†Kenneth P. Blemings, Ph.D. (U. Wisc.). Nutritional biochemistry.
†Eugene E. Felton, Ph.D. (U. Mo.). Ruminant nutrition.
†Cindy W. Fitch, Ph.D. (Case Western Reserve U.). Human nutrition.
†Susan N. Partington, Ph.D., R.D. (U. of Wisc.). Human nutrition.
†Matthew E. Wilson, Ph.D. (Iowa St. U.). Reproductive physiology.
†Jianbo Yao, Ph.D. (McGill U.). Functional genomics.

Assistant Professors
†Kimberly M. Barnes, Ph.D (U. Neb.). Biochemistry.
†Marie Krause, Ph.D. (U. of Wisc.-Madison). Ruminant nutrition.
†Kristen E. Matak, Ph.D. (Va. Tech.). Human nutrition and foods.
Holly Spooner, Ph.D. (MSU). Physiology and nutrition-equine extension specialist.
†Janet C.L. Tou, Ph.D. (U. of Toronto, Canada). Human nutrition and foods.

Clinical Assistant Professor
Margaret A. Minch, D.V.M. (OSU). Veterinary medicine.

Teaching Assistant Professor

Lecturer

Adjunct Faculty
†Robert L. Cochrane, Ph.D. (U. Wisc.).
†Ann Hubbs, Ph.D., D.V.M. (CSU; Texas A and M U.).
Eric Johnson, Ph.D. (U.Wisc.).
Jean Meade, D.V.M., Ph.D., M.D. (VPI; WVU).
Dale Porter, Ph.D. (WVU).
†Caird Rexroad, Ph.D. (Texas A and M U.).
†George R. Seiler, D.V.M. (FSU).
†Alfred H. Stiller, Ph.D. (U. Cinn.).
Emeritus Faculty
Gerald C. Anderson, Ph.D. (U. Mo.).
William E. Collins, Ph.D. (U. Wisc.).
*Mary K. Head, R.D., Ph.D. (Perdue U.).
William H. Hoover, Ph.D. (PSU).
Donald G. Horvath, Ph.D. (Cornell U.).
*M. Zafar Alam Nomani, Ph.D. (Rutgers U.).
Ronald Peterson, Ph.D. (MSU).
Edward C. Prigge, Ph.D. (U. Maine).
Roy O. Thomas, Ph.D. (MSU).
James A. Welch, Ph.D. (U. Ill.).

Design and Merchandising
Professor
†Nora M. Macdonald, M.S. (Iowa St. U.). Apparel design, Clothing for special needs, Fashion merchandising.

Associate Professors
†Cindy V. Beacham, Ph.D. (VPI and SU). Design for children, Intergenerational design, Interior design pedagogy, Design for special needs.
†Barbara McFall, Ph.D. (Saybrook). Design for quality of living, Personal resource system management, Human systems theory, "Wicked" problems.

Assistant Professors
†Kathryn L. Burton, Ph.D. (Or. St. U.). Design history, Aesthetics, Creativity and design, Cultural aspects of design.
†Holly M. Lentz, Ph.D. (UNC Greensboro). Consumer behavior, Social psychology of dress, Merchandising, Gender issues of dress.

Forestry and Natural Resources
Professors
†Ray R. Hicks, Jr., Ph.D. (SUNY). Forest management. Forest ecology, Forest pest management.
†Joseph McNeel, Ph.D. (VPI and SU). Director. Forest engineering/forest operations.
†Steven W. Selin, Ph.D. (U. Ore.). Human dimensions, Collaborative processes, Env. management.

Associate Professors
*James P. Armstrong, Ph.D. (SUNY). Wood science.
†Patricia Mazik, Ph.D. (Memphis St. U.). Adjunct. Cooperative Fish and Wildlife Research Unit. Fish physiology.
†U. Todd Petty, Ph.D. (U. of Ga.). Fisheries and stream ecology.
†Chad D. Pierskalla, Ph.D. (U. of Minn.). Wildland recreation management and policy.
†Jingxin Wang, Ph.D. (U. of Ga.). Forest operations and management.

Assistant Professors
†Kathryn Arano, Ph.D. (Va. Tech.). Primary and secondary wood processing.
†Jinyang Deng, Ph.D. (U. Alberta). Recreation, parks, and tourism development.
†Kathryn Piatek, Ph.D. (N.C. St. U.). Forest soils.

Genetics and Developmental Biology Professors
†Nyles, Charon, Ph.D. (U. Minn.). Medical bacteriology. Genetics and physiology of spirochetes.
Daniel Panaccione, Ph.D. (Purdue U.). Gene cloning, Gene transfer.
Lisa Salati, Ph.D. (U. Minn.). Regulation of gene expression by fatty acids.
Knox Van Dyke, Ph.D. (St. Louis U.). Chemiluminescence in human cells. Effects of anti inflammatory drugs on chemiluminescence.
Sharon L. Wenger, Ph.D. (U. Pitt.). Clinical cytogenetics.

Associate Professors
Bing-Hua Jiang, Ph.D. (U. Miss.). Role of kinase in angiogenesis.
Jia Luo, Ph.D. (U. of Iowa.). Neurobiology.
James Shell, Ph.D. (U. KY.). Immunology, Mechanisms of cytotoxic T lymphocyte-mediated antigen recognition and effect or function.

Assistant Professors
Kimberly Barnes (U. Neb) Animal nutrition, fat and apoptosis.
Vagner A. Benedeto, Ph.d. ( Wageningen U. Holland) Plant Genomics, Functional Genetics and Plant physiology.
Timothy Nurkiewicz, Ph.D. (WVU). Particulate air pollution and vascular biology.
Todd West, Ph.D. (SIU). Nursery production, Germplasm storage and aquaculture.

Plant and Soil Sciences
Cameron R. Hackney, Ph.D. (N.C. St. U.). Dean and director. Food safety, Environmental microbiology.
William L. MacDonald, Ph.D. (Iowa St. U.). Plant pathology, Forest and shade tree diseases.

Associate Professors
Louis McDonald, Ph.D. (U. Ky.). Soil chemistry.
James A. Thompson, Ph.D. (U. of Minn.) Pedology and land use.

Assistant Professors
Jedediah Doelling, Ph.D. (Wash. U.). Genetics, Molecular biology, Protein degradation.
Yong-Lak Park, Ph.D. (Iowa St. U.). Insect ecology, Pest management.
Eugenia Pena-Yewtukhiw, Ph.D. (U. Ky.). Soil science.
Resource Management

Professors
†Jerald J. Fletcher, Ph.D. (U. Cal.). Interim Director, Resource economics.
†Stacy A. Gartin, Ph.D. (Ohio St. U.). Communications, Program planning, Leadership development, Teaching methods.
†Tim T. Phipps, Ph.D. (U. Ca.). Interim Associate Dean. Resource economics, Agricultural policy.
†Peter V. Schaeffer, Ph.D. (U. So. Ca.). Regional science, Applied microeconomics.
†Dennis K. Smith, Ph.D. (Penn. St. U.). Associate Dean. Rural development, Agribusiness management.

Associate Professors
*Donald R. Armstrong, M.L.A. (Iowa St.). Site design, Design implementation.
†Deborah A. Boone, Ph.D. (Ohio St. U.). Extension education, Leadership development, Program evaluation and development.
†Harry N. Boone, Jr., Ph.D. (Ohio St. U.). Computing technology, Teaching methods, Social science research.
†Cheryl Brown, Ph.D. (U. Ca, Bk.). Agricultural policy, Resource economics, Agribusiness.
†Kerry S. Odell, Ph.D. (Ohio St. U.). Associate Provost. Research methodology, Microcomputer applications, Teaching methods.
*Charles B. Yuill, M.L.A. (U. Mass.). Computer applications, Site analysis

Assistant Professors
Peter Butler, MLA. (Iowa St.). Cultural landscape planning, Interpretation and community design.
*Ashley Kyber, M.F.A. (Crabrook). Community design, Ecological design studies, Landscape sculpture.
†Michael Strager, Ph.D. (WVU). Spatial analysis, Decision support.

Reproductive Physiology

Professors
†Robert Cochrane, Ph.D. (U. Wisc.). Adjunct. Reproduction in laboratory and fur animals.
†Robert A. Dailey, Ph.D. (U. Wisc.). Neuroendocrine control of reproduction, Follicular development, Ovulation.
Mitchell S. Finkel, M.D. (U. Md.). Cardiac endocrinology.
†E. Keith Inskeep, Ph.D. (U. Pitt.). Neuroendocrine control of ovarian function.
†Paul E. Lewis, Ph.D. (WVU). Puberty, Postpartum and seasonal anestrus.
†Michael G. Mawhinney, Ph.D. (WVU). Endocrine pharmacology and metabolism of male sex accessory tissues.
†Rajesh K. Naz, Ph.D. (All India Inst. of Med. Sci.). Male physiology and immunology.
†Michael W. Vernon, Ph.D. (U. of Fla.). Reproductive endocrinology.

Associate Professors
†Stanley M. Hileman, Ph.D. (U. of Ky.). Reproductive neuroendocrinology.
†Matthew E. Wilson, Ph.D. (Iowa St. U.). Reproductive physiology.

Assistant Professors
†Melanie S. Clemmer, Ph.D. (WVU). Assisted reproductive technology.
Division of Animal and Nutritional Sciences

Paul E. Lewis, Director,
G038 Agricultural Sciences Building
Division of Animal and Nutritional Sciences
e-mail: plewis@wvu.edu
http://ans.wvu.edu/

Degrees Offered

- Master of Science in Animal and Nutritional Sciences
- Doctor of Philosophy in Agricultural Sciences
- Master of Science and Doctor of Philosophy in Reproductive Physiology

The master of science in animal and nutritional sciences in the Davis College of Agriculture, Natural Resources, and Design allows maximum flexibility in courses and research problems. Students may major in either physiology, or nutrition and food sciences. They may work with beef and dairy cattle, sheep, swine, poultry, or laboratory animals and with issues in human health and nutrition. Research problems in farm animals, laboratory animals and human nutrition issues form the basis for many studies, but a comparative approach is emphasized. A master of science degree is available as a thesis or coursework option.

The division offers the registered dietetic certification (RD) preparation internship program as a component of the masters of science degree program in animal and nutritional sciences.

Prerequisites

Requirements are similar to those in other biological sciences. The student should have completed basic courses in the physical and biological sciences, including genetics, nutrition, and physiology. Deficiencies may prolong the time needed to complete degree programs. A composite graduate record examination score of 1,000 or better will be considered as a basis for admission. The fact that an applicant meets the above requirements shall not guarantee admission since each professor will accept only the number of students that can be supervised adequately with available facilities, time, and funds. Students interested in a Ph.D. should apply for admission to the doctoral program in agricultural sciences or reproductive physiology.

Division of Forestry and Natural Resources

Joseph F. McNeel, Director
322-A Percival Hall
Division of Forestry and Natural Resources
e-mail: jmcneel@wvu.edu
http://www.forestry.davis.wvu.edu

Degrees Offered

- Master of Science in Recreation, Parks, and Tourism Resources
- Master of Science in Wildlife and Fisheries Resources
- Master of Science in Forestry
- Doctor of Philosophy in Forest Resources Science

A student seeking admission to work toward the degree of doctor of philosophy in forest resources science in the Davis College of Agriculture, Natural Resources, and Design may choose as the major field of study forest resources management; recreation, parks, and tourism resources; wood science and technology; or wildlife and fisheries resources. Within these major fields of study, specialization is limited only by the range of competencies in the graduate faculty.

Curriculum Requirements for Ph.D.

Curriculum requirements for all Ph.D. candidates include a block of graduate courses in the major field, which will constitute a comprehensive review of the significant knowledge in that field, and a block of graduate courses in a minor field of study. A minimum of 60 semester hours beyond the bachelor’s degree and exclusive of the dissertation is required.
Dissertation and Final Examination

The research work for the doctoral dissertation must show a high degree of scholarship and must present an original contribution to the field of forest resources science. In addition to coursework and the dissertation, the candidate is required to pass a qualifying examination and a final examination.

Admission Requirements—Master’s Degree Programs

Admission requirements are those of the Davis College of Agriculture Natural Resources, and Design. Additionally, students seeking admission for the degree of master of science in forestry should have completed an undergraduate curriculum in forestry. A student whose undergraduate degree is in a field other than forestry will ordinarily be required to take supplemental undergraduate courses. Candidates for the degree may emphasize in forest biometry, forest ecology, forest economics, forest genetics, forest management, forest meteorology, silviculture, or wood science and technology. The candidate must complete 30 hours of approved study, six hours of which shall constitute a thesis. The program ordinarily requires two years of residence.

The Division of Forestry and Natural Resources in the Davis College of Agriculture, Natural Resources, and Design offers program options leading to the master of science degree. Students who wish to major in recreation, parks, and tourism resources. Students selecting this graduate program may emphasize recreation management and policy, environmental education and interpretation, and natural resource based tourism. Degree requirements are either 30 semester hours of approved study, including a six credit-hour thesis, or 36 semester hours without a thesis but including a three credit-hour field project. This program ordinarily requires two years of residence.

Graduate studies in wildlife and fisheries resources in the Division of Forestry and Natural Resources lead to the master of science degree. Students may elect either 30 semester hours of approved study, including a six-hour thesis, or 36 hours of approved study without a thesis but including a three-hour problem paper.

Division of Plant and Soil Sciences

Barton S. Baker, Director
1090 Agricultural Sciences Building
Division of Plant and Soil Sciences and Graduate Program Coordinator
e-mail: bbaker2@wvu.edu
http://www.caf.wvu.edu/plsc/

Degrees Offered

Master of Science in Plant and Soil Sciences
Master of Science in Genetics and Developmental Biology
Doctor of Philosophy in Agricultural Sciences
Doctor of Philosophy in Genetics and Developmental Biology

Areas of Emphasis

The master of science in plant and soil sciences degree is offered to students who wish to study crops agronomy, entomology, environmental microbiology, horticulture, plant pathology, or soil science. Students interested in the Ph.D. in these disciplines should apply to the doctoral program in agricultural sciences.

Program Objective

The objective of the M.S. in plant and soil sciences is to provide students the opportunity to take courses and conduct original, master’s-level research in their areas of specialization. The educational experience obtained through courses and research is expected to provide students with the background and expertise to enter doctoral programs or professional careers as agronomists, entomologists, microbiologists, horticulturists, and plant pathologists or soil scientists. These disciplines are critical to maintaining agriculture and forest productivity, solving environmental problems, and promoting economic development in the state.
Admission and Performance Standards

In order for a student to be admitted to the program, the following admission criteria will be considered. The applicant normally must:

- Possess a baccalaureate degree;
- Have a minimum undergraduate grade point average of 2.75 (3.0 for acceptance as a regular graduate student);
- Have an adequate academic aptitude at the graduate level as measured by the Graduate Record Examination (GRE) or other tests/evidence;
- Provide three letters of reference from persons acquainted with the applicant’s professional work, experience, or academic background; and
- Submit a written statement of approximately 500 words indicating the applicant’s goals and objectives relative to receiving a graduate degree.

International students have the additional requirement to submit a minimum score of 213 on the computer based TOEFL examination if their native language is not English. Interviews are encouraged but not required.

Students enrolled in the M.S. in plant and soil sciences must complete STAT 511, 512, and three semesters of seminar in their area of emphasis. Other class requirements will be determined by the student’s Graduate Committee and made a part of the student’s plan of study. This degree requires a minimum of 30 graduate credit hours, six of which may be research.

Each student must develop a plan of study, conduct original research, and prepare a thesis. The plan of study which is to be developed within the first year of study must contain the courses to be taken plus an outline of the research to be conducted. The thesis must be satisfactorily defended in an oral examination given by the student’s Graduate Committee.

Division of Resource Management

Jerald J. Fletcher, Interim Director
2016 Agricultural Sciences Building
Division of Resource Management
e-mail: jfletcher@mail.wvu.edu

Peter Schaeffer, Graduate Program Coordinator
2004 Agricultural Sciences Building
Ph.D. in Resource Management and Sustainable Development
e-mail: Peter.Schaeffer@mail.wvu.edu
http://www.caf.wvu.edu/resm/

There are four graduate programs in the Division of Resource Management. Master of science programs are available in agricultural and extension education, agricultural and resource economics, and landscape architecture. A Ph.D. program is offered in resource management and sustainable development with four major options: natural resource economics, agricultural and extension education, resource management, and human and community development. A limited number of graduate research assistantships are available to highly qualified students on a competitive basis.

Degree Offered

Doctor of Philosophy

The Ph.D. in resource management and sustainable development encompasses four majors:

- Natural resource economics (NRE)
- Agricultural and extension education (AGEE)
- Resource management (RM)
- Human and community development (HCD)

The objective of the degree program is to provide doctoral students the opportunity to study and conduct research with faculty in areas of excellence in the Division of Resource Management, in particular, and in other divisions in the Davis College of Agriculture, Natural Resources, and Design, in general. Within these major fields of study, specialization is limited only by the range of expertise of the graduate faculty and specific major requirements. Students entering the program will complete a common core consisting of research methods,
graduate seminars, and teaching practicum. Beyond the core each of the four majors has specific requirements for additional specialization.

Students entering the NRE area of emphasis may focus on natural resource and environmental economics or economic development. The AGEE major prepares students for leadership responsibilities in teacher education, educational administration, program development and evaluation, and research as it pertains to agriculture and extension. The RM and HCD majors both have an interdisciplinary focus. The RM major designed primarily for students with a master’s degree in the sciences or engineering, consists of an applied economics foundation developed jointly by the student and the graduate advisory committee. Students choosing the HCD major may focus their studies and research in the areas of education and human resources development, social and cultural improvement of the community, governmental issues and policy, economic growth and impact, or areas associated with the students’ professional goals developed in consultation with their graduate advisory committee.

Admission Requirements

The following admission and performance standards, in addition to university and college requirements, are normally required to qualify for acceptance as a regular student to the Ph.D. program in resource management and sustainable development:

• A master’s degree and a grade point average (GPA) of 3.0 or higher (on a 4.0 scale) in graduate courses is normally required for the AGEE, RM, and HCD majors. Applicants for the NRE major that are not prepared to take the Ph.D. sequence in microeconomic theory, mathematical economics, and econometrics will be admitted to the M.S. program in agricultural and resource economics.

• A minimum combined score of 1,000 for the verbal and quantitative sections of the Graduate Record Examination (GRE).

• Three letters of reference from individuals who can attest to the applicant’s potential for academic success and/or relevant career-related experiences should be sent directly to the graduate program coordinator, Division of Resource Management, or sealed in an envelope with the writer’s signature over the seal and included with the other application materials.

• A résumé or curriculum vitae.

• Coursework in intermediate microeconomics theory and introductory classes in statistics and calculus for those seeking admittance into the RM or NRE option areas.

• Four years of career-related experience is required for those seeking admittance into the AGEE option.

• Other supporting materials you wish to have considered with your application.

Applications are reviewed by the Graduate Admission Committee, the graduate program coordinator, and the division director who jointly make the admission decision. Applicants who do not meet the requirements but have special qualifications or circumstances may be admitted as provisional graduate students.

Degree Requirements

All doctoral students must satisfactorily complete a set of common core courses in research methods, a teaching practicum, and graduate seminars for a total of at least nine credit hours. Course requirements may be waived if the student has received equivalent training in prior coursework. Coursework pertaining to the student’s major and additional specialization will be determined by the student’s graduate advisory committee and the major requirements.

Students take written and oral qualifying examinations after the completion of the core and majors field courses. Upon satisfactory completion of the qualifying examinations and field of specialization requirements, the student will be eligible for admittance to candidacy for the Ph.D. in resource management and sustainable development.

Each candidate for the Ph.D. degree must meet the following general requirements:

• Successful completion of written and oral qualifying examinations and examinations in a minimum of two fields of specialization. A master’s degree may serve as one field exam, subject to approval by the Graduate Committee.

• Dissertation research on an approved research project leading to the successful completion and oral defense of a dissertation.
The faculty expects that doctoral students present the results of their research at professional meetings and submit articles based on their research to refereed scholarly journals.

**Agricultural and Extension Education**

Harry N. Boone, Graduate Program Coordinator  
2054 Agricultural Sciences Building  
e-mail: Harry.Boone@wvu.edu  
http://www.caf.wvu.edu/resm/aee/

**Degrees Offered**  
*Master of Science in Agricultural and Extension Education*  
*Doctor of Philosophy*

The agricultural and extension education faculty offer master’s programs for persons desiring advanced study in teaching agriculture in public schools, communications and leadership, or extension education. Candidates for the master of science degree may be admitted on a regular or provisional basis. A student who does not have a B.S. in agriculture with a major in agricultural and extension education may be required to complete undergraduate courses in agriculture and professional education if he or she plans to obtain certification to teach. Students in the curriculum take graduate courses in both technical and professional education. Programs are planned to ensure that candidates develop competence in:

- Communications and leadership;  
- Design, operation, and philosophy of agricultural and extension education programs;  
- Research and evaluation processes. In addition, students pursuing programs that emphasize agricultural and extension education will be expected to develop an understanding of teaching/learning processes.

All graduate courses offered toward the degree must be approved by the student’s Graduate Committee. A thesis is required as part of the 30 credit-hour graduation requirement.

The agricultural and extension education faculty offers a Ph.D. with a major in agricultural and extension education (AGEE) or human and community development (HCD) as part of the Ph.D. program in resource management and sustainable development.

- Beyond the core, AGEE majors take four courses covering research design, data analysis, program development, and program evaluation. Additional courses in teaching and learning theory, educational psychology, supervision, administration and leadership, and statistics are recommended. Students will have two fields of specialization consisting of a minimum of 12 to 15 semester hours of coursework each, not counting research.

- Beyond the core, HCD majors take four courses covering research design, data analysis, program development, and program evaluation. Additional courses related to qualitative research, policy, administration, and the philosophical, theoretical, and empirical foundations related to human community growth and sustainability. Students will have two fields or specialization consisting of a minimum of 12 to 15 semester hours of coursework each.

**Agricultural and Resource Economics**

Peter V. Schaeffer, Graduate Program Coordinator  
2036 Agricultural Sciences Building  
e-mail: Peter.Schaeffer@mail.wvu.edu  
http://www.caf.wvu.edu/resm/are/

**Degrees Offered**  
*Master of Science in Agricultural and Resource Economics*  
*Doctor of Philosophy*

The agricultural and resource economics faculty offer master’s programs for persons desiring advanced study in agricultural, environmental, natural resource, energy, and local and regional economic development. Candidates for the master of science degree may be admitted on a regular or provisional basis.
• Twelve or more semester credits in economics, agricultural and resource economics, statistics, or appropriate social science courses (should include intermediate microeconomics).
• Three or more semester hours of credit in calculus.

Students lacking these prerequisites have to complete coursework to acquire them. Programs are planned to ensure that candidates develop competence in:
• Communicating economic policy issues;
• Develop the theoretical and analytical skills to analyze and evaluate economic policies;
• Research to develop economic policy proposals.

Graduate courses offered toward the degree must be approved by the student’s Graduate Committee. The master’s degree offers a thesis and a non-thesis option. Students should select one option by the time 12 hours of coursework are completed (usually by the end of the first semester in the program) and after consulting with their Graduate Committees. Candidates with graduate research assistantships must select the thesis option.

**Thesis option**

A minimum of 30 credit hours of approved work to include not more than six hours of credit for the thesis, and enough courses to provide proficiency in economics and agricultural and resource economics. Courses in closely related areas may be included. The student’s Graduate Committee must approve the student’s course of study and thesis topic.

**Coursework option**

• A minimum of 36 credit hours of approved coursework to provide proficiency in economics, resource, and agricultural and resource economics. Courses in closely related areas may be included if approved by the student’s Graduate Committee.
• The student must satisfactorily complete a written and oral examination administered by the student’s Graduate Committee.

The agricultural and resource economics faculty offer a Ph.D. with a major in natural resource economics (NRE), resource management (RM), or human and community development (HCD) as part of the Ph.D. program in resource management and sustainable development.

• Beyond the core, NRE majors take a minimum of six courses in advanced microeconomic theory, mathematical economics, econometrics, resource and environmental economics, quantitative methods, and policy analysis. Two fields of specialization are required.
• Beyond the core, RM majors take five courses covering theory, policy analysis, econometrics/statistics, and management applications. Each of two mandatory fields of specialization requires a minimum of 12 hours.
• Beyond the core, HCD majors take four courses covering research design, data analysis, program development, and program evaluation. Additional courses can relate to qualitative research, policy, administration, economic analysis, and the philosophical, theoretical, and empirical foundations related to human and community growth and sustainability.

Students will have two fields of specialization, each consisting of a minimum of 12 to 15 semester hours of coursework.
• For NRE and RM majors, two field examinations in the fields of specialization are required. Students entering the NRE or RM majors with a master’s degree may petition their Graduate Committee to accept this degree as meeting the requirements for one field examination. Approval depends on the relevance of the degree to the major and proposed fields of specialization, among, the GPA received, and the time since earning the degree.

**Landscape Architecture**

**Degrees Offered**

*Master of Landscape Architecture (MLA)*

The landscape architecture faculty offers the master of landscape architecture (MLA) as a professional degree leading to the practice of landscape architecture. Candidates for the M.L.A. may enter the program with a B.S.L.A., B.L.A., or a related design degree and pursue a 38 credit-hour course of study culminating in the preparation of either a masters thesis or terminal
project. For these students the M.L.A. will serve as a post-professional degree providing the opportunity for advanced or specialized studies in particular areas of landscape architecture. Students entering the program with a B.S. or B.A. in a non-design discipline are required to complete an additional 28 credits of leveling courses prior to entering the second year of a three-year course of study with the 38 credit-hour course of study to be completed in years two and three. For these students, the M.L.A. will serve as the first professional degree that is required for entry into the profession of landscape architecture. Studies for these students will also culminate in the preparation of a masters thesis or terminal project.

The master of landscape architecture program provides opportunities for both foundation and advanced training in the core areas of landscape architecture including site and environmental design, land use planning, construction methods and materials, landscape management, and plant materials and planting design. It is anticipated that many students, particularly those pursuing the post-professional degree, will take interdisciplinary approaches to their studies as will be expected of them in practice. There are 12 credit hours of electives in the curriculum. These would allow the student to tailor a series of course in areas of focus such as community planning and design, environmental restoration, or environmental and natural resource analysis methods including geographic information systems and remote sensing.

**Coursework**
A total of 38 credit hours are required for the post-professional MLA program. The requirements for the first professional degree include an additional 28 undergraduate and graduate credits prior to commencing with subsequent graduate courses.

**Thesis or Terminal Project**
Students will be required to complete either a research thesis on a problem in environmental or community design or landscape architecture or an applied comprehensive professional project. Each student selecting the thesis option will defend their thesis in a public forum before their committee. The comprehensive project option will result in a professional submission that includes a written report and appropriate professional drawings documenting the design project for a project subject to realistic conditions. It will also include a formal public presentation/defense before the students' committee.

The composition of graduate advisory committees will follow Davis College and WVU guidelines and must have at least two landscape architecture faculty members and one outside member. Two of the committee members must be full members of the graduate faculty and the third may be an associate member.

**Interdisciplinary Degrees**

**Genetics and Developmental Biology**
Joginder Nath, Chairperson of the Interdisciplinary Faculty
1120 Agricultural Sciences Building
e-mail: jnath@wvu.edu
http://www.caf.wvu.edu/genetinf.html

**Degrees Offered**
- Master of Science in Genetics and Developmental Biology
- Doctor of Philosophy in Genetics and Developmental Biology

**Areas of Emphasis**
The master of science and doctor of philosophy degrees are offered in genetics and developmental biology, an interdisciplinary program involving the faculty and facilities of a number of departments in the various colleges and schools of the University. A student may concentrate in genetics or developmental biology. The areas in which emphases are offered are as follows.

**Genetics** – Biochemical and molecular genetics, cytogenetics, developmental genetics, immunogenetics, mutagenesis, toxicology, human genetics, plant genetics, population and quantitative genetics, and animal breeding.
Developmental Biology – Molecular aspects of development, experimental morphogenesis, teratology, regeneration, descriptive embryology, and life cycles of animals and plants. The student may also minor in one or more other scientific fields.

Requirements
Students are expected to maintain at least a 3.0 (B) grade point average in all work offered in fulfillment of the degree program. For a more complete statement of requirements, the student is referred to the program’s Guidelines for Graduate Students in the Genetics and Developmental Biology Program.

Program Objective
The objective of this program is an increased level of understanding of modern concepts and methodologies employed in genetic and developmental biological work and to prepare a student to pursue a career in teaching and/or research. Responsibility for a student’s program is vested in a graduate committee charged with arranging the student’s coursework, conducting examinations, and supervising the research.

Admission
To be considered for admission in the program the student must possess a baccalaureate degree from an accredited college or university, must have a grade point average of at least a 2.75 (on a 4.0 scale), or an average of 3.0 or higher for the last 60 credit hours, or an average of 3.0 or higher in all courses in sciences and mathematics.

GRE and New MCAT
The student must submit the scores of the Graduate Record Examination (GRE), or the New Medical College Admission Test (New MCAT). The student must provide three letters of reference from persons acquainted with the applicant’s professional work, experiences, or academic work, and submit a written statement of 500 words or more indicating the applicants’ goals and objectives relative to receiving a graduate degree.

Basic training in mathematics, physics, chemistry, and biology is required for admission. Students lacking prerequisites may be accepted in a provisional status but must fulfill them before graduation. Applications for graduate study should be sent in as early in the year as possible, but not later than April 1 for entry the following August. However, applications are accepted year-round for admission to the program in the following semester. Official transcripts of baccalaureate and/or master’s degrees must be sent directly to the WVU Office of Admissions. Application forms can be received from the WVU Office of Admissions, P.O. Box 6009, Morgantown, WV 26506-6009. For further information, write to the department chair.

Developmental Biology
The following courses in the departments of anatomy, biochemistry, and biology may be applied toward the requirements for a major in developmental biology: Anatomy 702 Advanced Developmental Anatomy; Anatomy 704 Experimental Embryology; Biochemistry 791 Advanced Study in Nucleic Acids; Biology 313 Molecular Basis of Cellular Growth; Biology 793 Molecular Biology of the Gene; Biology 737 Developmental Biology; and Biology 752 Advanced Plant Physiology.
Reproductive Physiology
E. Keith Inskeep, Chairperson of the Interdisciplinary Faculty
G-044 Agricultural Science Building
e-mail: einskeep@wvu.edu
http://www.caf.wvu.edu/reproinf.html

Degrees Offered
Master of Science in Reproductive Physiology
Doctor of Philosophy in Reproductive Physiology

Requirements
The graduate program in reproductive physiology, leading to master’s and doctoral degrees, is interdisciplinary, with faculty located in the Departments of Animal and Nutritional Sciences, Biology, Obstetrics and Gynecology, Pharmacology and Toxicology, Physiology, and Plant and Soil Sciences. Requirements for admission include at least a 2.75 grade point average (4.0 system) and completion of the following prerequisites with a grade of C or better in each: calculus, genetics, organic chemistry, physics, and vertebrate embryology. It is recommended, but not required, that applicants complete both the aptitude and the advanced tests of the Graduate Record Examination. Foreign languages are not required for a degree in reproductive physiology. Only a limited number of students are accepted each year.

Research
Research topics include studies of embryonic loss, control of fertility function and regression of the corpus luteum, aging of the oocyte, control of postpartum reproductive performance, environmental factors in reproduction, control of steroid genesis, control of estrus and ovulation, new methods of artificial insemination, ovarian follicular development, endocrine functions of peptides, neuroendocrine control of gonad tropic hormone secretion, neuroendocrine regulation of puberty, anestrus, effect of nutrition on reproductive function and roles of prostaglandins in reproduction. The focus of research is both basic and applied and is almost entirely with farm animals, including poultry.

Courses
The program draws on courses offered in various departments and includes courses in endocrinology, advanced reproductive physiology, biochemistry, physiology, statistics, and developmental embryology. Students present seminars and participate in journal clubs each semester.

Agriculture, Forestry, and Consumer Sciences
Dennis K. Smith, Associate Dean, Academic Affairs/Program Coordinator
1006 Agricultural Sciences Building
e-mail: dsmith3@wvu.edu

Degree Offered
Master of Agriculture, Forestry, and Consumer Sciences

Admission Requirements
Applicants must meet the minimum admission requirements of the University for regular graduate students, including a 2.75 grade point average, in order to be a regular graduate student in this program. Applications are reviewed first by the division coordinator for the master of agriculture, forestry, and consumer sciences program in one of the divisions of the college. Applicants selected for admission are recommended to the associate dean of the Davis College of Agriculture, Natural Resources, and Design.

If the student’s baccalaureate degree is not in a field sufficiently related to the proposed course of study, the division coordinator may recommend admission as a provisional student until completion of prerequisite undergraduate courses. Prime consideration is given to a program of study tailored to the career goals of the individual student.
Degree Requirements

Satisfactory completion of 36 hours of graduate-level coursework is required for the master of agriculture, forestry, and consumer sciences degree. A minimum of 18 hours must be selected from among graduate courses available within two divisions of the college, with no fewer than six hours in either division. No more than 12 hours of special topics or independent study may be counted towards the degree. The student must maintain an overall grade point average of 3.0 in all graduate courses approved by a Graduate Advisory Committee. A three-hour problem report may be included at the option of the student and the Graduate Advisory Committee.

The Graduate Advisory Committee shall consist of at least three members representing at least two divisions with at least two being members of the graduate faculty of the college. The committee shall be formed with advice from the division coordinator for the program and an approved plan of study shall be submitted to the associate dean during the first semester of enrollment. Upon completion of the coursework, the candidate must pass either an oral or written examination given by the committee.

Agricultural Sciences

Paul E. Lewis, Director,
G038 AGS
Division Animal and Nutritional Sciences
e-mail: plewis@wvu.edu

Barton S. Baker, Director
1090 AGS
Division of Plant and Soil Sciences
e-mail: bbaker2@wvu.edu

Degree Offered

Doctor of Philosophy in Agricultural Sciences

The Davis College of Agriculture, Natural Resources, and Design offers graduate studies leading to the degree of doctor of philosophy in agricultural sciences. The doctoral program offers two majors: animal and food sciences, and plant and soil sciences. The objective of the degree program is to provide doctoral students an opportunity to study and conduct research with faculty in areas of excellence within the college. Students entering this program may select research and classes in ten areas of emphasis: agricultural biochemistry, animal nutrition, animal physiology, production management, crops agronomy, entomology, environmental microbiology, horticulture, plant pathology, and soil sciences.

Admission Requirements

Prospective students initiate application for admission on forms available from the WVU Office of Admissions. The completed forms should be returned to the Office of Admissions, accompanied by payment of the nonrefundable special service fee. An official transcript from all colleges attended in the course of an applicant’s master’s and undergraduate degrees must be part of the application for admission. Applicants must hold a master’s or its equivalent to be eligible for admission into the program.

The following admission and performance standards are normally required in the doctor of philosophy in agriculture sciences program.

• An applicant must possess a master’s degree and hold a grade point average (GPA) of 3.0 or above (on a 4.0 scale) in postgraduate courses.
• The graduate record examination is required. A minimum score of 1,300 is expected for regular admission.
• A student whose native language is not English must have obtained a minimum score of 550 on the TOEFL examination.
• An applicant must provide three letters of reference.
• A one or two-page letter of intent from the student describing his/her research and professional aspirations are required.
Students who do not meet the requirements, but have special qualifications or circumstances, may be admitted as provisional graduate students if approved by the Graduate Faculty Committee, division director, and doctoral program coordinator.

After a student is admitted into the doctoral program, the appropriate division director will appoint a major professor in the appropriate field of study. Doctoral students will conduct research in support of projects approved by the West Virginia Agricultural and Forestry Experiment Station (WVAFES) or externally funded grants. The major professor, in consultation with the student and the division director, will select a Graduate Committee within the first semester of study. The committee will consist of five or more members, the majority of whom must be WVU faculty, with at least one member representing a discipline outside the college. Each student and his or her committee will formulate a plan of study, which will be filed in the Office of the Associate Dean for Academic Affairs of the College. WVU regulations concerning committee membership will apply; that the chairman and at least two committee members must be regular members of the college's graduate faculty.

Core Courses

Doctoral students must satisfactorily complete a set of core courses before they will be admitted to candidacy for the Ph.D. degree. All core courses will be at the 600 or 700 level, except where indicated below. Certain course requirements may be waived if the student has received equivalent training in prior coursework. Additional coursework pertaining to the student’s area of specialization will be determined by the student’s major professor and Graduate Committee. Core courses for students in the doctoral program in agricultural sciences will be in the following areas.

- A minimum of six credit-hours of coursework must be completed in the biological or earth sciences (excluding courses within a student’s major field of study).
- A minimum of six credit-hours must be completed in biochemistry or advanced chemistry (400 level or above), depending on the student’s research concentration.
- A two-semester sequence (minimum of six credits) must be completed in graduate-level statistics, plus a course in experimental design or a two-semester sequence (minimum of six credits) must be completed in graduate-level statistics plus one semester (minimum of three credits) of computer science beyond the introductory level.
- One seminar must be presented during each year or part of year in residence. A final dissertation research seminar will be presented as a college or University-wide seminar.
- Oral and written comprehensive (qualifying) examinations will be administered by the student’s Graduate Committee before the end of the second year following admission to the program. Satisfactory completion of the comprehensive examinations and core course requirements will admit the student to candidacy for the Ph.D.

Each candidate for the Ph.D. will be expected to meet the following general requirements.

- A minimum of three semesters in residence.
- Successful completion of coursework requirements with a grade point average of 3.0 or higher.
- Successful completion of comprehensive examinations prepared and evaluated by the student’s Graduate Committee. Oral and written qualifying exams will be taken before the end of the second year following admission to the program.
- A dissertation, with the dissertation research applied toward an approved experiment station project or an approved independently funded research project.
- Successful oral defense of the dissertation.

Although not required, presentation of research results at meetings of a professional society and submission of manuscripts for publication are encouraged.
# Eberly College of Arts and Sciences

Rudolph P. Almasy, Ph.D., Interim Dean  
Joan S. Gorham, Ed.D., Associate Dean  
Katherine Karraker, Ph.D., Assistant Dean  
Fred L. King, Ph.D., Associate Dean  
Asuntina S. Levelle, J.D., Assistant Dean  
L. Christopher Plein, Ph.D., Assistant Dean  

http://www.as.wvu.edu/

## Degrees Offered

- Master of Science, Doctor of Philosophy in Biology  
- Master of Science, Doctor of Philosophy in Chemistry  
- Master of Arts, Doctor of Philosophy in Communication Studies  
- Master of Arts, Master of Fine Arts, Doctor of Philosophy in English  
- Master of Arts in Foreign Languages  
- Master of Science in Forensic Science  
- Master of Arts, Doctor of Philosophy in Geography  
- Master of Science, Doctor of Philosophy in Geology  
- Master of Arts in History and Public History, Doctor of Philosophy in History  
- Master of Arts in Liberal Studies  
- Master of Legal Studies  
- Master of Science, Doctor of Philosophy in Mathematics  
- Master of Science, Doctor of Philosophy in Physics  
- Master of Arts, Doctor Philosophy in Political Science  
- Master of Arts, Master of Science, Doctor of Philosophy in Psychology  
- Master of Public Administration  
- Master of Social Work  
- Master of Arts in Sociology and Anthropology  
- Master of Science in Statistics  

The Eberly College of Arts and Sciences, West Virginia University's largest college, has approximately 300 faculty in academic departments and program areas in literature and the humanities, social and behavioral sciences, and mathematics and natural sciences. The college supports 19 graduate programs, 11 of which include doctoral programs; its departments occupy 12 buildings on the Downtown campus. Many of the faculty enjoy distinguished national and international reputations and have been honored for excellence in teaching, research, and service. Their awards not only acknowledge extreme dedication but also accentuate the relationship between the faculty and the students. Graduate students often collaborate with faculty on specialized research projects which lead to publications in national and international journals. In 2009, the faculty of the college produced over 400 publications, delivered over 450 professional presentations, and received over 200 grants and contracts, over 100 professional association citations and academic honors. In recent years, arts and sciences faculty have generated over $12,000,000 annually in external support for research and instruction.

The Eberly College of Arts and Sciences offers doctoral programs in biology, chemistry, communication studies, English, geography, geology, history, mathematics, physics, political science, and psychology. Available research or teaching concentrations are as follows:

- Biology—ecology and evolutionary biology, forensic biology, genetics and genome biology, and neurobiology and endocrinology.  
- Chemistry—analytical, biological, inorganic, organic, and physical.  
- Communication studies—instructional, interpersonal, and organizational.  
- English—literature.  
- Geography—human geography, environmental geography, geographic information science.  
- Geology—energy geology, geophysics, hydrogeology, environmental geology.  
- History—United States (Appalachia), Europe, Africa, science, and technology.  
- Mathematics—selected areas of pure, applied, and discrete mathematics.
• Physics—condensed matter, applied physics, plasma physics, astrophysics, electro-
  optics, elementary particle physics, and radio astronomy.
• Political science—public policy analysis (domestic and international).
• Psychology—behavior analysis, developmental psychology, and clinical psychology.

Graduate programs leading to a master's degree are available in biology, chemistry, communication studies, English, foreign languages, forensic science, geography, geology, history, legal studies, liberal arts, mathematics, physics, psychology, public administration, social work, sociology and anthropology, and statistics. Each program prepares students for further study or for productive roles in professional environments. Information concerning graduate programs in the Eberly College of Arts and Sciences may be obtained by contacting the Associate Dean for Research and Graduate Studies, Eberly College of Arts and Sciences, 201 Woodburn Hall, West Virginia University, P.O. Box 6286, Morgantown, WV 26505-6286; telephone (304) 293-4611.

Graduate Faculty

* Indicates regular member of graduate faculty.
† Indicates associate member of graduate faculty.

**Biology**

Professors
Richard B. Thomas, Ph.D. (Clemson U.). Chair, Physiological plant ecology, Global environmental change.

Associate Professors
Jim Belanger, Ph.D. (U. Toronto). Neural basis of behavior; adaptive behavior; comparative physiology.

Assistant Professors
†Carina Barth, Ph.D. (Heinrich Heine U.) Molecular biology of plant defense signaling pathways.
†Kevin C. Daly, Ph.D. (U. of Az.). Psychophysics and neurophysiology of Manduca sexta.
†Sarah M. Farris, Ph.D. (U. of Ill.). Nervous system evolution and development, entomology.
Rita V. M. Rio, Ph.D. (Yale U.). Symbiosis; microbe interactions, Vector-borne diseases.
†Michelle D. Withers, Ph.D. (U. Az.). Biology education: scientific teaching.

**Clinical Associate Professor**

**Chemistry**

Professors
Charles Jaffe, Ph.D. (U. Colo.). Theoretical chemistry, Molecular and atomic physics, Nonlinear dynamics, Astrodynamics, Forensics.
Fred L. King, Ph.D. (U. Va). Associate Dean. Analytical chemistry, Mass spectrometry, Gas-phase ion chemistry.
Jeffrey L. Petersen, Ph.D. (U. Wisc.). Associate chairperson. Physical inorganic chemistry, Organo metallic chemistry, X-ray diffraction, Catalysis, Olefin polymerization.
Kenneth Showalter, Ph.D. (U. Colo.). C. Eugene Bennett Chair of Chemistry, Chemical kinetics, Multi-stability and oscillating systems.


Associate Professors
Ronald B. Smart, Ph.D. (U. Mich.). Environmental analytical chemistry, Electrochemistry, Trace metals.

Aaron Timperman, Ph.D. (U. Ill.). Development of microfluidic devices for proteomic analysis of cancer, Application of proteomics to marine chemistry and carbon cycling.

Assistant Professors
1Jonathan Boyd, Ph.D. (U. Tex.). Toxicology.
1Suzanne Bell, Ph.D. (U. New Mex.). Forensic chemistry, Chemometrics, Ion mobility spectrometry.
Michelle Richards-Babb, Ph.D. (Lehigh U.). General chemistry, Chemical education, Novel lab experiments.
1Xiaodong Shi, Ph.D. (U. Md.). Organic and bioorganic chemistry, Molecular recognition, Asymmetric catalysis.

Communication Studies

Professors
Joan S. Gorham, Ph.D. (Northern Ill. U.). Associate dean. Instructional, intercultural, and mass media.
Matthew M. Martin, Ph.D. (Kent St.). Chairperson. Interpersonal, Instructional, Communication traits.

Associate Professors
Theodore A. Avtgis, Ph.D. (Kent St.). Interpersonal, organizational, family, and personality communication.
Maria Brann, Ph.D. (U. of Ky.). Health, Interpersonal and qualitative research methods.
Scott A. Myers, Ph.D. (Kent St.). Group, Instructional, and interpersonal communication.
Brian R. Patterson, Ph.D. (Okla. U.). Developmental communications, Communication theory.

Assistant Professors
Christy Rittenour, Ph.D. (U. Neb.). Family, Life-span, Interpersonal.

English

Professors
Dennis Allen, Ph.D. (U. Minn.). Critical theory, Prose fiction, Popular culture.
Rudolph P. Almsy, Ph.D. (U. Minn.). Renaissance and Reformation studies.
Laura Brady, Ph.D. (U. Minn.). Composition and rhetorical theory, Women’s studies.
Donald Hall, Ph.D. (U. Md.). Victorian literature, Gender theory, Professional studies.
Kevin Oderman, Ph.D. (U. Calif.). American poetry, American literature, Creative writing: essay.
Timothy Sweet, Ph.D. (U. Minn.). American studies (17th-19th century), Literature and environment, Native American literature.

Associate Professors
Anna Shannon Efflenbein, Ph.D. (U. Neb.). American literature, Women’s studies, Film.
1Lara Farina, Ph.D. (Fordham U.). Medieval literature and culture, Gender studies.

Eberly College of Arts and Sciences

Catherine Gouge, Ph.D. (WVU). Professional writing, New media studies, Distance learning.


**Assistant Professors**

Brian Ballentine, Ph.D. (Case Western U.). Technical and professional writing, digital literacy.


Ryann Claycomb, Ph.D. (U. Md.). 20th-century British literature, Modern and contemporary drama, Gender studies.

Jay Dolmage, Ph.D. (Miami U.). Composition and rhetoric, Disability studies.


Singh-Corcoran, Nathalie, Ph.D. (U. Az.). Writing center theory and practice, Writing assessment.

Scott Wible, Ph.D. (Penn. St. U.). Professional and technical writing, Composition and rhetoric.

**Foreign Languages**

**Professors**


**Associate Professors**


Cynthia Chalupa, Ph.D. (Ohio St. U.). German. 19th- and 20th-century German literature, Poetry, Foreign language pedagogy.


Deborah Janson, Ph.D. (U. Ca.). German. Enlightenment, Romanticism, GDR and post-Wende literature, Ecofeminism.


Johan Seynnaeve, Ph.D. (Cornell U.). General linguistics, Sociolinguistics, Phonology, Medieval linguistics.


**Assistant Professors**


Tanja De Miguel Magro, Ph. D. (SUNY - Stony Brook). Spanish Golden Age literature.


Michael Ennis, Ph.D. (Duke U.) Latin American literature and culture, Mesoamerican civilizations.


Jennifer Orlikoff, Ph.D. (Rutgers U). French language and literature.
Catalina Mendez Vallejo, Ph.D. (Ind. U). General linguistics and Hispanic linguistics.

Geology and Geography

Professors

†Timothy R. Carr, Ph.D. (U. Wisc.). Energy geology.
†Trevor M. Harris, Ph.D. (U. Hull). Chairperson. Eberly Professor. GISc, Virtual Reality and GIS. Participatory GIS, Humanities GIS.
†Randall Jackson, Ph.D. (U. of Ill. — Urbana). Director Regional Research Institute. Economic geography, Regional economic geography, Regional economic health and performance, Regional science.
†Kenneth C. Martis, Ph.D. (U. Mich.). Political geography, Historical geography.
Ann M. Oberhauser, Ph.D. (Clark U.). Director of Women’s Studies. Economic geography, Regional development, Gender geography, Political economy, Appalachia.
†John J. Rentn, Ph.D. (WVU). Geochemistry.
†Timothy A. Warner, Ph.D. (Purdue U.). Associate Chair. Remote sensing.
†Thomas H. Wilson, Ph.D. (WVU). Geophysics.

Associate Professors

†Amy Hessl, Ph.D. (U. Az.). Biogeography, Forest ecosystems.
†J. Steven Kite, Ph.D. (U. Wisc.). Quaternary studies, Geomorphology, Stream restoration, Geoarchaeology.
†Helen Lang, Ph.D. (U. Ore.). Associate Chair. Metamorphic and igneous petrology and mineralogy.
†Jamie Toro, Ph.D. (Stanford). Structural geology.

Assistant Professors

†Jamison Conley, Ph.D. (Penn. St. U.). GISc, Geocomputation, Medical geography.
†Karen Culcasi, Ph.D. (Syracuse U.). Geopolitics, Identity, Middle East, Cartography.
†Dorothy Vesper, Ph.D. (Penn. St. U.). Geochemistry and hydrogeology.
†Bradley Wilson, Ph.D. (Rutgers). Social movements, Globalization, Environmental justice, Latin America.

Research Assistant Professor

Rick Landenberger, PhD. (WVU). Remote sensing, Educational outreach.

Teaching Assistant Professor

Joseph Lebold, Ph.D. (WVU). Paleontology, Geology of WV.

History

Professors

Robert E. Blobaum, Ph.D. (U. Neb.). Eberly Family Professor, Modern Central and Eastern Europe.
Peter Carmichael, Ph.D. (Penn. St. U.). Eberly Family Professor of Civil War Studies.
Jack Hammersmith, Ph.D. (U. Va.). East Asia, Recent U.S., American diplomatic.

Associate Professors

Katherine Aaslestad, Ph.D. (U. Ill.). Modern Europe, Germany, Cultural.
Joseph Hodge Ph.D. (Queen’s, Can.).
Matthew A. Vester, Ph.D. (U.C.L.A.). Early modern Europe, Italy.

Assistant Professors

Joshua Arthurs, Ph.D. (Chi.). Modern Europe, Italy, Cultural.
Melissa Bingmann, Ph.D. (Ariz. St.). Public history, Twentieth century U.S.
Brian Luskey, Ph.D. (Emory). Early Republic U.S., Urban, Gender.

Mathematics
Professors
5John Goldwasser, Ph.D. (U. Wisc.). Combinatorics, Graph theory.
6Wathiq Haddad, Ph.D. (U. Wisc.). Fluid mechanics, Continuum mechanics.
8Hartmut Hattori, Ph.D. (RPI). Differential equations, Continuum mechanics.
9Pawel Prałat, Ph.D. (Adam Mickiewicz U.). Combinatorics, Graph theory.

Associate Professors
*Marjorie Darrah, Ph.D. (WVU). Graph theory, Discrete mathematics, Mathematics education.
10Edgar Fuller, Ph.D. (Ga.). Geometric knot theory. Mathematics education

Assistant Professors

Philosophy
Professors
Ralph W. Clark, Ph.D. (U. Colo.). Ethics, Business ethics, Metaphysics.
Mark R. Wicclair, Ph.D. (Columbia U.). Philosophy of law, Medical ethics, Ethics.

Associate Professors
Richard A. Montgomery, Ph.D. (U. Ill.—Chicago). Philosophy of mind/cognitive science, Philosophy of science.
Sharon Ryan, Ph.D.

Assistant Professors
Faith Bjelobok, Ph.D.
Matthew Talbert, Ph.D.

Physics
Professors
Wathiq Abdul-Razzaq, Ph.D. (U. Ill., Chicago Circle). Solid state physics, Experiment.
Martin V. Ferer, Ph.D. (U. Ill.). Phase transitions and critical phenomena, Theory.
Larry E. Halliburton, Ph.D. (U. Mo.). Solid state physics, Experiment.

**Associate Professor**


**Assistant Professors**


**Research Professor**

Vladimir Demidov, Ph.D. (Saint Petersburg St. U.). Plasma physics and plasma chemistry.

**Research Assistant Professors**


**Political Science**

**Professors**


**Associate Professors**


**Assistant Professors**


**Psychology**

**Professors**

2Daniel W. McNeil, Ph.D. (U. of Ala.). Eberly Family Professor. Experimental psychopathology, Anxiety, Pain, 
3Behavioral dentistry and Behavioral medicine, Cross-cultural issues, Clinical research training.
4Tracy L. Morris, Ph.D. (U. Miss.). Eberly Distinguished Professor. Social anxiety, Social behavior, Influence 
5of parenting and peer relationships..
6Michael Perone, Ph.D. (U. Wisc., Milwaukee). Chairperson. Experimental analysis of positive and nega-
7tive reinforcement, Translational research, Experimental methodology, Experimental analysis of verbal 
8behavior, Research methodology.
10Joseph R. Scotti, Ph.D. (SUNY Binghamton). Professor. Post traumatic stress disorder in children and 
11adults, Disaster and emergency response, Standards of practice.
12JoNell Stough, Ph.D. (U. Utah). Lifespan development, Social problem solving, Heuristics and biases in 
13decision making, Gender development.

**Associate Professors**

4B. Kent Parker, Ph.D. (U. Utah). Emeritus.
5Julie Hicks Patrick, Ph.D. (U. of Akron). Decision-making. Care giving issues related to chronic mental 
6illness and retardation, Non-traditional family constellations.

**Assistant Professors**

1Amy Fiske, Ph.D. (U. So. Ca.). Depression and suicidal behavior in late life.
2Amy Gentzler, Ph.D. (Kent St. U.). Investigation of emotional experiences and the regulation of emotions.
3Lisa Kemmerer, Ph.D. (I. Iowa). Reinforcement, MAND Preference, Functional Communication Therapy 
(FCT).
5Elizabeth Kyonka, Ph.D. (U. Canterbury). Quantitative analysis of behavior, Mechanisms of choice, Tem-
6poral control, and decision making, Behavior dynamics.
7Aaron Metzger, Ph.D. (U. Rochester). Adolescent civic and political development, Adolescent/parent 
communication and adolescent information management.
8Hawley Montgomery-Downs, Ph.D. (U. Conn.). Developmental psychobiology of sleep and sleep disorders, 
9with emphasis on factors that influence development of pediatric sleep-disordered breathing and 
maternal and paternal postpartum sleep disturbance.
10Claire St. Peter Pipkin, Ph.D. (U. of Fla.). Assessment and treatment of severe problem behavior, caregiver 
training, treatment integrity failures, reinforcement history, and translational research methods.

**Public Administration**

**Professor**

1Gerald M. Pops, Ph.D. (Syracuse U.), J.D. (U. Ca.). Personnel, Public law.

**Associate Professor**

1L. Christopher Plein, Ph.D. (U. Mo.). Chairperson and Eberly Professor of Outstanding Public Service. 
Public policy, Legal and political foundations.

**Assistant Professors**

Nancy Adams, Ph.D. (Fielding). Healthcare administration, Organizational development.
Adam Douglas Henry, Ph.D. (U. of , Davis). Research methods, Network analysis, Environmental policy, 
and Sustainability science.
1Maja Husar Holmes, Ph.D. (Syracuse). Public management theory and practice, Collaborative govern-
2nance, Leadership.
Karen Kunz, DPA (U. of Ill. – Springfield). Public budgeting and financial management.
Margaret Stout, Ph.D. (Az. St. U). Local and community governance, Public administration theory 
and ethics.

**Social Work**

**Professors**

Karen V. Harper-Dorton, Ph.D. (Ohio St. U.). Professor and Chair, Title IV-E Project in Child Welfare, Rural 
Social Work, Social administration.
Nancy Lohmann, Ph.D. (Brandeis U.). Professor. Social administration, Research measurement.
Roger A. Lohmann, Ph.D. (Brandeis U.). Professor. Nonprofit management, Rural social services, Social 
policy.

**Associate Professors**

Linda Ferrise, M.S.W. (WVU). Clinical Associate Professor. Baccalaureate Program Director. Clinical 
practice, Community mental health.
Kristina Hash, Ph.D. (Va. Commonwealth U.). Associate Professor. Aging, Family care giving, Gay and 
lesbian issues.
Barry L. Locke, Ed.D. (WVU). Associate Professor. Social work in rural areas, Generalist practice, Program 
development.

Elizabeth Randall, Ph.D. (U. of Ga.). Associate Professor. Clinical practice, Mental health.

Leslie Tower, Ph.D. (Barry U.). Associate Professor. Domestic violence, Women's issues, Health care administration.

Michael Zakour, Ph.D. (Wash. U.). Associate Professor and Associate Director, Nova Institute. Organizations and communities, non-profit management, Disaster response.

**Assistant Professors**


Steve Hardin, M.S.W. (U of S. Ca.) Teaching Assistant Professor, Clinical practice, Mental health.


Emily Mocave, Ph.D. (U. of Kan.) Research LGBT.

Doris Nicholas, Ed.D. (WVU), Teaching Assistant Professor. Coordinator of recruitment and retention.

Social work in health care, AIDS, HIV, Multicultural practice.

Carrie Rishel, Ph.D. (U. Pitt.). Child mental health, Program evaluation.

Meenakshi Venkataraman, Ph.D. (U. Ill.), Assistant Professor. Mental health.

**Instructors and Faculty Equivalents**


Rebekah Bledsoe, M.S.W. (WVU). Research Associate. Title IV-E, Child welfare.


Amy Hampton, M.S.W. (U of Md.). Coordinator, Martinsburg MSW site, Child welfare.


Debra Young, M.S.W. (WVU). Teaching Instructor, Community organization and social administration.

**Emeritus Faculty**

Marjorie H. Buckholz-Cleveland, Ph.D. (WVU).

Caroline T. Mudd, M.S.W. (U. of Pa.).

Robert A. Porter, Ph.D. (Brandeis U.).

Victor L. Schneider, Ph.D. (U. Mich.).


**Sociology and Anthropology**

**Professors**


**Associate Professors**


1James Nolan, Ph.D. (Temple U.). Sociology. Criminology, Criminal justice system.


Rachel Woldoff, Ph.D. (Ohio St.). Sociology. Urban society, Crime and community, Research methods, Race relations.

**Assistant Professors**

Corey Colyer, Ph.D. (Syracuse U.). Sociology. Criminal justice system(s), The sociology of knowledge, Qualitative methods.


Karen Weiss, Ph.D. (Suny Stony Brook). Sociology. Criminology, Victimization, Gender, Culture.

Clinical Assistant Processor
Jennifer Steele, Ph.D. (Penn St.). Rural sociology. Natural resource sociology; Rural community and economic development.

Teaching Assistant Professor
Adam Dasari, Ph.D. (Ok. St.). Sociology. Sociological theory, Social Inequality, Race and ethnicity, Globalization and development, Environmental sociology, Sociology of culture.

Statistics
Professors
1Erdogan Gunel, Ph.D. (SUNY—Buffalo). Bayesian inference, Biostatistics, Categorical data analysis.
William V. Thayne, Ph.D. (U. Ill.). Emeritus. Experimental design, Statistical genetics, Regression analysis.

Adjunct Professor
Michael Andrew, Ph.D. (U. Wy.). Epidemiological analysis, Statistical modeling, Time series analysis.

Associate Professors

Assistant Professors
Yao Li, Ph.D. (U. of Fla.). Statistical genetics, Bioinformatics, Systems biology, Longitudinal data analysis, Functional data analysis.

Clinical Assistant Professor

Adjunct Assistant Professors

Women's Studies
Professors
1Ann M. Oberhauser, Ph.D. (Clark U.). Feminist geography, Appalachia, Globalization and development.

Associate Professor
Gwen Bergner, Ph.D.

Assistant Professor
J. Kasi Jackson, Ph.D. (U. of Ky.). Gender and science, Women's studies.

Adjunct Professors
W. Graeme Donovan, Ph.D. (Cornell).
Kathleen McNerney, Ph.D. (U. of N.M.).
Janice S. Spleth, Ph.D. (Rice U.).

Adjunct Assistant Professors
Shelly Barrick Parsons, Ph.D. (Union Theological Seminary and the Presbyterian Sch. of Christian Ed.).
Cynthia K. Stackpole, D.Min. (Wesley Theological Seminary).
Biology
Richard B. Thomas, Chairperson
3144 Life Sciences Building
http://www.as.wvu.edu/biology

Degrees Offered
Master of Science
Doctor of Philosophy

Nature of the Program
The Department of Biology's graduate program is dedicated to scholarship in academics and research. The objectives of the program are to empower students to: 1) recognize important biological problems; 2) design, execute, and analyze experiments aimed at solving important problems; and 3) communicate their findings in oral and written form. In addition, the program hopes to foster an awareness of the social and political issues of the day related to biology, and a desire to continue independent study after graduation. The Department of Biology offers graduate courses and research that lead to M.S. and Ph.D. degrees in biology. The focal areas of research in the graduate program are ecology and evolutionary biology (EEB), forensic biology (FB), genetics and genome biology (GGB), and neurobiology and endocrinology (NE).

Master of Science
Prerequisites and Requirements
Applicants for the master of science program in biology must show, at the minimum, the equivalent of a bachelor's degree from an accredited institution, an undergraduate grade point average of 3.0, a 40th percentile ranking for the verbal, quantitative, and analytical sections of the Graduate Record Examination, and an adequate science and mathematics background (normally one year of mathematics, one year of physics, and two years of chemistry). Certain international applicants must have a TOEFL score greater than 250 for the computer-based exam which is roughly equivalent to more than 600–603 for the paper-based test, and roughly equivalent to more than 100 for the internet-based test.

Applicants are requested to submit a one- to two-page essay describing past research experience and expectations for career goals. Three letters of recommendation from individuals familiar with the applicant’s academic performance are required as well as official transcripts from all colleges or universities attended. Prior to admission, a member of the faculty must agree to provisionally serve as the student's faculty advisor. The Department of Biology's Graduate Committee reviews the applicant's records and makes the admission decisions.

The WVU general requirements for the master of science are outlined elsewhere in the graduate catalog. Students in the biology M.S. program may apply up to six hours of research credit toward the 30-hour requirement; the remaining 24 hours of credit must be earned in graduate courses that reflect a diversified exposure to biology. The establishment of an Advisory Committee and the generation of a program of study are explained in detail in the department’s Graduate Student Handbook. A final oral examination is administered by the Advisory Committee after the program of study has been completed and the thesis has been submitted.

Doctor of Philosophy
Program
The program for the degree of doctor of philosophy reflects a flexible, research-oriented approach geared to develop the interests, capabilities, and potentials of mature students. Applicants must have met all the entrance requirements listed above for the master of science program, but a 50th percentile ranking or higher in the verbal quantitative and analytical section of the GRE is required. Acceptance into the Ph.D. program is by vote of the Graduate Committee of the Department of Biology. This committee ensures that all entrance requirements are met or that provisions have been made to remedy the deficiencies, and that facilities and personnel are adequate to support the program to a successful conclusion.

Each student admitted to the Ph.D. program works under the close supervision of a faculty research advisor and an Advisory Committee; details on the composition and establishment of an Advisory Committee are available in the department's Graduate Student Handbook. Students must have a program of study formulated and approved by the end of the second semester of entering the Ph.D. program; all deficiencies must have been removed earlier.
Significant deviations from an established program of study require approval from the Advisory Committee and the Graduate Committee.

**Examinations and Dissertation Proposal** The Advisory Committee is responsible for overseeing the progress of the student and for administering and judging performance in the required examinations; it ensures that all Department of Biology, Eberly College of Arts and Sciences, and University requirements are met during the course of the student’s program of study. The program of study outlines the coursework to be taken in support of the proposed research.

Students must successfully complete a preliminary exam and proposal exam before being promoted to candidacy for the Ph.D. The preliminary exam is given no later than the end of the third semester in residence. All doctoral students must also write and defend a research proposal (the proposal exam) no later than the end of the third semester in residence. **Candidacy** Successful passage of the preliminary examinations leads to promotion to candidacy. Once promotion to candidacy is awarded, doctoral students have no more than five years in which to complete the remaining degree requirements including their final examination. The final examination consists of the submission of a completed and acceptable written dissertation and an oral dissertation defense. A formal departmental seminar covering the dissertation research must be presented before graduation.

**Chemistry**
Terry Gullion, Chair
222 Clark Hall
Harry O. Finklea, Director of Graduate Studies
http://www.wvu.edu/~chemistry

**Degrees Offered**
- *Master of Science*
- *Doctor of Philosophy*

**Nature of the Program**
The Department of Chemistry offers graduate studies leading to the degrees of master of science and doctor of philosophy with research concentration in the areas of analytical, biological, inorganic, organic, and physical chemistry. The master of science and doctor of philosophy degrees require completion of a research project, which represents the principal component of the graduate program.

**Prerequisites**
Applicants for graduate studies in chemistry must have a bachelor’s degree as a minimum requirement. Applicants must have a major or concentration in chemistry and an appropriate background in physics and mathematics. All entering graduate students in chemistry are required to take departmental guidance examinations in the major areas of chemistry. These examinations, at the undergraduate level, are administered before registration and serve to guide the faculty in recommending a course program for the beginning graduate student. Deficiencies revealed by the departmental guidance examinations need to be corrected in a manner prescribed by the faculty.

**Thesis/Credits**
The WVU general requirements for the master of science degree are outlined elsewhere in this catalog. Graduate students in the M.S. program in chemistry are required to submit a research thesis. They may apply up to six hours of research credit toward the 30-hour requirement. The remaining 24 hours of credit must be earned in the basic graduate courses which reflect a diversified exposure to chemistry; no more than nine hours of 300- or 400-level chemistry courses may be included; no more than ten hours may be elected outside the department; and coursework taken at the 500- to 700-level must include at least three, three-credit-hour courses distributed in at least two areas outside the student’s major area of research. Students are required to enroll in the departmental seminar program and are required to attend special lectures and seminars offered by visiting scientists. A final oral examination is administered after completion and submission of the thesis.
Doctor of Philosophy

The program for the degree of doctor of philosophy reflects a flexible, research-oriented approach geared to develop the interests, capability, and potential of students. A program of courses is recommended to suit individual needs based on background and ability. These courses are classified as basic graduate courses which present the essentials of a given discipline on an advanced level, and specialized graduate courses that take one to the frontiers in a specific area of research. The course offerings are designed to provide guidelines from which students can launch their independent studies in preparation for candidacy examinations. Students are required to enroll in the departmental seminar program and are required to attend special lectures and seminars offered by visiting scientists. Graduate students in the Ph.D. program are required to satisfactorily complete a minimum of three courses (three credits each) at the 500–700 course level, offered by the Department of Chemistry and distributed in at least two areas outside their major area of research. In addition, each major area in chemistry requires students in that area to enroll in basic graduate courses presenting the essentials of that discipline on an advanced level.

Candidacy

Candidacy examinations contain written and oral portions. The written examinations are of the cumulative type, and are offered eight times a year. After notification of successful completion of the written cumulative exams, the student will present and defend an original research proposal. The proposal must demonstrate originality and independence on the part of the student. This proposal is presented in writing to the student’s Research Committee and defended before that group and any other interested faculty members.

Research

Research, which is the major theme of graduate studies, may be initiated as early as the student and faculty feel appropriate for the individual. Normally, a student will begin laboratory work no later than the second semester. Upon successful completion of an original piece of research, the candidate will present results in a Ph.D. dissertation and at the appropriate time defend the work in a final oral examination.

Communication Studies

Matthew M. Martin, Chair
108 Armstrong Hall
http://communicationstudies.wvu.edu/

Degrees Offered

Master of Arts
Doctor of Philosophy

Nature of the Program

The Department of Communication Studies offers work leading to the degree of master of arts, with a concentration in communication theory and research. Persons who possess a bachelor’s degree from an accredited college or university may be admitted to the program. Qualified graduate students from a variety of disciplines are admitted to the program. The master of arts degree program is intended to qualify the student to:

• Assume a variety of professional roles in educational, industrial, governmental, or media institutions.
• Teach the subject matter in high school and/or college.
• Undertake advanced training toward a doctorate in the behavioral/social sciences.

Requirements

In addition to the general WVU requirements, the graduate student in communication studies must meet departmental requirements. These include successful completion of the minimum number of required graduate hours as set forth in Program A, B, or C, listed below with a grade of B or above in each class and the maintenance of a minimum grade point average of 3.0. Classes graded P, S, or marked CR may not be counted toward a degree.
Program A
Applicants for admission must specify the program they wish to pursue. Program A is open only to full-time students. Programs B and C are open to both part-time and full-time students.

All students planning to continue graduate study past the M.A. level are encouraged to enter program A. The following are required:
- At least 36 hours of graduate credit, 30 of which must be in the Department of Communication Studies. A maximum of six hours of thesis credit will be allowed.
- Completion of COMM 700 and 701.
- A thesis.
- An oral examination on the thesis.

Program B
All students planning a professional career in a field other than education are encouraged to enter this program. This is normally a terminal degree program in communication studies.

The following are required:
- A minimum of 36 hours of coursework with at least 30 hours in the Department of Communication Studies.
- Successful completion of written and oral comprehensive examinations. The oral examination may be waived with the approval of the student’s Examination Committee and the departmental coordinator of graduate studies.

Program C
All students planning a professional career in elementary or secondary education are encouraged to enter this program. This is normally a terminal degree program in communication studies. Students may complete this program through off-campus study, on-campus study, or a combination.

The following are required:
- A minimum of 36 hours of coursework with at least 30 hours in the Department of Communication Studies including COMM 600 and 616.
- Successful completion of written and oral comprehensive examinations. The oral examination may be waived with the approval of the student’s Examination Committee and the departmental coordinator of graduate studies.

Doctor of Philosophy
The Ph.D. program in Communication Studies is a 54 hour program (including dissertation hours) which affords students the opportunity to focus on three domains of communication: instructional communication, interpersonal communication, and organizational communication. Students will be awarded the Ph.D. upon completing 54 graduate credit hours, passing comprehensive exams; writing a dissertation proposal; and writing and defending a dissertation. Students are required to take:
1. Twelve hours of required courses: COMM 600, COMM 602, COMM 606, and COMM 700.
2. Nine hours of core COMM courses at the 700 level, this may include COMM 702, COMM 706, and COMM 719.
3. Six hours of research methods beyond COMM 701.
4. Nine hours of additional COMM courses.
5. Eighteen hours of dissertation research (i.e., COMM 797). A GPA of 3.0 is required for graduation and any grade lower than B does not count toward the 54 hours. Students who receive more than six hours of C may not be permitted to remain in the program.

Upon admission to the program, students are advised by the coordinator of On-Campus Graduate Studies. Working with the coordinator, students devise their schedule for their first semester. During the first semester, in conjunction with the coordinator, students select an advisor. This advisor serves as the chair of each student’s comprehensive examination and dissertation committees. Working with their advisor, students then select four other committee members, at least one of which, but no more than two, must be graduate faculty members external to the Department of Communication Studies.
Upon completion of the 36 hours of coursework, students take a comprehensive examination. The comprehensive examination consists of three sections on which students will be tested: one of the three domains of communication emphasis (i.e., instructional, interpersonal, and organizational), one domain of communication selected by the student and quantitative research methods. The written examination will be followed by an oral examination approximately one week later.

Once the written and oral comprehensive examinations have been successfully defended (as determined by the committee), students write a dissertation proposal and submit the proposal to their committee. Once the proposal has been approved, students write and defend their dissertation. The dissertation defense is open to the public.

Applying for Admission to the Program
To apply for admission to the Ph.D. program, applicants must submit the following materials:

1. The application for admission to graduate school at West Virginia University.
2. Scores on the Graduate Record Examination (GRE). Applicants should have a minimum combined score of 1,000 on the verbal and quantitative components of the GRE and a minimum score of 4.0 on the analytical component of the GRE. Scores should not be older than five years at the time of application.
3. Scores on the Test of English as a Foreign Language Examination (TOEFL) (for international students only whose native language is not English). Scores will be accepted from any of three versions (i.e., Internet-based test, computer-based test, paper-based test). Applicants should score in the 90th percentile of the test version taken.
4. All official undergraduate and graduate transcripts. Transcripts must be mailed directly from the registrar of the college and/or university attended. Applicants should have a minimum undergraduate GPA of 2.75 and a minimum graduate GPA of 3.30.
5. A vita. The vita should include all formal education, any teaching or professional work experience, and any research projects conducted to date.
6. A statement of interest. The statement of interest is a three- to four-page, typed document in which applicants identify (1) their reasons for pursuing a Ph.D. in communication studies, (2) their reasons for wanting to attain their Ph.D. degree in communication studies at West Virginia University, (3) their research interests and how these interests correspond with the research conducted by the department faculty, (4) the faculty members whose research interests are most closely aligned with their own educational and career goals, and (5) why attaining the Ph.D. degree in communication studies specifically from West Virginia University is vital to the achievement of their career goals.
7. Three letters of recommendation from individuals familiar with the applicant’s academic progress and potential. These letters of recommendation should address whether the applicant has the ability to succeed in the Ph.D. program in communication studies at West Virginia University as both a Ph.D. student and as a graduate teaching assistant.
8. A sole-authored sample of scholarly writing completed in the applicant’s M.A. program. This sample can be a course paper, a convention paper, a thesis or major project, or a journal article.
9. Any additional supporting evidence. This evidence can include, but is not limited to, awards received for outstanding research, teaching, or academic endeavors; a convention paper or journal article of which the applicant is a co-author; a newspaper or magazine article; or teaching evaluations.

The transcripts, vita, statement of interest, recommendation letters, scholarly writing example, and supporting evidence should be mailed directly to the On-Campus Graduate Coordinator, Department of Communication Studies, P.O. Box 6293, West Virginia University, Morgantown, WV 26506-6293.
English
Donald Hall, Chair
Dennis Allen, Ph.D., Supervisor
John Lamb, M.A., Supervisor
Mark Brazaitis, M.F.A., Supervisor
Brian Ballentine, M.A., P.W.E., Supervisor, Colson Hall
http://english.wvu.edu/

Degrees Offered
  Master of Arts
  Master of Arts in Professional Writing and Editing
  Master of Fine Arts
  Doctor of Philosophy

Master of Arts
Admission
To be admitted to the Department of English as prospective candidates for the degree of master of arts, students are expected to have completed work comparable to the department’s undergraduate requirement for English majors (but with records distinctly above the average), and to present as part of their applications their scores on the verbal and analytic sections of the Graduate Record Examination General Aptitude Test and, if nonnative speakers of English, their TOEFL scores. Past experience has shown that successful graduate students usually score at least the 60th percentile on the verbal section of the GRE. Students also must provide three letters of reference and a sample of their academic writing.

Non-thesis Option
Course Requirements
  M.A. candidates selecting the non-thesis option must successfully complete 30 hours of coursework in English, according to the following distribution and breadth requirements, and must fulfill the foreign language requirement. Students may take three hours of coursework in another department, subject to the approval of the Graduate Program Committee.

Distribution Requirements
ENGL 609 College Composition Pedagogy (required of all graduate teaching assistants in their first semester in residence; students who do not hold an assistantship will substitute three additional hours of elective).
Foundation course: either ENGL 680 Introduction to Literary Research or ENGL 682 Recent Literary Criticism.
Electives: 18 hours of 600-level courses or 700-level seminars in English (excluding ENGL 790 Teaching Practicum). A maximum of three hours of Independent Study (ENGL 695 or 795) may be counted toward the elective hours.
Seminars: six hours of 700-level seminars (excluding ENGL 790 Teaching Practicum).

Breadth Requirements
At least one course from among the electives and seminars must be substantially devoted to pre-1800 texts; at least one must be substantially devoted to post-1800 texts. At least one course must be in American literature; at least one must be in British literature.

Thesis Option
Course Requirements
  M.A. candidates selecting the non-thesis option must successfully complete 30 hours of coursework in English, according to the following distribution and breadth requirements, and must fulfill the foreign language requirement. Students may take three hours of coursework in other departments subject to the approval of Graduate Program Committee.
Distribution Requirements

ENGL 609 College Composition Pedagogy (required of all graduate teaching assistants in their first semester in residence; students who do not hold an assistantship will substitute three additional hours of elective).

Foundation course: either ENGL 680 Introduction to Literary Research or ENGL 682 Recent Literary Criticism.

Electives: 12 hours of 600-level courses or 700-level seminars in English (excluding ENGL 790 Teaching Practicum). A maximum of three hours of Independent Study (ENGL 695 or 795) may be counted toward the elective hours.

Seminars: six hours of 700-level seminars (excluding ENGL 790 Teaching Practicum).

Thesis: six hours of ENGL 698 Thesis.

Breadth Requirements

At least one course from among the electives and seminars must be substantially devoted to pre-1800 texts; at least one must be substantially devoted to post-1800 texts. At least one course must be in American literature; at least one must be in British literature.

Foreign Language Requirement

The foreign language requirement for the M.A. is satisfied by successfully completing (receiving an A or B in the last course) a second-year level of foreign language study at an accredited college or university (or its international equivalent) within the last five years; or by passing (with a B or better) the examination administered by the Department of Foreign Languages for “credit by exam” for the fourth semester course of a language sequence. Exams are available in French, German, Spanish, or Latin.

Master of Arts in Professional Writing and Editing

Admission Prospective candidates for admission are expected to have completed an undergraduate degree in English or an allied field with a record distinctly above average or to have at least two years’ work experience in writing and editing. Applications must be supported by a portfolio of written work and three letters of recommendation. The GRE analytical writing test, taken within the last five years, is recommended; successful candidates will typically present a score of five or above. The program recognizes, however, that not all potentially excellent graduate students fit this profile and welcomes applications from individuals who can make a strong case that they will succeed. Non-native English speakers must present TOEFL scores of at least 600 for the written exam or equivalent scores for the online version.

Course Requirements

The M.A. in PWE requires 30 hours of coursework distributed in four areas: foundations of professional writing and editing (9 hours); electives in professional writing and editing (6 hours); general distribution (9–12 hours); and practical experience (3–6 hours). Students must work with an advisor to file an approved plan of study by the end of their first semester of study. Students may choose either the thesis or the non-thesis option (see below under Practical Experience).

Foundations of Professional Writing and Editing (9 hours): The following three classes are required of every student: ENGL 601 Studies in Composition and Rhetoric, ENGL 602 Editing, and ENGL 605 Professional Writing Theory. Plus 6 hours of electives in professional writing and editing. In consultation with the advisor, students will individualize their plan of study by choosing two 600-level courses that develop a specific focus within the general field of professional writing and editing.

General Distribution (9–12 hours) Students must complete 9–12 hours of general English studies. Courses will include literature, writing, and/or linguistics courses offered by the Department of English and chosen in consultation with the advisor. General distribution hours may often include requirements dictated by graduate teaching status, prior coursework, and departmental guidelines. Students may not use the same course(s) to fulfill the general distribution and professional writing electives requirements.

Practical Experience (3–6 hours) Students must choose one of the following two summative experiences: ENGL 610 Professional Writing Internship (3 hours), ENGL 698 Thesis (6 hours). The directed study option is a workplace internship. The thesis option is recommended for students who anticipate advanced study at the doctoral level.
Master of Fine Arts

Admission Prospective candidates for the degree of master of fine arts are normally expected to have completed a bachelor’s degree in English. Admission to the program is based primarily on the excellence of a substantial writing sample in fiction, nonfiction, or poetry (10 to 20 pages of poetry; 20 to 30 pages of prose). Also required are Graduate Record Examination scores, three letters of recommendation, and a personal statement. Non-native speakers of English must present TOEFL scores. Past experience has shown that successful graduate students usually score above the 60th percentile on the verbal section of the GRE.

Course Requirements and Thesis M.F.A. students must successfully complete 45 hours, distributed as follows: 15 hours of creative writing workshops (including one workshop in another genre); 12 hours of graduate-level English courses (non-creative writing); three hours of creative writing pedagogy; nine thesis hours; and six hours to be determined in consultation with the creative writing faculty. Only classes passed with a grade of B or better count toward the degree. The student is required to submit a book-length manuscript (ideally 48 pages in poetry, 150 pages in fiction), suitable for publication on its own, that has been approved by a thesis advisor and two additional thesis committee members. Final approval is granted following an oral defense of the thesis. The core of the program is the workshop, where students submit their own writing for discussion and critique. This writing will make up the bulk of the thesis, which will be completed under the close supervision of the thesis advisor and two additional Thesis Committee members. The non-creative writing courses will be the same as those taken by Ph.D. and M.A. students. There is no foreign language requirement.

Doctor of Philosophy

Admission Applicants for admission to the program will be judged on the bases of academic record, three recommendations from former teachers, a statement of purpose outlining their academic and professional goals, a sample of their academic writing, and Graduate Record Examination General Aptitude Test scores. Nonnative speakers of English must also present their TOEFL scores.

Course Requirements and Examinations During the first year in residence, students must enroll in ENGL 799 Graduate Colloquium and pass the preliminary qualifying examination. Thirty hours of coursework must be taken prior to the examination for formal admission to candidacy. Of these 30 hours, nine hours must be in 700-level seminars, one of which must be ENGL 782 Current Directions in Literary Study. All doctoral candidates must take ENGL 680 Introduction to Literary Research and ENGL 609 College Composition Pedagogy unless they have previously taken equivalent courses. A maximum of six hours of ENGL 695 and 795 Independent Study can be counted toward the 30 hours of coursework. Students are required to teach one three-hour composition course and one three-hour literature course while in residence and to register concurrently for ENGL 790 Teaching Practicum; this requirement may be waived pending departmental approval for candidates who have substantial prior teaching experience. ENGL 790 does not count toward the 30 required hours of coursework. Students may take up to 12 hours of coursework in another department, subject to the approval of the Graduate Program Committee.

Language Requirement The foreign language requirement is the same as for the M.A. program and must be completed prior to taking the examination for formal admission to candidacy.

Doctoral Dissertation After completing coursework, passing the examination for formal admission to candidacy, and fulfilling the language and teaching requirements, the student, under the direction of the Dissertation Committee chairperson, writes a prospectus of the final project. The prospectus must be approved by the Dissertation Committee. The dissertation, meant to be an original contribution to scholarship in its field, should be able to be completed in one year. The final examination (oral defense of the dissertation) is open to the public.
Foreign Languages
Ángel T. Tuninetti, Chair
205-B Chitwood Hall
Sandra Stjepanovic, Graduate Coordinator
318 Chitwood Hall
http://forlang.wvu.edu

Degree Offered
Master of Arts

Nature of the Program
The Department of Foreign Languages offers the degree of master of arts with emphasis in the following areas: French, Spanish, linguistics, and teaching English as a second language (TESOL). Students also have the option of combining two of these areas for their degree. The master’s degree is intended for those students who seek more specialized knowledge in order to teach in their chosen area, as well as for students who plan to prepare for doctoral studies or other professional employment. The graduate program in foreign languages offers courses in language teaching methodology and applied linguistics as well as in theoretical linguistics, literary criticism, literature, and culture. Students also have the opportunity to engage in research projects that reflect their interests within a given subject and that serve to complement and augment the information imparted through in-class activities.

There is a limited number of graduate teaching assistantships (primarily in ESL, French, German, Italian, and Spanish, and occasionally in Chinese, Japanese, linguistics, Russian, and Arabic) available to help defray the cost of graduate study. The assistantships carry full tuition remission and a nine-month stipend (August–May); there are also limited opportunities to teach during the University’s summer session. Assistantships are awarded annually to those students who have demonstrated potential to become effective teachers.

In addition to graduate teaching assistantships a limited number of meritorious tuition waiver awards are sometimes available from the Eberly College of Arts and Sciences through the Department of Foreign Languages. These awards are based on academic performance and financial need. (Recipients of tuition awards who will be enrolling for fewer hours than those paid for in their award must notify the department immediately. Failure to do so will result in disqualification for future tuition waivers.)

Admission Information
To be admitted to the graduate program, a student is expected to have an undergraduate degree in the desired area of study (or an acceptable related area) with a GPA of 3.0 (overall as well as within the major). The student must complete the University admission application, including payment of the required fee, and the departmental application form, which includes a 300-word statement of purpose. The student must also arrange for three letters of recommendation to be sent to the department.

In addition to the above, the department requires that all applicants submit an extended writing sample in the language to which they are applying.

• For students applying to French and Spanish, this document should be an essay or other composition done for a course in the student’s undergraduate major.
• The department recognizes that few undergraduates may have the opportunity to major in linguistics and TESOL; those students may submit an essay or other composition, written in English, done for a course during their undergraduate studies.
• Students applying for a combined degree must submit a writing sample for their primary area.
• Those students whose undergraduate studies were completed over five years prior to their application to the department may submit (with the permission of the department) another, more recent, writing sample.

All international students whose native language is not English must demonstrate proficiency in English by scoring a minimum of 550 on the paper version, 217 on the computer version, or 79 on the Internet version of the TOEFL Test in order to be admitted to the university. Note: international students whose native language is not English applying to study TESOL must score a minimum of 580 on the paper version, 237 on the computer version, or 92 on the Internet version of the TOEFL test in order to concentrate in that area of study.
To be considered for a graduate teaching assistantship (GTA), students must complete the GTA Application Form and submit a recording on a CD or a tape in the language for which they are applying. In addition, they must have three letters of recommendation forwarded by the writers to the Department of Foreign Languages. Note: consideration for an assistantship is contingent upon admission to the graduate program. International students whose native language is not English and who are seeking a graduate teaching assistantship must present a minimum SPEAK test score of 50. Those who are seeking to teach English as a Second Language in the Intensive English Program must present a minimum TOEFL score of 600 (paper version)/250 (computer version)/100 (Internet version), and a minimum SPEAK test score of 60.

All necessary forms may be obtained from the Department of Foreign Languages. No applications will be processed until the file is complete.

General Information
Advising All graduate students will have a primary advisor (to be assigned by the chairperson). Students should consult with their advisor when they register for, or need to add or drop courses. In addition, the graduate program coordinator is available to answer questions regarding the degree program, requirements, comprehensive examinations, graduation, etc. Students may consult with the chairperson regarding departmental matters.

International Students An F-1 student visa is required for study in the U.S. This form must be obtained in the student’s home country with an I-20 form from the WVU Office of Admissions. The I-20 will be sent by admissions to the student’s home address once all academic, English proficiency, and financial requirements have been satisfied.

International students studying in the department on an F-1 visa should remember that they are required to carry a minimum course load of nine hours each semester (excluding the summer) in order to maintain their legal status for their visa. International students, who may be forced to withdraw from a course and thus fall below nine hours in any semester, must first check with the department chair and the Office of International Students and Scholars in E. Moore Hall. Exceptions may be possible in the student’s final semester of study.

Students graduating from the program who wish to receive an optional Practical Training Visa should apply for it four to five months before the initial work date, which must be within 60 days of the date of graduation. See the Office of International Students and Scholars for the necessary application papers and any possible changes in policy.

Academic Requirements for Graduation
Students must meet all University and college requirements as outlined in the WVU Graduate Catalog as well as the specific departmental requirements described below.

General
• A minimum of 36 credit hours at the graduate level, of which 30 hours of coursework must be taken within the department. No more than 12 hours of coursework done at the 400 level will be counted toward the degree.
• No more than three hours of independent study will be applied to the degree, unless approved by the departmental chairperson. Note: independent studies will be permitted only in special circumstances; in most instances students must enroll in the regularly scheduled courses.
• No courses for the degree may be taken pass/fail.
• No more than six hours of thesis credits (697/698) can be applied to the degree.
• A 3.0 GPA is required for graduation. Note: no course for which the grade of D or below is recorded can be counted for graduation credit.
• All requirements for the master’s degree must be completed within eight years of the student’s initial matriculation.

Foreign Language Requirement
Native speakers of English in TESOL, linguistics, or a combination of the two, must demonstrate proficiency in a second language prior to graduation by completing one course of level 204 or above, with a grade of B or better, or passing the departmental foreign language examination in one language. International students whose native language is not English are considered to have satisfied this requirement by virtue of their TOEFL score.
Areas of Emphasis

Students must sign a formal plan of study by end of their first semester of graduate work. This document lists the requirements within the individual areas of emphasis, and it is the student’s responsibility to fulfill these requirements. Students can change their area of emphasis prior to the semester they intend to graduate. Please note, however, that teaching assistantships are awarded on the basis of students’ area of emphasis, and a change may affect reappointment. The areas of emphasis are divided into five content areas of specific requirements, according to the outline given below (for a complete list of courses, consult the departmental Graduate Program Handbook).

French, German, Spanish, and Linguistics

I. Research and Theoretical Bases (6 hrs.)
   All students are required to complete BIBY 615 as well as the appropriate theory-based course for their area.

II. Knowledge/Applications (12 hrs.)
   This grouping is comprised of several courses designed to provide students with an appropriate and adequate foundation in their area of emphasis.

III. Cultural/Social/Historical Context (3 hrs.)
   Students must complete one course which will provide them with knowledge of the cultural, social, and/or historical developments pertinent to their area of emphasis.

IV. Language Structures (3 hrs.)
   Students must complete one course designed to give them in-depth knowledge of the developmental or structural aspects of the language.

V. Extensions (12 hrs.)
   Four courses of approved electives are required, which will allow students to pursue coursework related to a particular interest they have or to expand their general knowledge in their program. Students may also choose to write a thesis, which will count for six of the hours in this group.

Teaching English to Speakers of Other Languages (TESOL)

I. Research II. and Theoretical Bases (6 hrs.)
   Students are required to complete BIBY 615 and LANG 622.

II. Knowledge/Applications (9–12 hrs.)
   Students must complete LANG 521 and two or three additional courses designed to provide them with an appropriate and adequate foundation in their area of emphasis.

III. Cultural/Social/Historical Context (6 hrs.)
   Students must complete a course in American culture (ESL 630) and one course in American literature.

IV. Language Structures (6 hrs.)
   Students must complete LING 511 and one additional course in ESL phonetics or in phonology.

V. Extensions (6–9 hrs.)
   Students will complete two or three courses of approved electives to expand their individual interests. Students who elect to write a thesis will count their six thesis credits here.

Combination Degree

This area of concentration serves those students who seek graduate work in two areas. All students must complete BIBY 615 (3 hr.). Beyond that, students will select a primary concentration of 18 hours and a different secondary concentration of 15 hours to fulfill the 36 hours of required coursework for the degree according to the following outline.

I. Primary Area of Concentration (18 hrs.)
   a. Twelve hours of coursework from research and theoretical bases and knowledge/applications.
   b. Three hours of coursework from cultural/social/historical context.
   c. Three hours from language structures.
II. Secondary Area of Concentration (15 hrs.)
   a. Nine hours of coursework from research and theoretical bases and knowledge/applications.
   b. Three hours of coursework from cultural/social/historical context or language structures.
   c. Three hours of coursework from extensions or other approved electives in the secondary area of concentration. (GTAs who do not teach in TESOL should count LANG 621 here).

   There is no thesis option provided in the 36 hours of required courses for the combination degree. Students who wish to write a thesis may do so in addition to the 36 hours of course requirements.

Comprehensive Examinations
   The comprehensive examinations are intended to evaluate students’ knowledge, including the ability to synthesize and evaluate ideas in their area of emphasis. The examinations are based on standardized reading lists (available be covered http://forlang.wvu.edu/graduate_programs) and coursework. Although many of the works on the reading lists will be included in coursework, independent reading will be necessary. Students must take the comprehensive examinations the semester they intend to graduate.

Thesis
   A student may request to write a thesis and prepare an oral defense. The feasibility of writing a thesis may be limited due to faculty availability, the student’s academic performance, or other factors (to see the qualifying requirements for writing a thesis, consult Graduate Program Handbook). Under this option, the student is not required to take the written comprehensive examinations but may be asked to comment on coursework and the reading lists, particularly as they relate to the thesis. For more information about this option, see the document “Thesis Guidelines” (available at http://forlang.wvu.edu/graduate_programs/graduate_program_current_students).

Information for Graduate Teaching Assistants
   The department values the contributions made by our graduate assistants and strives to help them become effective teachers. Graduate assistants normally teach two courses (six class-hours per week). They work under the direct supervision of the course coordinator in the language area, but they are fully responsible for their courses (including evaluating their students’ work). The coordinator will conduct orientations and organizational meetings with graduate assistants and provide course materials (such as syllabi). In addition, the coordinator will periodically observe individual classes in order to assess the graduate assistants’ performance and to provide encouragement and assistance.

   All graduate assistants teaching Spanish and French must register for LANG 621 during their first semester. Graduate assistants teaching any other language must register for or LANG 521 in their first semester. In addition, graduate assistants must register for LANG 690 each semester of employment. (Please note that this course does not count toward the degree.)

   Students who have already received an M.A. in foreign languages from West Virginia University may be ineligible for an assistantship in this department.

Forensic and Investigative Science
Keith Morris, Director
208 Oglebay Hall

Degrees Offered
   Master of Science

Nature of the Program
   The Forensic and Investigative Sciences Program offers graduate studies leading to a master of science degree. The degree is rigorous, quantitative, and science based. Students are required to complete an approved research project. Coursework focuses on advanced forensic science classes including pattern evidence, trace evidence, forensic chemistry and DNA analysis, and laboratory management.

West Virginia University Graduate Catalog
Prerequisites
Applicants for graduate studies in forensic science must have a bachelor’s degree in natural science, forensic science, or equivalent and an overall grade point average of at least 3.0. All applicants must have completed the following courses: one year of fundamentals of chemistry (inclusive of laboratories), one year of organic chemistry (inclusive of laboratories), one year of biology (inclusive of laboratories), one year of physics (inclusive of laboratories), and one year of calculus.

Thesis/Credits
The WVU general requirements for the master of science degree are outlined elsewhere in this catalog. Graduate students in the M.S. program in forensic and investigative science are required to submit a research thesis. They may apply up to six hours of research credit toward the 40-hour requirement. Of the remaining credit hours, 24 hours must be earned in the required core courses, at least six credit hours in approved electives, and four credit hours in graduate seminar.

GPA Requirements
During graduate study a minimum grade point average of 3.0 must be maintained in all required forensic courses. A student who fails to maintain the required average at the completion of any semester will be placed on probationary status and allowed one academic year (two semesters) to attain the required average. If this is unsuccessful the student will be dropped from enrollment in the graduate program.

Research
Research, which is the major theme of graduate studies, may be initiated as early as the student and faculty feel appropriate for the individual. Normally, a student will begin laboratory work in the third semester. Upon successful completion of the research, the candidate will present results in an MS thesis and at the appropriate time defend the work in a final oral examination.

Geology and Geography
Trevor M. Harris, Chair
330 Brooks Hall
http://www.geo.wvu.edu

Geography
Timothy A. Warner, Associate Chair for Geography
341 Brooks Hall
http://www.geo.wvu.edu

Degrees Offered
Master of Arts
Doctor of Philosophy

Nature of the Program
The graduate program in geography at West Virginia University provides students with the opportunity to study for a master of arts or a doctor of philosophy degree with an area of emphasis in one or more of the following fields.

- Geographic information science
- Environmental geography
- Human geography

Research
Students who are interested in pursuing research in an area other than these may do so provided the research area matches the interest of a faculty member in the department who agrees to supervise the student’s program. Students who wish to focus their research on a particular region are encouraged to do so. The graduate program in geography at WVU has
strong links with the University’s Regional Research Institute, the State GIS Technical Center, the geology program, the Water Research Institute, the international studies program, the West Virginia Geological and Economic Survey, the Center for Women’s Studies, and the Center for Black Culture and Research.

Admission/Application Requirements

Master of arts applicants must submit GRE scores, a personal two-page statement defining the applicant’s interest in geography and career intentions, and two letters of recommendation from people who are familiar with the student’s undergraduate training. Ph.D. applicants should send three letters of recommendation, GRE scores, and a personal, two-page statement defining the applicant’s interest in geography and career intentions. This material should be forwarded directly to the Coordinator, Geography Graduate Program, West Virginia University 330 Brooks Hall, P.O. Box 6300, Morgantown, WV 26506. Priority will be given to applications for fall admission and teaching assistantships received by January 1. To apply for fall admission, applicants must have an overall undergraduate GPA of 3.0 and a 3.0 GPA for undergraduate geography courses. Students with degrees in other disciplines are encouraged to apply although they may be asked to make up deficiencies in geography during the first year in the program.

Master of Arts

The M.A. degree program in geography was designated a program of excellence by the West Virginia University Board of Trustees in 1998 and by the Board of Governors in 2003 and 2008. This award is given to only a handful of degree programs in recognition of their contribution to higher education in West Virginia.

Degree Requirements

The program is designed so that full-time students should satisfy all program requirements within two years. Students are expected to be well grounded in one or more of the program’s three areas of specialization (environmental geography; geographic information science; and space, place, and development). Students will be awarded an M.A. after fulfilling the following requirements:

- Obtain 30 hours of graduate credit.
- Complete the course Geographic Traditions (GEOG 601, three hours).
- Complete either Quantitative Methods (GEOG 701) or Qualitative Methods (GEOG 603) (three hours).
- Complete the Colloquium Series (GEOG 600) for four semesters (total of four hours).
- Complete nine hours of geography graduate courses (400 level and above), but excluding GEOG 689–699, 697–699. Note: with the approval of the Graduate Committee, courses from other programs may also be used to fulfill this requirement.
- Select one of:
  A. Thesis Option Complete and successfully defend a written research thesis (GEOG 697, six hours).
  B. Professional Masters Option Complete a one-semester project (GEOG 780, three hours) and an additional graduate course (400 level and above, three credit hours, but excluding 691 and 791 courses).

The First Year for all M.A. Students

Each incoming student is interviewed before the fall semester to identify the student’s interests and any academic deficiencies that require remedial work before graduate studies continue. All students are initially supervised by the graduate coordinator.

Once the student develops a more clearly defined research interest, but no later than the middle of the spring semester, the student should request a faculty member to be an advisor. The student should discuss with the advisor whether to pursue the thesis or professional master’s option. The student and the advisor together select an Advisory Committee. A minimum of two of the three committee members (including the advisor) must be geography faculty members at WVU. Students may change advisor or committee members after consultation with the advisor.
and the Graduate Committee. The progress of every student is reviewed toward the end of the spring semester. In cases where a student is performing significantly below expectations, the student may be required to leave the program.

The M.A. Thesis Option
The M.A. thesis is an independent research project undertaken by the student. The thesis research should:

- Demonstrate knowledge of the literature in the student’s chosen field.
- Use data and methods appropriate to the research.
- Draw conclusions from the research endeavor.

M.A. thesis option students develop a thesis proposal toward the end of the first year and during the first summer. The first step is to develop a written thesis proposal. This must be completed to the satisfaction of the student’s advisor and Thesis Committee no later than October 1 of the student’s second year. This is followed by an oral presentation to all students and faculty in the geography program no later than October 31 (unless there are scheduling conflicts). Presentations must be advertised within the department for at least two weeks. Students should aim to complete the thesis proposal process well before the October deadlines in order to ensure progress towards graduation the following semester. Students not able to meet this schedule should seek a meeting with their advisor to resolve the issue prior to the deadline dates.

The defense of the thesis takes place when the advisor and the committee agree that a defendable copy of the thesis is complete. The defense date must be advertised at least two weeks in advance. Only in exceptional circumstances will the Thesis Committee waive the two-week requirement for advertising thesis proposals and defenses. The thesis examination is graded on a pass/provisional pass/fail basis. To pass the examination, there can be no more than one unsatisfactory grade from the committee members. A student who fails may submit another thesis or a revised version upon the approval of the student’s committee. No student may be re-examined more than once. A student who is given a provisional pass will generally be required to make minor revisions or corrections to the thesis.

Thesis proposals and defenses are not normally scheduled between June 15 and August 15.

The Professional Master's Option
Overview The professional master’s option consists of an additional graduate course and a three-credit-hour project (GEOG 780). The professional master’s option is designed for students interested in a more focused project than the traditional research thesis option. It is not recommended for students considering entering a Ph.D. program. The thesis project has strict deadlines and must be completed in one semester—after the completion of GEOG 601 and 602.

Deadlines and Timetable
Students planning on selecting the professional masters’ option must make a written request to the Geography Graduate Committee no later than two weeks before the start of the semester in which the thesis project is undertaken. The request should be endorsed by the student’s advisor. Only after the written request has been received will the geography graduate director issue a permit for the course. It is strongly recommended that the project topic be selected prior to the beginning of the semester.

A written project plan is to be submitted to the advisor and committee no later than three weeks after the start of the semester. The project plan includes an objective, methods, and timetable. No public presentation of the proposal is required.

The student is required to have meetings with the advisor and the committee in weeks seven and 11 to present progress reports.

The project must be completed and successfully defended by the end of the semester in which the project was undertaken. If the student completes the project, passes the defense, and submits the project to the library by the end of the semester, the student will be given a grade of S (satisfactory) for the project (GEOG 780).

If the student completes and defends the project, but is unable to submit the project to the library by the University deadline, the student will be assigned an incomplete for the project. The student then has up to two weeks after the last day of exam week to submit the project to the library; otherwise the I is converted to a U (unsatisfactory).
If the student completes the project and fails the defense, or the project is not completed and defended by the end of the semester, the student will be given a grade of U for the GEOG 780 course.

Students who receive a grade of U may reapply to do a different project the following semester. Students cannot reapply more than once.

The Graduate Committee may grant an extension to the one semester deadline under exceptional circumstances.

**Project Topic and Defense**

The choice of a project topic is to be determined by close interaction and agreement between the student advisor and committee. The project may comprise a wide range of activities, but is usually either (a) an applied problem-solving exercise with minimal literature review, (b) an empirical test of an idea from the literature, with minimal literature review, or (c) a literature review or development of a conceptual idea using the literature.

The project is defended in a public presentation at the end of the project semester, but no later than the University deadline for a thesis defense. The defense time and location must be published in the department no less than two weeks in advance. The standard for passing will be that the majority of the Advisory Committee (two or more of the three members) evaluate the work as substantially meeting the goals identified in the written research plan. Most projects are expected to be in written form (15 to 20 pages). Other forms of presentation may be acceptable, such as maps, software, video, land-use plan, image classification, field-trip guide, work of art, etc; however, a written document explaining the project is still required.

**Doctor of Philosophy**

Prospective doctor of philosophy students must have a master’s degree. Students with degrees in other disciplines are encouraged to apply, but they may be asked to make up deficiencies in geography during their first year in the program. Incoming geography students may also be asked to make up deficiencies if any are found during the student’s entry interview with faculty. This interview is immediately prior to the first semester of the program.

Students are expected to be well grounded in one of the program’s areas of emphasis, and also in the history and philosophy of geography. Students will be awarded a Ph.D. after obtaining 54 hours of graduate credit, completing certain required courses, passing comprehensive examinations, and writing a dissertation. These steps are discussed in more detail below.

**Coursework** The courses *Geographic Traditions* (GEOG 601) and either *Quantitative Methods* (GEOG 701) or *Qualitative Methods* (GEOG 603) (three hours) are required, as well as three general electives and two method electives. An additional 11 hours of other courses, which may include seminars and directed study courses, must also be completed. A limited number of the required courses may be waived if the student has already completed an equivalent course and can demonstrate proficiency with the material.

**Examinations and Dissertation** The student is required to pass an oral and three written comprehensive examinations no later than the fourth semester. The student will be examined on two areas of specialization and the student’s dissertation research topic. Upon successful completion of the comprehensive examination and no later than the end of the fifth semester, the student will be expected to defend a dissertation research proposal. The award of the Ph.D. is granted upon the successful defense of the dissertation itself.

**Teaching Assistantships**

The geography graduate program has available a number of teaching and research assistantships each year, which are allocated to qualified students on a competitive basis. These awards include a full tuition waiver. Teaching assistantships are awarded annually and for no more than four semesters for M.A. students and six semesters for Ph.D. students. Ph.D. teaching assistants who meet all comprehensive exam and dissertation proposal deadlines, have made excellent progress towards the completion of their dissertation research, and have applied for at least one external research grant, may request an additional year of funding. Assistantships are reconfirmed each year based on performance in the previous year with
respect to both assistantship duties and academic progress. Additionally, meritorious tuition waivers are offered on a competitive basis to outstanding students who do not receive assistantships. Requests for teaching assistantships and tuition waivers should be sent directly to the coordinator of graduate studies in geography by January 1. International students should submit their materials at least three months in advance of this deadline.

Research Assistantships
Research assistantships must be applied for through the faculty member whose research is providing the funding. The geography faculties are engaged in numerous funded research projects, many of which provide graduate students with opportunities for obtaining research skills and experience as well as employment and tuition aid. Furthermore, the professional contacts made in the course of faculty research frequently provide graduate students with opportunities for career development.

Computing Facilities
The geography program has extensive computing facilities housed in a new 98,000 square foot building dedicated exclusively to geography and geology. The new building has five computer laboratories dedicated to teaching and research.

The department has ESRI ArcGIS, ERDAS Imagine, and ENVI site licenses. In addition, the department supports SAS, SAS-Graph, JMP, Surface III, Oracle, and extensive database and statistical packages.

The department’s geovisualization research group operates an immersive four-wall 3-D display environment, or CAVE. The remote sensing program operates an ASD full-range portable spectroradiometer.

Geology
Helen M. Lang, Associate Chair for Geology
249 Brooks Hall
http://www.geo.wvu.edu/

Degrees Offered
Master of Science
Doctor of Philosophy

Nature of the Program
The graduate program in geology at WVU provides study opportunities in the following areas:

- Hydrogeology and environmental geology, with strengths in flow and contaminant-transport modeling, mine reclamation, shallow geophysics, floods, and debris flows.
- Basin analysis and sedimentary geology, with strengths in seismic modeling, basin structures, deposystem analysis, sequence stratigraphy, biostratigraphy, paleoecology, diagenesis, and plate tectonics.
- Energy geology and geophysics, with strengths in the exploration and development of oil, gas, and coal, and the computational analysis of hydrocarbon systems and environmental impacts of fossil fuel usages.

Admission Procedures and Prerequisites
Applicants for graduate studies in geology must have as a minimum requirement a bachelor’s degree and an overall grade point average of at least 2.75. Acceptance by the Department of Geology and Geography is necessary before admission of any prospective student to the program. All candidates for a graduate degree in geology must submit scores in the general aptitude tests of the Graduate Record Examination. Applicants seeking admission and financial support for the fall semester should apply by February 1. For spring semester, apply by October 1. Write to the department for an application package or download it from the website (see above).

Students seeking admission to the master’s program or the Ph.D. program must complete the equivalents of all allied science and mathematics courses required for the B.S. in geology at WVU, plus the following geology courses: Geology 101, 102, 103, 104, 284, 285, 311, 341,
and 404. Similar courses from other universities or relevant experiences may be substituted if approved during admission review. A requirement may be waived by the committee if the student can demonstrate competence in that subject area.

**GPA Requirements**
During graduate study a minimum grade point average of 3.0 must be maintained in required formal courses in geology and cognate fields for the master’s degree, and 3.3 for the Ph.D. A student who fails to maintain the required average at the completion of any semester will be placed on probationary status and allowed one academic year (two semesters) to attain the required average. If this is unsuccessful the student will be dropped from enrollment in the graduate program.

**Master of Science**

**Distribution Requirements** Students are required to take courses specified by their Advisory Committee, with whom they meet at the beginning of each semester. Students must take approved graduate courses from at least five different faculty from any department in the University. Approved graduate courses in biology, chemistry, physics, computer science, mathematics, engineering, soil sciences, business, or law may be taken as outside courses by geology graduate students. Students are free to take as many courses as they choose outside the department as long as the coursework is approved by their Advisory Committee.

No later than the beginning of the second semester in residence, the prospective candidate must choose one of the options leading to the master of science (M.S.) degree in geology.

**Research Option** This has been the traditional option for the master of science in geology. Students considering continued studies (doctor of philosophy) or seeking employment in an area of geological research should choose this option. A minimum of 24 formal course hours, six research hours (GEOL 697), and two hours of Graduate Colloquium (GEOL 699) are required for graduation. A thesis based on original research under direction of a research committee also is required. With consent of the candidate’s Research Committee, the field work need not be done while in residence at WVU.

32 hours are required to graduate: (24 hours course-based, six hours research, and two hours colloquium) including certain required courses specified by the advisor.

**Professional Studies Option** This option is designed specifically for students seeking experience in preparing and presenting professional problems. Students choosing this option typically expect to seek professional employment in the profession using the master’s as their terminal degree. A minimum of 33 formal course hours, six directed study research hours (GEOL 692) and two hours of Graduate Colloquium (GEOL 699) are required for graduation. The research hours are in lieu of a thesis and are designed to simulate the work of professional geologists as they seek solutions to open-ended problems within a limited time frame. Experience in presentation of problems and solutions are an integral part of the program. Research hours may be earned in conjunction with off-campus experiences by consent of the candidate’s Advisory Committee.

41 hours are required to graduate: (33 hours course-based, six hours research and two hours colloquium) including certain required courses specified by the Advisory Committee.

**Doctor of Philosophy**
The candidate for the doctor of philosophy must complete a program of courses outlined by the candidate’s Doctoral Research Committee. A candidacy preliminary examination must be successfully completed within one year after enrollment. The proposal defense and oral examination must also be successfully completed. Work on original research is to be presented in a dissertation and defended in an oral examination. Participation in two Ph.D. seminars is required. No formal course requirements exist; these are chosen by the student in conjunction with his or her Research Committee.
Research Linkages Around Morgantown

The WV Geological and Economic Survey (WVGES), located five miles from Morgantown, makes available laboratory equipment, fossil collections, cataloged drill cuttings and core, and subsurface logs from deep wells in the region. WVGES also offers students work and thesis opportunities in coal resources and petroleum geology. Several survey geologists are adjunct faculty.

The National Energy Technology Laboratory (NETL) of the U.S. Department of Energy laboratory located in Morgantown carries out and funds research on fossil-fuel resources and environmental problems. NETL projects support geology faculty and graduate-student research.

Extensive mining in the Appalachian region provides an excellent opportunity for students to study the environmental effects of coal extraction. The WVU geology faculty collaborates with the National Mine Land Reclamation Center (NMLRC) based on the WVU Evansdale campus. The NMLRC is the main center for coordination of acid-mine drainage research in the U.S. WVU Geology has instrumented groundwater-research sites in the region for training and research.

The department houses the Statewide GIS Technical Center, the central source for GIS resources in West Virginia. The tech center is responsible for scanning and digitization of USGS DLGs, DOQs, and a host of other data products. The center provides technical-support services for the development and operation of GIS in West Virginia. A limited number of RA opportunities are available related to center activities.

Facilities
Computer Facilities and Network

Research and teaching computing facilities in the department are outstanding and are centered around a Windows client-server network. The research cluster has access to more than 10 terabytes of redundant networked storage based on a series of RAID servers, as well as diverse networked printers, large-format plotters, large-format digitizers, and scanners. The teaching cluster provides interactive computing resources for 125 students on networked computers. Classroom demonstration facilities are available in every teaching lab. The research cluster includes many workstations with dual-format displays. All resources are regularly upgraded with a replacement period of one to two years. Clusters for the GEO workgroup are linked to the WVGIS center and have gateway access to the University backbone. The entire building is networked. The department houses the GeoVirtual Lab which is centered around a four-walled immersive CAVE environment.

Software Resources

The department maintains software for instructional and research usage. A full range of common applications software is available on all network machines. In addition, statistical packages allow students to undertake detailed statistical analysis, whereas graphical analysis packages (TruFlite, Surfer, Geographix, RockWorks) enable users to render both 2-D and 3-D surfaces. GIS licenses include ARCGIS which is accessible to students for integration of complex geological and geophysical data. ERDAS IMAGINE provides a suite of image-processing tools for analyzing remotely sensed data. Dynamic Graphics EarthVision provides an interactive 3-D visualization environment. AutoCAD, Adobe Illustrator, and other graphics design packages allow accurate rendering of technical diagrams.

State-of-the-art geological and geophysical modeling and processing software are available for instructional and research use. Landmark Inc. GeoGraphix Discovery Suite, Seismic Micro Technology’s Kingdom Suite, and Schlumberger’s Petral software provide state-of-the-art tools for analysis of seismic reflection data and geophysical logs. Seismic processing capability is provided through Landmark’s ProMax 2-D, 3-D, and VSP. We use Sensors and Software’s EKKO View Deluxe software for processing and display of ground penetrating radar data. Interpex’s IXID software is available for forward and inverse modeling of resistivity and terrain conductivity data. Northwest Geophysical Associates’ GM-SYS software is used in the forward and inverse modeling of gravity and magnetic data. A host of Landmark products including Discovery Suite, Seisworks, Strat-works, and seismic modeling packages enhance geophysical and subsurface studies. We have recently improved our capability in integrated subsurface analysis through the addition of IHS Petra, and Schlumberger’s Interactive Petrophysics for reservoir property analysis, and Petrel. The focus of these products is on collaborative workflows that unite geophysics, geology, and reservoir engineering domains.
Software for groundwater simulation includes aquifer characterization packages (AQTE-SOLV), finite-difference flow and particle-tracking codes (MODFLOW2000, MODPATH3), solute-transport codes (MT3-D, MODFLOWT), and preprocessors (Groundwater Vistas). Streamflow-modeling capabilities include HEC-2 step-backwater and peak value flood frequency software.

For structural geology studies we use 2-D and 3-D move (Midland Valley) and TriShear (created by R. Almendinger) in addition to standard structural analysis software. Basin modeling and evaluation of the generation of hydrocarbons are carried out with the GENEX (Baisip-Franlab) software.

Laboratory And Field Instrumentation

Geological

The department has a rock-crushing room equipped with jaw crusher and disk grinder as well as laboratories devoted to geological sample preparation which include standard mineral separation equipment (Frantz magnetic separator, Gemeni table, and heavy liquids set-up).

Geophysical

The department owns a Geonics very low frequency sensor, an EM34 terrain conductivity meter, a Bison Instruments 12 Channel Seismograph and a Geometrics magnetometer. The geophysics facility also offers large format plotting on 24–42 inch HP plotters. Additional survey equipment includes a Leitz Model 2100 Total Station Survey System and a two-station GPS Traveler. Wide spectrums of software resources (see above) enhance geophysical research.

Geochemical

Department laboratories own a Philips PW1800 X-ray diffraction unit for solid-state mineral analyses and a Philips PW9550 energy dispersion spectrometer for elemental analyses. A complete suite of equipment is available for the analysis of organic-rich materials including a Leco sulfur analyzer, a Leco proximate analyzer for moisture, carbon, and ash content, a Leco CHN analyzer for coal and shale, a Leco calorimeter, and a Biorad FTIR with microscope attachment to do FTIR analysis of microscopic entities in rocks. Water analytical facilities include a Dionex 100 Ion Chromatograph and a Beckmen Autotitrator. Outside White Hall, Varian sequential ICP and Finnemat ICP-MS units for water analysis are available to geology faculty in the WV Water Research Institute.

Hydrogeological

Groundwater field equipment includes an array of Global Water vented pressure transducer/datalogger instruments, Grundfos 4" and Redi-Flo 2 pumps, Geotech peristaltic pumps and flow-through sampling cells, and analog well recorders, as well as a variety of generators, sampling pumps, flumes, pH and conductivity meters, bailers, and current meters.

Quaternary Geology and Geomorphology

Quaternary geology and geomorphology research is served by a particle-size analysis laboratory as well as field instrumentation such as Garmin and Trimble GPS units and a Leica TC400 electronic distance meter.

Remote Sensing

The Remote Sensing Laboratory has a comprehensive suite of computing and field equipment. The laboratory operates two portable full-range (0.4 to 2.5 micrometer) field spectroradiometers and an aerial small format photography system based on two Nikon cameras. The laboratory shares a digital ADAR infra-red aerial acquisition system with biology and resource management. The ADAR system can be deployed in both helicopters and fixed wing aircraft. Remote sensing software includes site licenses for ERDAS Imagine, ENVI/IDL, and ARC/INFO image analysis and GIS software.
The Beatrice Ruth Burgess Center for West Virginia Families and Communities, which is part of the Division of Social Work, offers a graduate certificate program in multidisciplinary gerontology for graduate students pursuing advanced degrees in other fields and special graduate students who are non-degree candidates. The certificate affords students an opportunity to explore the basic biological, psychological, and sociological processes of aging, their effect on the needs of older people, and the impact of social policies related to human aging. An understanding of the unique problems and needs of older adults in Appalachia and other rural areas is emphasized.

The certificate program requires a minimum of 15 graduate hours including six elective hours selected on the basis of appropriateness to the individual student's goals from an approved pool of aging-related courses.

Candidates for the graduate certificate must meet regular WVU graduate admission requirements. Program participants must maintain a minimum grade point average of 3.0 in certificate coursework.

The application form used to apply for admission and specific requirements may be found at: http://socialwork.wvu.edu/certificates or obtained from the Division of Social Work, 105 Knapp Hall, P.O. Box 6830, West Virginia University, Morgantown, WV 26506-6830. (304) 293-3501. For further information about the graduate certificate contact the Burgess Center.

For a complete listing of aging-related courses including graduate certificate electives, contact the Burgess Center, 105 Knapp Hall, P.O. Box 6830, West Virginia University, Morgantown, WV 26506-6830 or call (304) 293-3501.

### History
Elizabeth Fones-Wolf, Chair
220 Woodburn Hall
Joseph Hodge, Associate Chair, Director of Graduate Studies
202 Woodburn Hall
http://history.wvu.edu/

### Degrees Offered
- Master of Arts
- Master of Arts with concentration in Public History
- Accelerated Master of Arts
- Atlantis Dual Degree Master of Arts
- Doctor of Philosophy

### Nature of the Program
The Department of History offers graduate courses in the history of the United States, Appalachia/regional, Europe, Africa, Asia, Latin America, world history, and in public history. Courses are designed to prepare students in historiography, research methods, and interpretation. Students can select concentrations leading to preparation for careers in teaching and scholarship and as specialists for various branches of government, business, and public service. Students in the program are normally expected to pursue the degrees of master of arts or doctor of philosophy.

### Master of Arts
**Admission** Students seeking admission to the regular master of arts program should have the equivalent of a bachelor's degree in history. Applicants lacking this degree may be required to make up deficiencies. Application requirements include transcripts (a minimum of a 3.0 average in history courses is expected), three letters of recommendation, and statement of purpose, writing sample, résumé, and a combined score of 1,000 on the verbal and quantitative sections and 4.0 on the written section of the Graduate Record Examination General Aptitude Test (GRE).
Requirements This program requires the completion of a minimum of 30 hours of coursework, including six hours of thesis research, of which no more than 12 hours can be at the 400 level. All 30 hours may be in history, or students may select up to six hours outside of the department with the approval of the director of graduate studies. M.A. students must maintain a 3.0 grade point average to remain in good standing. The history coursework shall include a well-defined core area (selected from the fields listed for comprehensive examinations or approved by the director of graduate studies) of at least 12 hours, including one readings/research seminar sequence (HIST 701 and higher), and a minor area (selected from the fields listed for comprehensive examinations or approved by the director of graduate studies) of six hours with at least three hours at the 500 level or higher. Also required are the department’s historiography course (HIST 700), and enrollment of all full time students in HIST 799 Department Colloquium. Credit for this last course does not count towards the degree. In addition, individual faculty may require their students to master one or more languages, to demonstrate proficiency in particular research methods (quantitative analysis, paleography, GIS, etc.) or to develop other skills as necessary for their areas of study and thesis projects. Students are also required to complete a master’s thesis. Students first prepare a thesis prospectus, which must be approved by their thesis committee, before writing and successfully defending the thesis in an oral examination. A maximum of six hours of credit for HIST 697 Research can be taken for writing the thesis.

Public History The department offers a 36-hour master of arts with a concentration in public history and a Ph.D. minor field in public history. Public historians are trained to conduct historical research and interpret the past for a variety of audiences. They generally work in museums, heritage sites, historic preservation, archives, as consultants, and for the federal government.

Admission Students apply for admission to the public history concentration as they would for the regular M.A. in history. The statement of purpose should highlight relevant background and reasons for interest in public history. Students in public history should have an undergraduate degree in history. Applicants lacking this degree may be required to make up deficiencies.

Requirements The public history program consists of 30 hours of coursework, of which no more than 12 hours may be at the 400 level and the remainder at the 500 and higher level, plus a six-hour internship (HIST 614). Normally, half the courses will be public history courses and half will be selected from other history offerings. Students must take one readings/research seminar sequence (HIST 701 and higher). Relevant coursework may be taken in another discipline with the approval of the director of public history. There is no foreign language requirement for public history students. All full-time public history students are expected to enroll in HIST 799 Department Colloquium. Credit for this course does not count towards the degree.

Cultural Resource Management Certificate The Eberly College of Arts and Sciences also offers an interdisciplinary graduate-level 15-hour certificate in cultural resource management (CRM) that is coordinated by the Department of History. Most CRM students earn the graduate certificate in conjunction with a M.A. in history, public administration, recreation parks and tourism, geography, design, art history, or one of several other related graduate degree programs. The requirements for the CRM certificate consist of 12 credit hours of coursework and a three-hour internship or an individual research project (HIST 620). All CRM students must successfully complete HIST 600. Students who are currently admitted to, or enrolled in, a graduate degree program must register their intent to earn the CRM certificate with the CRM coordinator during the semester prior to their internship. Students who wish to pursue the graduate certificate independent of a graduate degree program must be admitted as non-degree graduate students prior to registering their intent to earn the CRM certificate. Each student is expected to maintain an average GPA of 3.0.
Accelerated Master of Arts (4+1 Track)
The accelerated master of arts program allows students to complete both their bachelor’s and master’s degrees within five years. The program is also available in public history. Students have the opportunity to obtain only a B.A. as long as all requirements for the B.A. have been fulfilled.

Admission Undergraduates with strong academic records will first consult with a faculty member who will agree to sponsor their admission and act as their advisor. They may apply for admission to the program through the graduate studies committee of the history department after the first semester of their junior year, as part of the normal application process, specifying their interest in the accelerated degree program. Application requirements include transcripts, statement of purpose, writing sample, GRE scores, three letters of recommendation, and résumé. Students will normally be accepted into the master’s program starting in the fall semester of their senior year.

Requirements Students are required to complete a minimum of 33 hours of coursework, of which no more than 15 hours can be at the 400 level. The remainder may be taken at the 500, 600, or 700 level. Student’s coursework shall include a well-defined core area of at least 12 hours. These courses will include HIST 700 Historiography, one 700-level readings/research seminar sequence and three hours of HIST 697 Research, which will result in a substantial research paper. They must pass an oral defense of this paper.

Students in the public history program are required to complete a minimum of 30 hours of coursework, no more than 12 hours of which may be at the 400 level and the remainder at the 500 and higher level, plus six hours of HIST 614 Internship. Normally, half the courses will be public history courses and half will be selected from other history offerings. Students must take one readings/research seminar sequence (HIST 701 and higher). Up to six hours of relevant coursework may be taken in another discipline with the approval of the director of public history.

Atlantis Dual Degree Master of Arts
The department also participates, together with Collegium Civitas of Warsaw, Poland, and the University of Tartu in Estonia, in a unique transatlantic multidisciplinary dual degree M.A. program in East-Central European area studies. Supported by a US-EU Atlantis grant, students from both sides of the Atlantic are awarded stipends to spend two academic semesters overseas and will complete relevant coursework at all three institutions. They also have the opportunity to acquire language training and gain valuable experience through professional internships.

Admission Students apply for admission to the Atlantis program as they would for the regular M.A. in history. The statement of purpose should highlight relevant background and reasons for interest in the East-Central European region. Students should have an undergraduate degree in relevant disciplines and programs such as history, Slavic and East European studies, international studies, geography, and/or political science. For qualifying students from history, however, the accelerated master of arts (4+1 track) is also available. Otherwise, they must meet the same criteria for admission as applicants to the regular M.A. program.

Requirements Students will complete the equivalent of 60 U.S. credit hours: 30 hours in the history program at WVU, 15 hours in the international relations program at Collegium Civitas, and 15 hours in the Baltic studies program at the University of Tartu. Master’s theses will be defended at one of the two European institutions with the participation of WVU history faculty. The dual degrees, in history from WVU and in international relations or Baltic studies from one of the two European institutions, are awarded once credit hour and degree requirements are met at all three institutions.

Doctor of Philosophy
Admission Students seeking admission to the doctor of philosophy program should have the equivalent of a M.A. in history. Application requirements include a transcript (a minimum of a 3.0 average in graduate history courses is required), three letters of recommendation, and combined scores of 1,000 on the verbal and quantitative sections, and 4.0 on the written
section of the Graduate Record Examination General Aptitude Test (GRE). Students should also include a statement of purpose, an example of their written work, and a résumé as a part of the application.

Requirements The Ph.D. degree program in history requires completion of two readings/research seminar sequences (HIST 701 and above) beyond those offered for the M.A.; HIST 700 Historiography; enrollment in HIST 799 Department Colloquium for all full-time students who have not yet taken their comprehensive examinations; passing the Ph.D. comprehensive examination of two parts (oral and written) administered by a committee of faculty members (normally at the end of a full-time student’s second year of study); preparation of a dissertation prospectus, which must be approved by the student’s dissertation committee; preparation of a dissertation based on original investigation; and successful defense of the dissertation in a final examination. In addition, individual faculty advisers may require their students to master one or more languages, to demonstrate proficiency in particular research methods (quantitative analysis, paleography, GIS, etc.) or to develop other skills as necessary for their fields of study and dissertation projects.

Fields of Study A candidate must offer a program of study in four fields, at least three of which must be in history; the other may be in a related field with the approval of the director of graduate studies. Doctoral students must maintain a 3.0 grade point average to remain in good standing. Fields available in the department include, but are not limited to, Europe, United States, Africa, East Asia, Latin America, and Appalachia/regional. Students may also take a minor in world history or public history. At least one field must be in a geographic area outside the major field of concentration for dissertation work.

Dissertation work should normally be in United States history, modern European history, Appalachia/regional, or modern Africa. Students working in these areas, either at the M.A. or Ph.D. level, have the opportunity to study with adjunct professors and faculty from other departments and universities.

Legal Studies
L. Christopher Plein, Ph.D., Chair, Division of Public Administration
Nancy L. Adams, Ph.D., Director
209 Knapp Hall
http://legalstudies.wvu.edu

Degree Offered
Master of Legal Studies

Nature of the Program
West Virginia University’s master of legal studies (MLS) program is part of the Division of Public Administration. The MLS is a degree program designed to build greater public understanding of the law and the United States legal system, to provide graduates with the ability to apply knowledge and skills gained to performing their jobs more effectively, and to provide private and public organizations the benefit of enhanced experience. It is a graduate program of study designed for professionals practicing in areas such as human relations, criminal justice, juvenile justice, journalism, social work, court administration, probation officers, police officers, or regulatory agencies. It is neither a law degree nor a paralegal program.

The MLS is offered entirely online (there are no on-campus courses), and operates in a cohort system. Courses are offered each term (including summers). Students following the prescribed course of study should be able to finish the degree in six terms (two calendar years, including summers).

Prospective and current students should frequently check the program’s website at http://legalstudies.wvu.edu for up-to-date program information, forms, and other guidelines.
Admission

In order to be considered for admission to the MLS program, one must have completed a baccalaureate degree in any major with a cumulative GPA of at least 2.75 on a 4.0 scale. In addition, it is recommended that a prospective student have some work experience in an area broadly related to the field of legal studies. Applicants who do not possess a GPA of at least 2.75 may apply to the college for admission as a non-degree student in order to register for certain classes. Acceptance as a non-degree student does not guarantee acceptance into the legal studies program.

To apply for acceptance into the MLS program, one must apply to graduate school online at http://www.graduateeducation.wvu.edu. Official transcripts of all institutions previously attended must be sent to the Office of Admissions at P.O. Box 6009, Morgantown, WV 26506-6009.

Once the application to graduate school has been submitted, please submit the following directly to the Master of Legal Studies program at P.O. Box 6322, Morgantown, WV 26506-6322:
1. A current resume or curriculum vitae;
2. Three letters of recommendation;
3. A one- or two-page personal statement on the subject of why and how the master of legal studies degree program will further the applicant’s career or special interests.
4. Results of standardized graduate-level tests (i.e. GRE, LSAT, GMAT, or MCAT).

A prospective student may apply for a waiver of the graduate test score requirement if he or she possesses an undergraduate degree and has five or more years of work experience in a field related to legal studies. The petition should be in the form of a letter requesting a waiver and describing previous work experience. This should be sent directly to the program along with the other materials listed above.

All application materials should be submitted no later than October 15 of each year. The Admissions Committee will render decisions during the month of November.

Additional information and forms may be found on the program’s website at http://legal-studies.wvu.edu or by calling the program at (304) 293-2614.

Degree Completion

According to University regulations, master’s students are permitted to continue in a program for a maximum of eight years under their original application. A student is generally not allowed to count any courses taken more than eight years prior to the conferring of a degree toward completion of that degree. Graduate students are expected to maintain continuous enrollment, excluding summer sessions, unless permitted by the director. All graduate students must enroll for at least one credit hour during the semester (or summer) of graduation. No course in which the grade earned is a D, P (pass), F, or U (unsatisfactory) can be counted toward a graduate degree, nor can courses taken under the audit option. Students in the master of legal studies program are expected to earn at least a 3.0 GPA in all legal studies coursework to qualify for graduation.

Curriculum

The master of legal studies program requires 36 hours of coursework. This coursework is broken into three different areas: core courses (18 hours), elective courses (15 hours), and an applied research capstone project (3 hours). The program provides a model schedule for students to use as a guide regarding registration and course offerings.

Required Courses: All students are required to take LEGS 610, 620, 630, 640, 650, 660 and 700.

Elective Courses: Students must take 15 hours (five classes) from LEGS 691, 710, 720, 730, 740, 750, 760, 770, 780, or other approved courses.
Liberal Studies
Ann M. Oberhauser, Coordinator
218 Eiesland Hall
http://eberly.wvu.edu/majors_minors/doctrinal_programs/master_of_liberal_studies

Degree Offered
Master of Arts in Liberal Studies

The master of arts in liberal studies (MALS) is an interdisciplinary degree that provides the opportunity for graduate students to undertake studies in the liberal arts within a structured program, but without an exclusive concentration in one discipline. Studies in this program generally focus on issues in the liberal arts disciplines of fine arts, social sciences, or humanities. Students in the MALS program create their own unique interdisciplinary plans of study that combine fields such as English, foreign languages, history, philosophy, religious studies, or women’s studies. Specific topics of study may include area studies, e.g., American studies, Appalachian studies, or French culture; period studies, e.g., the Renaissance, the Enlightenment, and the American Revolution; or other special interests, e.g., ethnic studies, media studies, or gender studies. Such topics cross disciplinary lines and require courses in several academic units. A women’s studies-directed MALS program is popular and allows students to focus their work on gender and women’s issues.

The multi-disciplinary MALS Committee is appointed by the program director and approved by the dean of the Eberly College of Arts and Sciences to administer this program. This committee serves as the program's admissions committee and plays a role that is similar to that of an academic department in a more traditional degree program. WVU faculty members from a wide range of disciplines, both within and outside of the Eberly College, serve on the MALS Committee, and are also eligible to serve as members of a MALS student’s master’s committee.

Admission and Application Materials
- Bachelor’s degree transcript from an accredited institution with a minimum undergraduate grade point average of 3.0 on a 4.0 scale (probationary status may be granted to students who do not meet this minimum standard.)
- GRE General Test scores that demonstrate the ability to do graduate work.
- Plan of study which has been approved by the MALS Committee (see below for details).
- Confidential letters of recommendation from at least two individuals who are able to assess the applicant’s ability to undertake the plan of study that he or she has proposed.
- Written agreement from a member of the regular graduate faculty at West Virginia University to serve as chair of the applicant’s master’s committee.
- An essay that describes the applicant’s central focus or theme to be followed in the program (This essay should indicate why the course of study with the proposed focus should be undertaken within the interdisciplinary MALS program rather than within another WVU graduate program. In addition, the essay may describe how the degree plan relates to the applicant’s professional experience and future goals).
- Application for Graduate Admission, along with undergraduate transcripts, transcripts from any prior graduate work, and GRE scores to be submitted to the Office of Admissions.
- Members of the MALS Committee may, at their discretion, request that an interview with the applicant be conducted and that the results be included with the application materials.

Plan of Study
The plan of study is submitted as part of a MALS application. This document must include the following materials:
- A schedule of proposed courses.
- The graduate catalog description, including title, course number, credit hours, prerequisites, and so on, for all proposed courses.
- For any proposed independent study course, teaching practicum, field experience, or other non regularly scheduled classroom course include a description of the subject that will be studied and the faculty member who has agreed to supervise this course.
Degree Requirements

There are several general requirements for all graduate programs at WVU in addition to specific requirements for the MALS program.

A. University Requirements
   • Graduate credit is awarded only for courses at the 400 level or above.
   • A maximum of 40 percent of course credits counted toward a graduate degree may be at the 400 level.
   • A maximum of 12 hours of coursework taken before admission to a graduate program may be approved for credit toward that degree.

B. MALS Requirements
   • At least 36 semester hours of approved coursework, subject to the following limitations:
     • A maximum of 18 hours from a single discipline.
     • A maximum of nine hours of independent study.
     • Three hours of coursework in research methodology.
     • A minimum 3.25 grade point average for all coursework in the degree program.
     • Successful completion of a final project. The final project can take any of a number of forms, such as a master’s thesis, a comprehensive examination, a lecture, a recital, a portfolio of creative work, or the design of a website, for example.

Committee for MALS Student

Those interested in applying for the MALS program should choose a member of the regular graduate faculty at WVU to chair their committee. This person will include written agreement to serve as chair of the applicant’s master’s committee. Applicants who have not found a chairperson for their master’s committee, or who are not ready to complete a detailed plan of study, are encouraged to register as non-degree graduate students while they explore their options.

Once admitted to the MALS program, the student chooses the remaining members of the master’s committee, and then draws up a final plan of study with the help of the master’s committee chair, who also serves as the student’s advisor. It is recommended that the full master’s committee be chosen by the time the student completes the first 9-12 hours of courses within the program. The full committee, and any changes in the committee, must be approved by the MALS program director.

MALS Projects at WVU

The following studies are examples of some of the projects undertaken by students in the MALS program.
   • Development of a web-based magazine focusing on women and minorities in political movements.
   • Work as an AIDS educator with high risk youth in creating a HIV/AIDS awareness program.
   • Investigation of lipid metabolism in skeletal muscle by combining computer science and physiology.
   • Study of access to health care among women in rural areas.
**Mathematics**  
Edgar Fuller, Chair  
320 Armstrong Hall  
http://www.math.wvu.edu

**Degrees Offered**  
*Master of Science  
Doctor of Philosophy*

**Master of Science**  
Programs are available for students to study applied mathematics, pure mathematics, industrial/applied mathematics, or mathematics for secondary educators. For regular admission to the M.S. program, students should have the equivalent of an undergraduate major in mathematics, including at least one semester of advanced calculus (Math 451 or equivalent) and courses in linear algebra and modern algebra. Students with deficiencies may be admitted provisionally, with deficiencies to be made up in the first year of study. A minimum of three semesters of calculus is normally required for such admission, but students can often complete their remaining calculus courses during the summer prior to full-time enrollment. To be in good standing, a student is expected to maintain at least a 3.0 average (B) in mathematics courses and to present at least a 3.0 average in all work offered in fulfillment of the degree program.

Admission to the M.S. program requires a WVU admission application and submission of applicable transcripts. International students must supply a passing TOEFL score or other acceptable evidence of English proficiency. Students seeking financial aid should also supply an assistantship application and three letters of recommendation. Scores from the GRE Subject Test in Mathematics are strongly recommended.

**Advisory Committee**  
Each student will be assigned an Advisory Committee consisting of at least three members of the graduate faculty. This committee will assist the student in designing a written plan of study that takes into account the student’s interests and needs as well as the aims of the department’s graduate programs. Later changes in the plan are possible only through mutual agreement of the student and the committee.

Programs the student’s plan of study is developed in one of these programs: pure mathematics, mathematics for secondary educators, applied mathematics, and industrial/applied mathematics. The programs are designed either for students who intend to pursue a doctor of philosophy in mathematics or the mathematical sciences, or for those planning to seek employment in education, government, or industry. Depending upon the program selected, 30 to 33 semester hours of approved coursework are required. Note: MATH 590/690/790/696/597/697/797 may not be counted for credit to satisfy graduate course requirements.

**Examinations/Theses/Projects**  
Upon beginning graduate study, all M.S. students are given a basic exam in advanced calculus and linear algebra for purposes of course placement. Depending on the program chosen, students must complete examinations, a thesis, or a project as a graduation requirement.

**Doctor of Philosophy**  
The doctor of philosophy is a research program in which the final product is an original, publishable research thesis. For students entering with regular admission status, the program requires 24 hours of approved coursework. Students may specialize in a variety of areas of pure, applied, and discrete mathematics as reflected in the interests and expertise of the faculty.

**Requirements**  
For regular admission, applicants for the Ph.D. program must have completed a graduate degree similar to the M.S. in mathematics outlined above. Students with an exceptionally strong undergraduate background may sometimes be admitted provisionally, with 12–18 credit hours of additional coursework required. The following materials should be submitted:

- A WVU admission application.
- An application for financial support (optional).
- Official undergraduate and graduate transcripts.
• Three letters of recommendation from individuals having experience of an applicant's mathematical ability.
• The GRE Subject Test in Mathematics is strongly recommended for students applying for financial aid.
• TOEFL scores for students whose native language is not English. GRE scores for the general test and for the mathematics subject test are optional.

All doctoral students must demonstrate that they are prepared to undertake doctoral work and research by passing an entrance examination, given each year in April and August, by the end of their third semester after enrolling. Students choose two areas in which to be examined from among the four areas of algebra, real analysis, topology, and differential equations. For students in the CCDM area of emphasis (see next page) one of these area exams is replaced by an examination over the CCDM core curriculum.

Beyond any coursework taken to remove deficiencies while a provisional student, a minimum of 24 hours of approved coursework is required of all doctoral students. The distribution of these courses is as follows:
• Twelve hours at the 700 level in the student's major area.
• Six hours in each of two minor areas. With the approval of the director of graduate studies, up to one course in a minor area may be at the 500 to 600 level.

In addition, doctoral students enroll for one credit hour of graduate seminar each semester they are in residence.

**Dissertation Committee** After the above requirements are satisfied, a student must request that the director of graduate studies select a Dissertation Committee of at least five members, with a dissertation advisor as chairperson and one member from outside the department.

**Examinations and Dissertation** The student must pass a qualifying oral and written examination on the major and minor areas of study and present an approved dissertation prospectus. A minor examination is waived if the student has obtained at least a 3.5 GPA in the corresponding courses. If examination results are unsatisfactory, the Dissertation Committee may reexamine the student once.

A Ph.D. candidate must complete a dissertation, representing at least 24 hours of 700-level credit, under the supervision of a dissertation advisor. The research upon which the dissertation is based must conform to scholastic standards and constitute an original and publishable contribution to mathematics.

**Area of Emphasis** Combinatorial computing and discrete mathematics (CCDM) within the mathematics Ph.D. program, students may choose the CCDM area of emphasis, which requires a minimum of 33 credit hours of coursework and includes designated core courses in discrete mathematics, statistics, and computer science. Students may undertake mathematics research of an interdisciplinary nature among these three areas.

**Language Requirement** Each Ph.D. student must demonstrate a reading knowledge of French, German, or Russian. The Graduate Programs Committee may approve the substitution of a different foreign language or a computer language for fulfillment of this requirement. Applications for the graduate program should be received at the Department of Mathematics by February 15 to ensure full consideration for financial aid in the subsequent fall semester.

Further information may be obtained from the department's website at http://www.math.wvu.edu or by contacting the graduate director. Applications may be obtained by writing to the graduate director, Department of Mathematics or by sending e-mail to gradprog@math.wvu.edu.
Ph.D. Candidacy Examinations
To be admitted to candidacy for the Ph.D., a student must pass both a written and an oral candidacy examination. The written examination consists of three parts: a quantum mechanics exam in May, an electromagnetism exam in August, and a classical mechanics exam in January. To be eligible to take any candidacy exam, the student must be in good standing, as explained below.

The oral part of the candidacy exam is a presentation to the faculty committee on the student’s research work. The student gives a lecture on some published research that has been assigned by the research advisor.

Requirements for Remaining in the Graduate Program
To be a graduate student in good standing requires the following:

• Maintain a GPA of 3.0 or better in graduate physics courses taken at WVU, excluding physics 797.
• Pass two sections of the written candidacy examination by the end of three years.
• Pass the remaining third section of the written candidacy examination by the end of four years.
• Select a Ph.D. Committee of five faculty and complete the oral candidacy examination within three semesters after completing the third section of the written candidacy examination.

Students admitted as M.S. degree candidates are not expected to take the graduate qualifying exams but must maintain at GPA of 3.0 and complete their M.S. degree within three years.

Doctor of Philosophy
Course requirements: The Ph.D. requires 36 hours of courses at the 600 or 700 levels with a GPA of 3.0 or better. These 12 courses must include the seven basic courses 611, 631, 633, 634, 651, 652, and 761. Of the remaining five courses, the student must take at least two of the following: physics 726, 772, 773, 774, 783, 784, 791; and/or astronomy 702, 703.
Research requirements: Research is the central focus of the degree and is directed by a faculty advisor over a period of several years. When the research is completed, the student must write a dissertation and defend it before the doctoral committee of five faculty. The average completion time for the Ph.D. is five years beyond the B.S. Research specialties within the department include astrophysics, computational physics, condensed matter physics, fluid mechanics, nonlinear dynamics, and plasma physics.

GRE/TOEFL
Applicants are expected to have a bachelor’s degree in physics, with upper-division courses in electricity and magnetism, mechanics, quantum mechanics, thermodynamics, and mathematical methods. Students lacking some of these courses may be admitted provisionally and will be allowed to remedy the deficiencies by taking the appropriate undergraduate courses. The GRE general test is required and the GRE physics subject test is strongly recommended. If English is not the student’s native language, TOEFL or IELTS scores are also required. Application deadline is February 15; contact the department for additional information.

Financial Aid
With rare exceptions, all students who are admitted receive financial support. Beginning students usually receive teaching assistantships; more advanced students receive research assistantships. Several fellowships are available for outstanding students, allowing full-time concentration on coursework and research and more rapid progress toward the degree.

Political Science
Joe D. Hagan, Chair
316-A Woodburn Hall
http://www.polsci.wvu.edu

Degrees Offered
Master of Arts
Doctor of Philosophy

Nature of the Program
To give advanced training to students who desire careers as policy analysts in government or the private sector or who wish to enter selected teaching or research fields with a specialization in public policy (either U.S. domestic or international), American politics, state politics, comparative politics, and/or international politics.

Master of Arts
The master of arts with emphasis in public policy is designed to provide students with a broad knowledge of the policy-making process and the many factors influencing public policies at the international, national, state, and local levels of government. A problem-analytic approach, drawn from both economics and political science, is used to develop the ability to comprehend, assess, and evaluate issues, problems, and policies in the public sector. Prospective graduates are expected to be skilled at gathering and interpreting data, reporting, writing, and analyzing policy options and alternatives, and evaluating the intended and unintended consequences of public programs and policies. Most graduates will take jobs in government or with private firms needing specialists in policy analysis.

Prerequisites/Requirements Ideally, applicants for the master of arts degree should have a B.A. in political science (with a minimum of six hours in economics) or a B.A. or B.S. in economics (with a minimum of six hours in political science). However, students from other fields and disciplines are also encouraged to apply. In addition, the applicant should have an overall grade point average of 2.75, and should submit three letters of recommendation from faculty familiar with the student's work. All students must also submit the verbal and quantitative results of the Graduate Record Examination.

In order to remain in good standing, students must maintain a 3.0 cumulative average and receive a 3.0 average in each semester for which they are enrolled. Students who do not maintain a 3.0 cumulative average will be placed on probation and will be suspended if they fail to regain a 3.0 cumulative average in their next nine hours of study.

Eberly College of Arts and Sciences
Admission Admission to candidacy for the M.A. degree requires that the student complete a minimum of 36 hours (exclusive of colloquium) in a specialized curriculum offered by the Department of Political Science and the Department of Economics. This curriculum includes courses in economics, policy evaluation, the policy process, and public policy analysis. In addition, students must complete work in political science methodology and statistical methods. All students must enroll in POLS 799 Colloquium each semester in residence.

Research The M.A. degree provides an optional research practicum or internship during the fourth semester of work. The practicum enables the student to conduct actual policy research in a public agency. The practicum will carry an additional six hours of graduate credit. Students may also choose a six-hour thesis option.

Doctor of Philosophy The doctor of philosophy degree is designed for persons planning careers either as policy analysts in government or as researchers and teachers in institutions of higher education. Those students who choose to enter the Ph.D. program emphasizing policy analysis will receive training appropriate for persons who wish to undertake research and analysis on public issues in government, both foreign and domestic. This training includes a comprehensive knowledge of policy formulation, implementation, and evaluation, and a thorough understanding of the dynamics of political institutions. A central focus of the policy studies option will be competence in research methodology and statistical techniques of policy analysis.

Those students who choose to enter the Ph.D. program with the intention of entering the field of research and teaching may concentrate on policy studies or take a more traditional curriculum that features four fields: American, national, and state politics, international relations, comparative politics, and public policy and administration.

Admission Admission to the Ph.D. program is open to students with either a bachelor’s or master’s degree. Students with degrees in political science, economics, public administration, sociology, psychology, engineering, social work, business, law, medicine, or journalism are encouraged to apply. An undergraduate applicant should have a grade point average of 3.0; a graduate applicant 3.5. In addition, all applicants must submit the results of the Graduate Record Examination and at least three letters of recommendation from faculty familiar with the applicant’s work. Admission will be based on an overall assessment of the individual’s record.

Candidacy The work of all individuals admitted to the doctoral program will be formally evaluated at the end of the first two semesters (at least 18 credit hours of study) at which time one of the following recommendations is made: 1.) admission to candidacy for the doctoral degree; 2.) admission to the master’s degree program in public policy studies; or 3.) termination.

The program of each person admitted to the doctoral program is designed in accordance with his or her career objectives and previous training. A complete description of the Ph.D. program and course requirements may be obtained by writing the Director of Graduate Studies, Department of Political Science, West Virginia University, Morgantown, WV 26506. This should be done before application to the program.

Minimum Requirements The following constitute the formal minimum requirements of the Ph.D. program:

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<tr>
<th>Public Policy Option</th>
<th>General Option</th>
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<tr>
<td>Public policy core (18 hrs.)</td>
<td>Public policy (15 hrs.)</td>
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<tr>
<td>Policy research methods (15 hrs.)</td>
<td>Research methods (12 hrs.)</td>
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<td>Economics (6 hrs.)</td>
<td>Elective specialty I (15 hrs.)</td>
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<tr>
<td>Policy field (18 hrs.)</td>
<td>Elective specialty II (15 hrs.)</td>
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<tr>
<td>Dissertation (24 hrs.)</td>
<td>Dissertation (24 hrs.)</td>
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<td>Total: 81 hrs.</td>
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In addition to the formal coursework, students must also pass written and oral comprehensive examinations in their specialty fields. All coursework completed for the M.A. at West Virginia University also counts toward the Ph.D. Coursework from other institutions will be evaluated on a case-by-case basis.

In order to remain in good standing, students must maintain a 3.0 cumulative average and receive a 3.0 average in each semester for which they are enrolled. Students are required to spend at least one year (two semesters) in residence enrolled in a full-time graduate program of no less than nine semester hours each semester. All graduate students must enroll in POLS 799 Colloquium each semester in residence.

Faculty
The Department of Political Science has 18 full-time faculty members. The major strengths of the graduate faculty are: policy studies (15 faculty with policy specialties); American, national, and state politics and administration (eight faculty with U.S. politics and institutional specialties); international and politics (five faculty with international affairs specialties, including U.S. foreign policy, comparative foreign policy, international political economy, and national security policy); comparative politics (three faculty with comparative politics specialties, including development politics, Latin American, Western European, Canadian, and Far Eastern area studies, and cross-national political analysis); research methods (three faculty with advanced statistical analysis specialties); and policy fields (ten faculty with policy specialties in criminal law, development, political economy, energy, environments foreign policy, gender, national security, regulation, and social welfare). In addition, faculty in the Department of Public Administration and the Department of Economics teach courses included in the M.A. and Ph.D. curricula.

Research
Graduate students have opportunities to conduct research with political science faculty, faculty associated with the Policy Analysis Group, the Institute for Public Affairs, and other research organizations at the University, and with externally funded grant projects. Opportunities exist for field experience in various government settings, including the West Virginia Legislature, which annually provides paid internships for graduate students in the M.A. or Ph.D. programs.

Financial Aid
The department has a number of assistantships and fellowships available for students in both the M.A. and Ph.D. programs. Students interested in financial assistance should apply directly to the Department of Political Science. Graduate assistants may enroll for no more than nine credit hours per semester (excluding colloquium).

Psychology
Michael Perone, Chair
1130-A Life Sciences Building
http://psychology.wvu.edu/future_students/graduate_programs

Degrees Offered
Master of Arts
Master of Science
Doctor of Philosophy

Programs Offered
The doctoral degree programs in behavior analysis, clinical psychology, clinical child psychology, and life-span developmental psychology prepare students for careers in teaching, research, and/or practice. The professional master’s degree in clinical psychology (master of arts) prepares students for work in community mental health centers, medical facilities, mental health and mental retardation institutions, and school systems. The master’s degree in applied behavior analysis (master of arts) is designed to train students in the applications of behavior principles and concepts in situations of daily life.
Admission
Students are admitted only at the beginning of the fall semester. Application must be completed by the preceding December 15 for the doctoral program and March 1 for the master’s program. Acceptance is based on:
- Adequate academic aptitude at the graduate level as measured by the Graduate Record Examination;
- Achievement in undergraduate coursework with a minimum grade point average of 3.0;
- Personal qualities that predict success in graduate study and as a professional after graduation;
- Adequate preparation in psychology and related fields; and
- Fit between the applicant’s interests and the offerings of a department graduate program.

Grade Point Average
Students must have a final 3.0 average in all psychology courses attempted.

Master of Arts Requirements
The master of arts degree is given to students who complete the professional M.A. degree track in clinical psychology and M.A. degree track in applied behavior analysis. Two years of full-time study with a minimum of 48 hours of credit are required for the master of arts degree. Students must complete a specified sequence of courses and those in the professional M.A. degree track in clinical psychology must also complete a six-month, full-time internship. There is no thesis requirement.

Master of Science Requirements
Students who are accepted into one of the Ph.D. programs will receive the M.S. degree upon completing the following requirements: PSYC 511 Research Design and Data Analysis 1, one additional three-credit research methodology course, a minimum of six credits of PSYC 698 Thesis or Dissertation, completion of a minimum of 48 total credits, and completion of an empirical master’s thesis.

Doctor of Philosophy Requirements
Students are accepted for study toward the doctor of philosophy degree upon entry into the department. Each program requires completion of a specific set of required courses and electives (described in detail in the Department Graduate Handbook). Students are formally admitted to doctoral candidacy after completion of the master’s degree or its equivalent, a comprehensive preliminary examination, and other requirements.

A dissertation and oral examination on the dissertation are required for all Ph.D. candidates. Students in the clinical psychology programs must also complete a 12-month internship. The internship must be approved by the program and by the director of clinical training.

Non-Degree Students
Graduate courses in psychology are designed for regularly admitted degree-seeking psychology students as part of an extensive program of preparing those students for professional careers. Thus, students not admitted into one of the psychology graduate programs are discouraged from taking graduate courses in psychology. Non-psychology graduate students must obtain the instructor’s permission to enroll in any psychology graduate course.

Public Administration
L. Christopher Plein, Chair
209 Knapp Hall
P.O. Box 6322
http://publicadmin.wvu.edu

Degree Offered
Master of Public Administration

The Division of Public Administration offers a public administration curriculum for graduate students seeking the degree of master of public administration (M.P.A.) or a specialization as part of another graduate degree program. This program provides a professional orientation to the primary facets of public management.
Curriculum

The master of public administration curriculum serves the needs of students from a variety of backgrounds who wish to pursue careers in public service. It directs particular attention to developing an understanding of the management function in the public context as well as preparation in utilizing advanced management techniques applicable to all levels of government—local, state, national, and international—as well as the not-for-profit sector, particularly health and hospital organizations.

The study program is designed to supply an academic foundation for comprehension of the range of processes and management approaches employed in public administration. These include public management theory and practice, personnel administration, budgetary and financial management, organizational dynamics, legal and ethical concerns, practically-oriented research, and leadership. Particular stress is placed on those functions and issues that require the greatest degree of adaptation, innovation, and responsiveness on the part of the professional administrator. The curriculum reflects the diversity of skills required by all levels of government. The range of needs is broad in scope; students apply from diverse backgrounds, including political science, other social sciences, physical sciences, humanities, and from positions in public service, not-for-profit, and private sectors.

General Requirements

The M.P.A. degree requires the completion of 45 credit hours. The general requirements are listed below. These general requirements can be tailored to individual students’ needs with revisions agreed upon by both student and advisor.

- Integrative seminar (three credit hours): orientation to professional skills and program content (PA 600).
- Foundation courses (12 credit hours): Public Management Theory and Practice (PA 610), Public Financial Management (PA 620), Research Methods (PA 630), and Legal and Political Foundations (PA 640).
- Advanced courses (nine credit hours): Public Budgeting (PA 720), Applied Research in Public Administration (PA 730), and Human Resource Systems (PA 741).
- Elective courses (12 credit hours): Selections from a wide range of specialized public administration elective courses and elective courses offered in other fields.
- Internship (six credit hours): Public Administration Internship (PA 751).
- Integrative capstone (three credit hours): Application of course concepts to planned change in public organizations (PA 700).

Degree Completion

It usually takes four semesters for full-time students to complete the M.P.A. degree. Coursework can be completed in two semesters and a summer. In addition, the internship is generally one semester in length, although a variety of internship arrangements are possible. For those individuals who have had substantial public service experience, internship credit can be awarded.

Health Care Administration

Elective courses are offered in health-care administration for students who desire to specialize in this area as part of the M.P.A. degree. A certificate program is also available. Check at the division for details.

Dual Degrees

The division has established both joint degree and dual degree programs with a number of other graduate programs. A dual J.D./M.P.A. degree program has been established with the College of Law to provide preparation in both law and public administration. A dual M.S.W./M.P.A. degree has been developed with the cooperation of the Division of Social Work to provide preparation for administrators in the social services. Dual degree programs may also be arranged with other academic programs and professional schools. Graduate studies regulations permit limited credit from one graduate degree to be applied to a second degree. Students may pursue two degrees and use approved coursework for both degrees.
Recommended Courses
While many tool skills are included in the required courses, it is strongly recommended that students take courses in accounting, statistics, and computer science as part of their undergraduate program. Coursework may also be taken at the graduate level in these subjects (200 and above) and counted as elective hours.

Minor
A graduate minor in public administration may be taken in conjunction with other graduate degrees in the College of Arts and Sciences. In addition, a graduate minor in public administration may be part of graduate degree programs outside the college as approved by the Graduate Committee for that student.

At the master’s level, a minor consists of 12 hours of coursework (PA 610, 620, 640, and one advanced course). At the doctoral level, 15 hours of coursework is required (PA 610, 620, 640, and two advanced courses). A grade point average of 3.0 must be achieved for the courses taken in the graduate minor.

Changes in course requirements within the hour limits may be approved by the Division of Public Administration for students with specialized needs or background experience.

Admission
Candidates must meet the WVU general admission requirements for graduation from an accredited college and grade point average. Admission into the M.P.A. program is competitive with decisions based on:
- Application for admission and transcripts (submitted to the Office of Admissions).
- Three letters of evaluation (forms are available from chairperson of the Division of Public Administration), Graduate Record Examination scores for the aptitude test, and a vita.

These materials should be submitted to the chairperson of the Division of Public Administration.

In the case of practicing administrators, a record of accomplishment in administrative performance will be weighed heavily in combination with the criteria outlined above.

Application Deadline
The deadline for fall or summer applications is April 1; applicants will be notified around April 15. Deadline for January admission is October 15; applicants will be notified around November 1. Decisions on applications will be made during these two periods, although late applications are considered if space is available.

Further information is available from: Division of Public Administration, P.O. Box 6322, Morgantown, WV 26506, dkoon@wvu.edu, (304) 293-2614, or www.as.wvu.edu/pubadm.

Application forms and additional information may be obtained by contacting the chairperson of the Division of Public Administration.

Social Work
Karen Harper-Dorton, Chair
11 Knapp Hall
http://socialwork.wvu.edu

Degree offered
Master of Social Work

Nature of the Program
The graduate program in social work offers advanced study and training to prepare social workers for social work practice and leadership roles in small towns and rural areas. The Division of Social Work is nationally recognized in the area of rural social work practice and non-profit management. All degree programs offered by the division are accredited by the Council on Social Work Education.
Students have the opportunity to focus their practice interests by selecting one of two practice tracks—direct practice or community organization and social administration. Students have the opportunity to do their field internships with agencies throughout West Virginia and adjacent areas. In addition, a dual degree option is offered in conjunction with the Division of Public Administration. Graduate certificates are available in the areas of gerontology and non-profit management (http://grad.wvu.edu) The division offers special courses in social work with children and families, health/behavioral health, and international social work.

The Division of Social Work supports both full-time and part-time graduate study at the main campus in Morgantown and part-time graduate study at several off-campus sites, including Charleston, Beckley, Keyser, Wheeling, and Martinsburg. Regular standing students—those with degrees in areas other than social work or those with social work degrees who do not meet the criteria for advanced standing status—begin the program in fall semesters. It takes two years to complete the program on a full-time basis, including two summer sessions between the first and second years of the program, and three years to complete the program on a part-time basis, also including summer sessions. Full-time advanced standing students (those with a qualifying B.S.W. degree) begin the program in January and complete the program in 16 months. Part-time advanced standing students begin in the fall semester and finish in just under two years.

Applicants to the M.S.W. program come from a variety of academic disciplines and have varying degrees of experience in the field of social work. Students interested in applying to the division or seeking additional information should address inquiries to M.S.W. Admissions, Division of Social Work, West Virginia University, P.O. Box 6830, Morgantown, WV 26506-6830. Phone: (304) 293-3501. Application information is also available on our website at http://socialwork.wvu.edu.

Career Opportunities

Graduates of the M.S.W. program are employed throughout the United States and Canada. They work as individual, family, and group treatment specialists, planners, community organizers, and social researchers. They also work as social work educators and as administrators in a variety of programs such as mental health clinics, hospitals, correctional institutions, courts, delinquency programs, aging programs, family counseling agencies, child protective agencies, public welfare departments, child development programs, drug and alcohol abuse programs, public schools, community action agencies, settlement houses, city governments, state government planning agencies, federal administrative agencies, and private research and development organizations concerned with human problems.

There has been a constant growth in the need for professional social workers. It is anticipated by the Bureau of Labor Statistics and other research bodies that the employment demand for social workers will continue to increase in numbers and in varieties of programs. The WVU social work curriculum is designed to help students prepare for these careers. Students are required to work closely with their academic advisors in selecting appropriate components in class and field learning to meet their individual needs.

Curriculum and Degree Requirements

Degree Requirements

The degree of master of social work (M.S.W.) is conferred upon those students who satisfactorily complete the requirements as established for graduate education. These requirements are:

- Satisfactory completion of no less than 58 semester hours for those admitted to the regular M.S.W. program and 42 semester hours for those admitted to the advanced standing M.S.W. program. These hours may be earned through the program on the main campus in Morgantown, as well as at the off-campus sites.
- Satisfactory completion of all components called for by the degree plan to which students are admitted in the graduate program.

Curriculum Components

All M.S.W. students complete coursework in social work practice, social welfare policy, human behavior and the social environment, social work research, and field instruction. In addition, students select a practice track.
• Direct practice track students gain the knowledge and skills to provide direct and clinical services to individuals, families, and small treatment groups.
• Community organization and social administration track students gain knowledge and skills to provide leadership to communities in the development, administration, and support of service programs.

Field Instruction
Field instruction provides the student with an opportunity to test classroom knowledge as well as to develop and refine advanced practice skills. Field instruction opportunities are available throughout West Virginia and adjacent areas, as well as in a select number of settings outside the region.

Full-time regular standing M.S.W. students have a generalist field experience during the first two semesters of study. Advanced field placement is typically completed on a concurrent plan requiring 16–24 hours of field instruction activity each week throughout the second year of study according to degree plans.

Students are required to take at least three credits of classroom coursework concurrently with the advanced field placement and to complete assignments designed to facilitate the integration of field and classroom study. Decisions regarding the field placement assignment are jointly reached by the student, faculty advisor, and field instruction coordinator. Only sites on the Division of Social Work’s list of approved agencies may be used for field instruction.

Grade Point Average (GPA) Requirements for Good Standing
All graduate courses must be completed with a grade of C or better; students may repeat any course for which the final grade is less than C one time only. Students are required to maintain an overall minimum GPA of 2.75 (on a four-point scale) to continue in the program, to be eligible for field instruction, and to be eligible for graduation.

Dual M.S.W/M.P.A.
A dual degree option resulting in the master of social work (M.S.W.) and master of public administration (M.P.A.) is available through the Division of Social Work and the Division of Public Administration. For a student admitted to the regular M.S.W. program, a total of 82 credit hours are required to meet the dual degree requirements. For a student admitted to the advanced standing M.S.W. program, a total of 69 credit hours are required to meet dual degree requirements. Many students complete such requirements through one or more additional semesters of study beyond the semesters required for the M.S.W. degree. Applicants must meet the admission requirements of each program. Acceptance by one program does not guarantee acceptance by the other. Additional information and descriptive materials about the dual degree program are available from either M.S.W. Admissions, Division of Social Work, West Virginia University, P.O. Box 6830, Morgantown, WV 26506-6830, or the Division of Public Administration, West Virginia University, P.O. Box 6322, Morgantown, WV 26506-6322.

Admission to the M.S.W. Program
Students requesting admission must demonstrate the following:
• Proof of academic achievement. Graduate regulations require an undergraduate grade point average of at least 2.75 for approval of candidates as a regular graduate student. An accepted applicant whose grade point average is less than 2.75 is classified as provisional. See the graduate catalog section titled “Classification of Graduate Students” for a description of admission categories.
• Aptitude for graduate study as evidenced by performance on the Graduate Record Examination. (Required for applicants with less than 3.0 GPA).
• Evidence of potential to practice social work, including a commitment to human service, and the ability to work effectively with people.
• Evidence of having successfully completed at least 30 hours of upper-level courses in the liberal arts.
• Paid or volunteer human service experience.
**Admission Eligibility**

**Regular Program**

Applicants meeting the following criteria are eligible to be considered for admission to the regular M.S.W. program (58 credit hours):

- Students with a baccalaureate degree in a field other than social work.
- Students with a baccalaureate degree in social work or social welfare from a program accredited by the Council on Social Work Education whose cumulative grade point average in their social work courses is below 3.0 (on a 4.0 scale) or who have a BSW degree older than eight years.
- Students with a baccalaureate degree in social work or social welfare whose cumulative grade point average in all courses is less than 2.75. Such students may be admitted as provisional students in the regular M.S.W. program.

All regular program students begin their study in August and are scheduled to complete their requirements within two years on a full-time basis and in three years on a part-time basis. Summer coursework is required of all students.

**Advanced Standing**

Applicants are eligible for consideration for admission to the advanced standing M.S.W. program (42 credit hours) if the following criteria are met:

- A baccalaureate degree in social work from a program accredited by the Council on Social Work Education, with a supporting recommendation from the B.S.W. director of that program.
- A cumulative GPA of 2.75 or higher (on a 4.0 scale) in all courses.
- A cumulative GPA of 3.0 or higher in their social work courses.

**Part-Time Study**

Applicants may be admitted as part-time students to either the regular M.S.W. program or advanced standing M.S.W. program. Part-time students must follow a degree plan that provides for the appropriate sequencing of courses. Students are required to complete at least six credit hours each semester while enrolled as part-time students. The entire degree may be completed on a part-time basis.

**Application Deadlines**

Each of the following deadlines refers to complete applications. Incomplete applications are held over until complete for the next deadline.

Priority Application Deadline—March 1. Applicants admitted from the priority review will be given preference for graduate assistantships in the division and for scholarships. Applications for these awards will be sent with acceptance letters and will be due on April 15.

Regular Application Deadline—April 1.

Late Application Deadline—May 1. This deadline applies to those who needed more time to complete their applications and to those who were rolled over for provisional acceptance consideration. Acceptance at this point is on a space available only basis.

The M.S.W. Admissions Committee reserves the right to alter or extend deadlines for exceptional circumstances.

**Transfer Students**

Applicants wishing to transfer from another CSWE accredited graduate social work program must meet all of WVU’s admissions requirements and may request transfer of up to a maximum of 18 credit hours. Syllabi and bibliographies for all requested transfer courses must be submitted along with a letter of recommendation from the M.S.W. program director from that institution in addition to other required letters. Applicants should include this request as part of the complete application packet. Contact the WVU Division of Social Work Admissions Office at (304) 293-3501, x 3128, for appropriate forms and information on receiving credit.
Summary of Degree Requirements for Regular M.S.W. Program
Required Course Credits................................................................. 30
Generalist Foundation Courses...................................................... 4
Advanced Field Credits....................................................................... 12
Electives Credits................................................................................ 12
Total .................................................................................................. 58

Summary of Degree Requirements for Advanced Standing M.S.W. Program
Required Course Credits................................................................. 18
Advanced Field Credits....................................................................... 12
Electives Credits................................................................................ 12
Total .................................................................................................. 42

Sociology and Anthropology
Melissa Latimer, Chair
307 Knapp Hall
P.O. Box 6326
http://www.as.wvu.edu/soca

Degree Offered
Master of Arts

Nature of the Program
The Division of Sociology and Anthropology offers an emphasis in applied social research leading to the degree of master of arts. Students are trained to be able to take positions in government, universities, community agencies, and private industry that require them to design and conduct research for purposes of evaluating policies and programs, documenting social needs, monitoring service delivery, and marketing products and services. The program also serves as a good foundation for students who may later choose to pursue doctoral studies. Students pursue individually-tailored plans of study that include training in research design and data analysis, along with advanced work in substantive areas and a grounding in policy analysis. The division is part of the School of Applied Social Sciences, which also includes the divisions of public administration and social work. Students in the applied social research program may take approved courses from these other divisions as part of their program of study.

Admission
Applicants for admission to graduate study must have a bachelor’s degree from an accredited institution. Applicants must submit a university graduate application and have their college or university transcripts sent directly to the WVU Office of Admissions. Candidates should also submit three completed recommendation forms from former professors, supervisors, or employers. Applicants should submit a written statement of purpose outlining graduate study goals and plans (career plans, research experience, and any special circumstances) and a short sample of academic writing. Scores for the Graduate Record Examination are not essential for admission but must be provided before the beginning of classes. An on-campus interview in the department is encouraged. Foreign students for whom English is not the native language are required by the University to submit Test of English as a Foreign Language (TOEFL) scores (a minimum score of 550 is required) and may be required to participate in the University’s language orientation sessions.

Application Deadline
Application process should be completed by March 1 for admission to the fall semester. Students seeking financial assistance must request and submit a separate application form furnished by the division of Sociology and Anthropology.
Remediation
Students with deficient background in sociological theory, methods, or statistics may be required to do remedial work. Full-time students who are admitted as special provisional students are required to complete 12 hours of approved coursework with a B average or better within a year; students who fail to do so are suspended. The division Graduate Committee assesses all students and determines who will be permitted to continue in the program, with or without assistance. Normally, assistance is for no more than two years.

Degree Requirements
The 36-hour program requires 30 hours of coursework and either the completion of an applied research report (six hours) based on an analysis of a social program or policy, or a thesis (six hours) for students interested in investigating a theoretical problem or methodological issue. During the first three semesters, students are required to enroll in a series of core research courses. These include survey research methods, qualitative research methods, elementary and advanced data analysis, principles of research design, and a seminar in applied social research policy.

Options
The thesis may consist of an empirical assessment of community needs, problems, policies, and/or programs or an analysis of a problem in the social scientific literature. The student, in consultation with his or her Program Committee, chooses electives either in the division or elsewhere in the University as a basis for gaining expertise in some specific area of concentration.

Faculty
In addition to instruction in technical skills, faculty furnish an overview of the relationship between policy and research and provide expertise in a broad range of substantive areas, including economic development; gender, racial, and ethnic studies; the sociology of work; criminal justice system; health care delivery; injury prevention; community and organizational development; and conflict analysis and resolution.

Statistics
E. James Harner, Chair
424 Hodges Hall
http://www.stat.wvu.edu

Degree Offered
Master of Science

Nature of the Program
The Department of Statistics offers a master of science with a major in statistics. The department also offers a minor in statistics as an option for both master of science and doctor of philosophy degree programs. The master of science degree is intended to qualify the student to assume a professional role in educational, industrial, or governmental research projects; to teach in a college; or to undertake advanced training toward a doctorate in statistics or one of the quantitative fields of science.

Because many students receive baccalaureate degrees from colleges that do not offer undergraduate programs in statistics, and because historically statistics has been primarily a field of graduate education, a student does not need a degree in statistics to enter the M.S. degree program in statistics. A good background in mathematics, science, or engineering is reasonable preparation for graduate work in statistics.

The Department of Statistics participates with computer science and mathematics to offer the combinatorial computing and discrete mathematics (CCDM) area of emphasis within the computer and information science or mathematics Ph.D. Students must be admitted to one of these degree programs. Once admitted, statistics can be chosen as a major or minor area.
Master of Science

Options The following two options are available for students seeking a master of science in statistics:

- Problem Report Option—at least 36 hours of coursework, including three hours of credit for a problem report;
- Thesis Option—at least 36 hours of coursework, including six hours of credit for a thesis.

Prerequisites Students are expected to know the material contained in the following courses or areas upon admission to the program. Otherwise, these deficiencies must be removed as early as possible in the student’s degree program under the terms specified by the Admissions and Standards Committee.

- Single and multivariable calculus (MATH 155, 156, 251 or equiv.)
- Linear or matrix algebra (MATH 441 or equiv.)
- Probability and statistics (STAT 215 or equiv.)
- Knowledge of a high-level programming language

Required Courses

Minimum requirements for either option are:

- STAT 512, 513, 545, 561, 562
- Nine hours from STAT 541, 551, 555, 631, 645
- STAT 590, 682, 696, 697

Credit towards the degree requirements is not given for STAT 511. Students must complete at least one hour of credit for STAT 590, 682, and 696, and at least three hours of credit for STAT 697. Students are expected to attend the graduate seminar every semester even if they are not registered for STAT 696. A grade of C or better and a minimum 2.75 GPA is required for courses fulfilling a major in statistics.

Examinations Students must pass two written comprehensive examinations on foundation material and a final oral examination on the thesis or problem report. One comprehensive examination covers the theory taught in STAT 561 and 562; the other covers the applications taught in STAT 512, 513, and 545. These written examinations are normally given in the first four weeks of the semester in which the student expects to graduate. The final oral examination is a defense of the graduate research project required of all students, and it is usually given within four weeks after the student has presented an acceptable copy of the thesis or report to the advisor and Graduate Committee.

More information concerning graduate studies may be found in the Graduate Programs in Statistics available from the Department of Statistics (or on the web at http://www.stat.wvu.edu).

Minor in Statistics

Master’s Level Any student pursuing a master’s degree at West Virginia University may complete a minor in statistics by completing one of the following options.

Minor in Applied Statistics

- Knowledge of a high-level programming language.
- Nine hours from STAT 512, 513, 541, 545, 551, 555, 561, 562, 631, or 645.

A grade of C or better and a minimum 2.75 GPA is required for courses fulfilling a minor in statistics. A statistics faculty member must be on the student’s Graduate Committee. The student must make a significant application of statistics in his or her problem report/thesis or demonstrate the ability to apply statistical techniques to a research problem.

Minor in Mathematical Statistics

- MATH 155, 156, 251 (or equiv.), and knowledge of a high-level programming language.
- STAT 561, 562.
- Six hours from STAT 512, 513, 541, 545, 551, 555, 631, 645.

A grade of C or better and a minimum 2.75 GPA is required for courses fulfilling a minor in statistics.

Doctoral Level A student pursuing a doctor of philosophy in the Eberly College of Arts and Sciences may complete a minor in statistics by completing one of the following options.

West Virginia University Graduate Catalog
Minor in Applied Statistics
- MATH 155, 156 (or equiv.), and knowledge of a high-level programming language.
- Fifteen hours from STAT 512, 513, 541, 545, 551, 555, 561, 562, 631, or 645.
A grade of C or better and a minimum 3.0 GPA is required for courses fulfilling a minor in statistics. A statistics faculty member must be on the student's Graduate Committee. Statistics must be one of the areas covered in the student's comprehensive examination.

Minor in Mathematical Statistics
- MATH 155, 156, 251 (or equiv.), and knowledge of a high-level programming language
- STAT 561, 562
- Nine hours from STAT 512, 513, 541, 545, 551, 555, 631, 645
A grade of C or better and a minimum 3.0 GPA is required for courses fulfilling a minor in statistics. A statistics faculty member must be on the student's Graduate Committee. Statistics must be one of the areas covered in the student's comprehensive examination.

Women's Studies
218 Eiesland Hall
http://wmst.wvu.edu/

Nature of the Program
The Center for Women's Studies has a University-wide mission to coordinate interdisciplinary teaching and research on women and gender. The center sponsors lectures, films, colloquia, symposia, conferences, faculty development programs, and scholarships.

Students interested in doing graduate work in women’s studies can apply for admission to the master of arts in liberal studies program (M.A.L.S.) offered through the Eberly College of Arts and Sciences. The women's studies-directed M.A.L.S. program is a special emphasis within the M.A.L.S. program that allows students to focus their work on women's studies. Interested students should become familiar with the requirements of M.A.L.S. as described on page 394 and contact the director of the Center for Women's Studies for specific requirements for the program or, see the Center’s website at http://wmst.wvu.edu/.

Financial Assistance
Financial assistance is available to students doing graduate work in women's studies who qualify for our scholarships. Graduate students doing coursework or research in women's or gender studies may apply to the Winifred South Knutti Graduate Scholarship in Women’s Studies and the Velma M. Miller/West Virginia Alliance for Women's Studies Graduate Scholar Award. Teaching assistantships are also available to qualified students.

The Center for Women's Studies, 218 Eiesland Hall, P.O. Box 6450, Morgantown, WV 26506-6450. E-mail: wmst@mail.as.wvu.edu. Telephone: (304) 293-2339.

In addition to the women's studies courses listed here, other courses focusing on women and gender, as well as independent study opportunities, are available in several University departments.

Graduate Certificate in Women's Studies
Students can choose to complete a graduate certificate in women’s studies in conjunction with another graduate degree or as a non-degree graduate student. The certificate consists of 15 hours of graduate-level work in women’s studies, using those courses approved by the WVU Women's Studies Curriculum Committee as primary or component courses for the Women’s Studies Program. A current list of courses is available from the Center for Women's Studies.
Perley Isaac Reed School of Journalism
Maryanne Reed, M.S.J., Dean
Steve Urbanski, Ph.D., Director of Graduate Studies
Chad Mezera, M.S.J., IMC Program Director


Degree Offered

Master of Science in Journalism

The master of science in journalism (M.S.J.) is a program in the School of Journalism, located on the Downtown campus in Martin Hall, WVU's oldest building (constructed in 1870). Martin Hall was renovated, refurnished, and equipped in 1976–77.

Today the school has state-of-the-art electronic reporting and editing systems as well as modern broadcast news facilities. Graduate faculty, having educational and professional backgrounds in mass communications studies and media-related experiences, are highly qualified to teach mass communications at both the undergraduate and graduate levels. About one-half have earned terminal degrees and/or have worked professionally in their areas of expertise.

The master’s program has granted more than 250 degrees since its first in 1962. The School of Journalism, established in 1939 and one of the oldest in the United States, is one of approximately 100 such programs accredited by the Accrediting Council on Education in Journalism and Mass Communications. The school has nearly 4,600 graduates, the majority of whom have careers in newspaper journalism, broadcasting, advertising, public relations, or related fields.

Master of Science in Integrated Marketing Communications

The Integrated Marketing Communications (IMC) master’s program at West Virginia University teaches students to re-align their communications, seeing things the way the consumer sees them—as a constant flow of information from a variety of mediums. Graduates of the IMC program receive a practical, customized degree that is designed to help them emerge as leaders in the field.

One hallmark of the IMC program is its learn-it-today, use-it-tomorrow focus. Specifically, students are able to take the knowledge they gain in the classroom and immediately apply it to problems and challenges in their professional lives. IMC students also benefit from studying under a diverse faculty—from marketing managers to academics to entrepreneurs—who are recognized leaders in their fields. These talented instructors are highly enthusiastic about sharing their knowledge and experience with our students.

The IMC program is also renowned for its flexibility. Because our coursework is offered completely online, no classroom attendance is required. In fact, most IMC students continue to work full-time while earning their degree. In addition, all IMC courses are asynchronous, allowing students to participate at anytime, from anywhere in the world.

The master of science (M.S.) degree in Integrated Marketing Communications requires 39 hours of coursework, and each course is three credit hours (a total of
13 courses are required). The program's academic year consists of five nine-week terms: Early fall (August–October), late fall (October–December), early spring (January–March), late spring (March–May) and Summer (May–July).

Most students take 1–2 courses per term, dedicating 12–15 hours of study per week to each course. Students generally complete their degree in about two years. Those who wish to experience the program without making a full commitment are invited to apply to the five-course IMC certificate program; any courses taken in this program may be transferred for full credit should a student decide to pursue the full master's degree.

**IMC Assistantships**

Due to the online nature of the Integrated Marketing Communications program, graduate assistantships are not available for IMC students.

**IMC Program Admission**

Admission to the IMC program is competitive. Applicants are required to submit an IMC program application, a WVU graduate application, a resume, letters of recommendation (optional but recommended) and GRE/GMAT scores (which may be waived if certain criteria are met). The program operates on a rolling admissions basis, with students being admitted in the early fall, early spring and summer terms.

For more information about applying to the IMC program, visit the website http://www.imc.wvu.edu. Free online information sessions are offered each month. Visit the website for complete information on the IMC program, including faculty bios, curriculum and course information, details on the program's application process, and to request additional information and sign up for a free online information session.

**Master of Science in Journalism Program**

The master's program offers students the choice of two tracks: the teaching research track for persons who wish to pursue a doctoral degree, and the professional track for those who wish to enhance their professional opportunities in some area of mass communications.

This program, designed to help each student reach his/her potential as a practitioner, teacher, or scholar in mass communications, prepares a graduate not only for a first job but also for long-term productive career development through the study of mass communications and related fields. Skills acquired allow the student to excel in his/her chosen profession.

School faculty are developing more specialized curricula for persons who aspire to become integrated marketing communications (IMC) practitioners, news specialists, or public relations specialists in such fields as business, energy and the environment, science, social relations, education, government, international affairs, and sports.

**Assistantships**

Assistantships available in and through the school each year pay stipends, health insurance, and tuition remission. Journalism graduate assistants supervise broadcast and computer laboratories, advise undergraduates, and assist professors with teaching courses, service learning, and research projects. Some journalism graduate students work in media-related positions in their own and in other WVU programs.
Admission
Those interested in learning about and applying to the master’s program should contact the director of graduate studies via e-mail (steve.urbanski@mail.wvu.edu). Graduate students specifically seeking information about the IMC Online Graduate Program should contact the IMC coordinator or visit http://www.imc.wvu.edu. Those wishing to pursue either the general master’s degree or the IMC Certificate may access WVU graduate information at http://www.wvu.edu/graduate. The WVU Admissions online catalog is available at http://admissions.wvu.edu/graduate. Written requests for answers may also go to WVU, P.I. Reed School of Journalism, 112 Martin Hall, P.O. Box 6010, Morgantown, WV 26506-6010. The SOJ telephone number is (304) 293-3505.

Graduate Faculty
† Indicates regular membership in the graduate faculty.
* Indicates associate membership in the graduate faculty.

Ogden Newspapers Endowed Visiting Professor
†George Esper, Honorary Ph.D. (WVU). Reporting, Writing on deadline, Feature writing, War correspondence.

Shott Chair in Journalism Professor

Associate Professors
*Christine M. Martin, M.A. (U. Md.). News and feature writing, Journalism history.

Assistant Professors
*Bob Britten, Ph.D. (U. of Missouri-Columbia). Visual communication and news design.
*Rita Colistra, Ph.D. (U. of N.C. at Chapel Hill). Beginning and advanced public relations.
*Sammy Lee, Ph.D. (Penn. St.). Advertising campaigns, Direct marketing, Integrated marketing communications.
*Sara Magee, Ph.D. (Ohio U.). Television news reporting and media ethics.

Emeriti Professors
Paul A. Atkins, M.A. (U. Va.).
John H. Boyer, Ph.D. (U. Mo.).
Charles F. Cremer, Ph.D. (U. Iowa).
Robert M. Ours, Ph.D. (C. William & Mary).
Guy H. Stewart, Ph.D. (U. Ill.). Dean.
William R. Summers Jr., M.A. (U. Mo.).
Pamela Yagle. M.S.J. (WVU).

Master of Science in Journalism
The master of science in journalism (M.S.J.) program in the Perley Isaac Reed School of Journalism is designed to help persons involved in various aspects of mass communication to better understand and to cope not only with the increased complexity of their own majors but also with fields outside mass communications.

The program, created to assist each student in reaching his/her potential as a worker, teacher, or scholar in mass communications, prepares a master’s candidate not only for a first job but also for long-term and productive career development through the study of mass communications and related fields. Students who obtain the M.S.J. degree should excel in professional skills.
The M.S.J. program is intended to afford liberal arts graduates an opportunity to concentrate advanced study in mass communication; to provide intensive study for persons who have undergraduate journalism training and who wish to pool their journalistic skills with extensive knowledge in another substantive area or areas (e.g., political science, economics, science); and to give persons who have had considerable professional experience an opportunity to broaden their academic bases through carefully selected advanced studies.

Admission

Admission to the M.S.J. program is limited to recipients of baccalaureate or equivalent degrees from institutions of higher learning. Applicants should have combined verbal and quantitative Graduate Record Examination (GRE) Aptitude Test scores totaling at least 1,000 and should have earned at least 3.0 cumulative grade point averages (GPAs) on a 4.0 scale. Each master’s candidate should submit to the School of Journalism director of graduate studies a detailed statement of purpose explaining why the student wishes to undertake graduate study in journalism, what the student hopes to glean from the graduate journalism program, what his/her long-term goals are, and how graduate education in journalism can help achieve those goals.

An applicant who does not meet the minimum GRE and/or GPA requirement(s) may be accepted only if the low GPA or GRE scores are offset by other factors. Excellent recommendations, unusual grading patterns (e.g., a steady rise of grades), an outstanding statement of purpose, or examples of professional accomplishment sometimes can offset low GRE scores or a low GPA.

Students applying for admission to the M.S.J. program are encouraged to send non-returnable supporting material to the School of Journalism director of graduate studies. A list of these materials can be found at: http://journalism.wvu.edu/academics/graduate_programs/master_of_science_in_journalism/admission. All other materials (e.g., transcripts, GRE scores, application forms) should be sent to the Office of Admissions.

Additional Requirements

Prior to graduation all students seeking a master’s degree in journalism must demonstrate basic academic competency or extensive professional field experience, as determined by the Graduate Studies Committee, in the following fundamental journalism areas of interest:

- Basic Print Journalism Reporting/Writing (JRL 318, TVJ 319 and/or PRNJ 418)
- Visual Communication (VISJ 210, VISJ 220, JRL 319, PR 319, or other visual communication course(s)
- Journalism/Media Ethics (JRL 489 or JRL 689)
- Media Law (JRL 428/528)

In addition, a student who does not have a bachelor’s degree in journalism or extensive professional experience may be required to meet the following additional requirements:

- Must have completed a core of journalism courses with subjects and grades acceptable to the School of Journalism, or
- Must complete undergraduate journalism and other courses to be prescribed by the School of Journalism, or
- Must demonstrate knowledge and competence in a number of journalism topics to be prescribed by the School of Journalism, or
- Must meet a combination of the foregoing requirements.

All M.S.J. students are strongly encouraged to have taken an undergraduate research methods course and/or a statistics course with an algebraic prerequisite. Those students not meeting one or both of these criteria may be required to remedy this deficiency prior to enrolling in JRL 620.

Application

All applications for admission are considered by the Graduate Committee. The director of graduate studies advises all students about general problems and concerns, courses to take, projects to undertake, special training to obtain, and appropriate outside areas for study.
Plan of Study
Early in the student’s program, usually by the completion of six to nine credit hours of graduate coursework, the student and the advisor draw up a plan of study to show the student’s direction. The plan may also indicate a general time frame anticipated for the completion of this work and may contain the direction and outline of the research problem to be undertaken. This plan of study becomes a part of the student’s record and constitutes, with some degree of specificity, the terms and conditions that the student must meet for completing the degree requirements. Subsequent changes in the plan of study must be approved by the student and the advisor, and no graduate student may take a course S/U or P/F without written permission of the graduate director.

Assistantships and Tuition Waivers
Approximately five assistantships are available in the School of Journalism each academic term. Graduate assistants teach laboratories and assist professors with their courses and research. Interns work in mass communications-related jobs on campus to obtain solid professional experience.

Students may receive stipends for the academic term and may apply for tuition remission for the entire year. Although sometimes renewed for a second or third term, assistantships and internships are granted for one academic term. Graduate assistants and interns work an average of 20 hours per week during the academic year.

Persons who wish to be considered for assistantships or internships should have their applications on file with the director of graduate studies before March 1 of the same year.

Emphases
The School of Journalism offers two areas of emphasis—the teaching/research track and the professional track—within the M.S.J. program.

Teaching/Research: The teaching/research track is generally a program for persons who wish to pursue a Ph.D., to teach at the college/university level, and conduct research in areas of mass communications. Persons in the track normally take research and theory courses both inside and outside the School of Journalism, statistics, and social science courses. The program culminates in a thesis, which is a scholarly theoretical study of an important aspect of mass communications.

Professional: The professional track is designed primarily for persons who wish to become excellent practitioners in some field of mass communications and who have less desire to teach or to become mass communications researchers. Persons in the professional track normally take communication and outside area courses that will help them to become better practitioners. The program culminates in a professional project, which helps a student to extend his/her practical and theoretical knowledge about a given aspect of mass communications and should be a non-routine project on which the student could work as a professional.

Time Limitation
Students must complete all graduate degree requirements, including either a thesis or a professional project, within eight years of beginning the initial coursework of the program. After this period, the core courses of the program will have to be re-taken. After 10 years, students will be required to begin the program anew.

Requirements
For the master’s degree in journalism, the student must meet the following requirements:

Teaching/Research: a minimum of 30 hours of acceptable graduate credit, including a thesis for six hours. As part of the 30 hours, a minimum of 18 hours, including the thesis, must be School of Journalism courses. Included in the 30 hours, students may take nine hours in a minor outside the School of Journalism.
Professional: a minimum of 30 hours of acceptable graduate credit, including a professional project for six hours. As part of the 30 hours, a minimum of 18 hours, including the professional project, must be School of Journalism courses. Included in the 30 hours, students may take nine hours in a minor conducted outside the School of Journalism. In either program the candidate is allowed to take more than the minimum required number of hours.

All Students: The following courses are required for all journalism graduate students:

- JRL 600 Introduction to Graduate Studies (no credit);
- JRL 604 Mass Media and Society (3 Hr.);
- JRL 620 Advanced Journalistic Writing and Research (3 Hr.); and each M.S.J. candidate must take these courses in the following sequence over a three-term period:
  - Term 1: JRL 600 and JRL 604 (fall)
  - Term 2: JRL 620 (spring)
  - Term 3: Various electives

In both programs 60 percent of the graduate credits submitted for the degree (18 credits) must be in courses numbered 500–799.

Every graduate student must complete coursework with a minimum 3.0 grade point average. The thesis or professional project will be graded as an S or U (satisfactory or unsatisfactory).

Except for thesis, professional project, and internship courses, no student may take a course on a P/F or S/U grade basis without prior approval of the director of graduate studies.

Thesis/Professional Project

Each student must complete a thesis or a professional project involving original work in his/her area of interest. The master’s candidate should have a thesis or professional project proposal written by the end of the academic term in which the first 12 hours of coursework are completed.

Each student is responsible for developing ideas for the thesis or professional project. Through consultations with journalism faculty, the student can determine faculty interests and areas of expertise; he/she then refines a preliminary idea to a significant, feasible thesis/project topic.

Normally students will enroll for six credit hours of theses/professional project courses. The director of graduate studies must approve any deviations from this norm.

In addition to this six-hour limit, no graduate student will be permitted to enroll in more than six hours of research and/or colloquium courses without approval from the director of graduate studies.

Advisory Committee

The student, with approval of the director of graduate studies, selects a journalism graduate faculty member who would be best able to chair his/her Advisory Committee, subject to the agreement of the faculty member. If questions arise about a faculty member’s interest or knowledge, the student should consult the director of graduate studies. With the chairperson, the student further refines the topic to a “preliminary proposal” stage, in which concepts and appropriate methodology are on paper but not necessarily in formal proposal form.

After the student has written a preliminary proposal and selected a faculty chairperson, the student should select other members of his/her committee, subject to their willingness to serve. The committee must consist of no fewer than four members, at least two persons must be members of the WVU faculty; others may be from other departments at WVU. Committee chairs must be members of the SOJ graduate faculty. The fourth member of all theses committees must be affiliated with the graduate program at an accredited university (or another department at WVU). The fourth member of professional project committees may be from the professional realm.

Proposals

At this point students in the thesis/professional track must submit proposals to their committee, which must approve all topics (but not research methods, specific research questions, or hypotheses, etc.). Students may attend the meetings at which their proposals
are discussed. After securing committee approval, students schedule a proposal defense date. Proposal defenses are required of all students.

Working under the committee’s guidance, each student revises the thesis or project proposal, extended from the preliminary proposal. Guidance for designing a proposal is available from the director of graduate studies.

Once the committee agrees that the proposal is ready, a proposal defense is scheduled.

**Final Thesis/Project Approval**

After the thesis/project proposal defense, the committee votes to accept or to reject a proposal. The student whose proposal is approved works closely with a committee to complete his/her final thesis or project. A master’s candidate must inform his/her committee and consult its members for advice (as needed and as desired by them) as the thesis or project develops.

After each advisory committee member is satisfied with the thesis or project, a final defense is scheduled. Announcements of the defense should be posted in Martin Hall. Students also should make certain that they file their thesis/project signature form with the director of graduate studies (and the University Library) two weeks before their defense date.

Only committee members may vote on acceptance or rejection of a thesis. Although someone may cast a recorded dissenting vote, a majority vote is sufficient to approve a thesis/project. Furthermore, at least three signatures (two of which must belong to SOJ faculty members) must appear on the approval sheet.

Master’s candidates should follow APA or another approved stylebook during preparation of a thesis or professional project.

Each committee chairperson will ultimately decide whether the candidate has properly made the requested corrections (after the final defense); that chairperson also will check the style and form of the final version. Every graduate student is responsible for delivering a copy of a final thesis or professional project to the director of graduate studies; he/she also must file a thesis or professional project electronically (to the University Library) before the academic term’s deadline.

**Maintenance of Scholarship**

A journalism graduate student must maintain satisfactory progress toward his/her M.S.J. The candidate’s graduate record begins with the first course credited toward the master’s and includes all subsequent courses. Every graduate student must maintain at least a 3.0 grade point average and complete all requirements within eight years. Anyone who fails to meet this standard will be dropped from the program.

Each person working toward the M.S.J. must register for at least one hour during every regular (fall and spring) term. This enrollment may be in coursework or in Journalism 697 (Research).

**International Students**

Believing that mutual benefit is derived when scholars from other countries study in the P.I. Reed School of Journalism, the faculty welcomes international students. At the same time the faculty recognizes that journalism, more than any other field, requires language skill. To profit from journalism study, international students must have a ready understanding of English. They should expect to follow rapid speech in interviews, press conferences, public addresses, and classroom lectures as well as to deal with abstract ideas communicated in English. International students must maintain the same 3.0 grade point average required of other graduate students.

Recognizing possible language difficulty, the School of Journalism, therefore, offers international students a transition academic term. If it is determined that they are not fluent in English and cannot earn a Journalism Qualifying Exam competitive score to demonstrate comprehensive knowledge of English fundamentals (grammar, punctuation, syntax, and spelling), students will be offered one academic term of undergraduate study (not for graduate credit), which will enable them to sharpen their language skills.
School of Dentistry

Louise T. Veselicky, D.D.S., M.D.S, M.Ed., Interim Dean
Christina B. DeBiase, B.S.D.H., M.A., Ed.D, Associate Dean, Academic and Postdoctoral Affairs
Richard J. Crout, D.D.S., M.S., Ph.D., Associate Dean, Research
Shelia S. Price, D.D.S., M.S., Ed.D, Associate Dean, Admissions, Recruitment and Access
Robert L. Wanker, D.D.S., Assistant Dean, Student and Alumni Affairs

http://www.hsc.wvu.edu/sod

Degrees Offered

D.D.S. in Dentistry (See the Health Sciences Catalog)
M.S. in Dental Specialties (Endodontics, Orthodontics, and Prosthodontics)
Master of Science in Dental Hygiene

The School of Dentistry was established by an act of the West Virginia Legislature on March 9, 1951, and offers baccalaureate, professional, and advanced degrees. The school is located on the first floor of the Health Sciences Center North. Modern clinical facilities include over 75 treatment areas and clinical and preclinical simulation teaching laboratories.

The majority of the faculty are full-time and have had advanced education in all of the recognized specialty areas. All programs are fully accredited by the Commission on Accreditation of the American Dental Association. The school will be expanding its specialty and research areas as additional space and funds become available.

The School of Dentistry offers several advanced education programs beyond the D.D.S. and B.S. degrees.

The Department of Endodontics offers a program of advanced study and clinical training leading to the master of science degree. The program requires a minimum of 24 months (two academic years and two summers) of full-time residency in the School of Dentistry. The program is designed to qualify dentists for careers in endodontic clinical practice, teaching, and research.

The Department of Restorative Dentistry offers a program of advanced training in prosthodontics leading to the degree of master of science. The program requires a minimum of 33 months (three academic years and two summers) of full-time residency in the School of Dentistry. The program is designed to qualify dentists for careers in prosthodontic clinical practice, teaching, and research.

The Department of Orthodontics offers a program of advanced study and clinical training leading to the master of science degree. The program requires a minimum of 34 months (three academic years and two summers) of full-time residency in the School of Dentistry. The program is designed to qualify dentists for careers in orthodontic clinical practice, teaching, and research.

The Division of Dental Hygiene offers a program of advanced study and specialized training leading to the master of science degree. The program requires the completion of a minimum of 38 semester hours through full- or part-time enrollment in the School of Dentistry. The program is designed to qualify dental hygienists for careers in teaching, administration, research, and management.

The School of Dentistry offers one four-year residency in oral and maxillofacial surgery, and two one-year graduate practice residencies.

Graduates of both North American and international dental schools are considered for admission to the dental specialty programs in orthodontics and prosthodontics. Graduate assistantships are available in dental hygiene, the second year of the endodontic program, and the third year of the orthodontic and prosthodontic programs. Stipends are provided for the residency programs.

Information concerning admission requirements and courses of study may be obtained from the Office of Academic and Postdoctoral Affairs, WVU School of Dentistry, P.O. Box 9402, Health Sciences Center, Morgantown, WV 26506-9402. Telephone (304) 293-3549, fax (304) 293-4915, e-mail: kdavis@hsc.wvu.edu.
Faculty
† Indicates regular membership in graduate faculty.
* Indicates associate membership in graduate faculty.

Professors
Carol A. Spear, M.S. (U. Mich.). Dental hygiene related topics, Instrumentation, Infection control, Education.
John G. Thomas, M.S., Ph.D. (Syracuse U). Periodontology.

Associate Professors
Cathryn L. Frere, B.S.D.H., M.S. Ed. (USC). Dental hygiene

Dental Hygiene
Amy D. Funk, B.S.D.H., M.S.D.H., Interim Director
1189 Health Sciences North
e-mail: afunk@hsc.wvu.edu
http://www.hsc.wvu.edu/sod/

Degree Offered
Master of Science

The School of Dentistry and its Division of Dental Hygiene offer a program of advanced study leading to the degree of master of science. This program requires a minimum of 38 semester hours through full-time or part-time enrollment in the School of Dentistry. It is designed to qualify dental hygienists for careers in teaching, administration, research, and management.

Inquiries concerning this program should be directed to the Office of Academic and Postdoctoral Affairs, School of Dentistry. Applications should be filed by July 1 for fall admission and by October 15 for spring enrollment.

Admission Requirements
The program’s admission requirements are as follows:

- Meet WVU requirements for admission to graduate study. Applicants who do not meet the minimum requirements for admission must gain provisional acceptance into the program. All provisions of admission must be met no later than completion of the 18th credit hour to be reclassified as a regular student. A student who fails to meet the provisions of admission or who fails to meet the required GPA will be suspended.

- Possess a baccalaureate degree in dental hygiene from an accredited dental hygiene program or a baccalaureate degree in another field of study from an approved institution of higher education while holding a certificate or associate’s degree in dental hygiene from a program fully accredited by the American Dental Association Commission on Dental Accreditation.
• Demonstrate evidence of scholastic and clinical achievement to indicate the applicant’s ability to progress in a program of this nature. Generally, a minimum grade point average of 3.0 or above on a 4.0 scale on all college work attempted is required.
• Complete the Graduate Record Examination (GRE) with an acceptable score within the last five years.
• Submit all information requested in the graduate application to the Office of Academic and Postdoctoral Affairs.
• Consent to and pass a criminal background investigation prior to final acceptance.

**Degree Requirements — Master of Science Degree**

• Complete a minimum of 40 semester credit hours: 26 required credit hours and 12 credit hours in an elective area(s) of dental hygiene specialization. Two elective areas of specialization are offered. These areas are teaching/administration and special patient care. The student chooses one area of study. Courses within these specializations are taught by a number of schools or colleges within the University. An individualized program will be devised for each student.
• Complete a maximum of six hours in research (part of the 28 hours required by the program) leading to an acceptable thesis.
• Oral defense of the thesis is required.
• Student teaching in the undergraduate clinic a minimum of one semester.

**GPA**

In order to earn a master’s degree in dental hygiene students must also meet the following:
• Achieve of a 3.0 GPA or an overall academic average of at least a B in all work attempted in the master’s program. A grade of C or below in one course will require a faculty review of the student’s progress. A second C or below will result in dismissal from the program. A student may repeat only one course one time to bring the GPA up to the 3.0 requirement.
• Remove all conditions, deficiencies, and incomplete grades from the student’s transcript. Credit hours for courses with a grade lower than C do not count toward degree requirements.

**Basic Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>PUBH 611</td>
<td>Applied Biostatistics in Health</td>
<td>3</td>
</tr>
<tr>
<td>PUBH 630</td>
<td>Policy and the Health System</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 689</td>
<td>Cultural Diversity in the Classroom</td>
<td>3</td>
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<tr>
<td>EDP 612</td>
<td>Introduction to Research</td>
<td>3</td>
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<td>DTHY 678</td>
<td>Dental Hygiene Teaching Methods</td>
<td>2</td>
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<tr>
<td>DTHY 679</td>
<td>Dental Hygiene Clinical Evaluation</td>
<td>2</td>
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<tr>
<td>DTHY 680</td>
<td>Critical Issues in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>DTHY 690</td>
<td>Teaching Practicum</td>
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<tr>
<td>DTHY 697</td>
<td>Research (Thesis)</td>
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<td><strong>Total</strong></td>
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Elective area(s) of dental hygiene specialization ................................................................. 12

*Dental Hygiene 691 and Dentistry 791 courses*

Courses taught by the schools of:
- Business and Economics
- Educational Psychology
- Medicine (Community Health Promotion) and the Multidisciplinary Students Program
- Human Resources and Education

**Total** ......................................................................................................................................... **38**
Endodontics
C. Russell Jackson, D.D.S., M.S., Director
1067 Health Sciences North
http://www.hsc.wvu.edu/sod

Degree Offered
Master of Science

The School of Dentistry and its Department of Endodontics offer a program of advanced study and clinical training leading to the degree of master of science. The program requires a minimum of 24 months (two academic years and two summer sessions) of full-time residency in the School of Dentistry. It is designed to qualify dentists for careers in endodontic clinical practice, teaching, and research.

Inquiries concerning this program should be directed to the Office of Academic and Postdoctoral Affairs. Applicants will be processed in the School of Dentistry. Applicants approved for admission to the program will be notified soon after interviews are completed.

Admission Requirements
The program’s admission requirements are as follows:
• Must have passed the National Dental Board Examination—Part 1 and Part 2.
• Must have earned a D.M.D. or D.D.S. degree.
• Must be a graduate of an accredited U.S. or Canadian Dental School.
• Must possess West Virginia state dental license.
• Must display evidence of scholastic and clinical achievement that would indicate the applicant’s ability to progress in a program of this nature. Generally, a minimum grade-point average of 3.0 is required.
• Must apply to the program through the Postdoctoral Application Support Service (PASS, http://www.adea.org/) and have all application materials in PASS by September 1. Please see the How to Apply section for more detailed information.
• Must consent to and pass a criminal background investigation prior to final acceptance.

Degree Requirements — Master of Science degree
• Fulfill University requirements for graduate study.
• Complete 24 months (two academic years and two summer sessions) of consecutive full-time advanced study and clinical training at the School of Dentistry.
• Complete an approved master’s thesis based on original research completed during the course of study in an area related to endodontics.
• Pass a final oral examination.
• Complete all didactic and clinical work in the required curriculum.
• Demonstrate satisfactory clinical competency in endodontics.
• Complete a minimum of 63 credit hours, including 35 hours of endodontic courses, a minimum of 11 hours of selected basic sciences subjects, six hours teaching practicum and a thesis (11 hours).
• Achieve a 3.0 GPA or an overall competence in the student’s field. A minimum grade of B must be earned in all work attempted in the master’s program. A grade of C or below in two courses will require a faculty review of the student’s progress. A third C or below will result in suspension from the program.
Orthodontics
Peter Ngan, D.M.D., Chair
1073 Health Sciences North
http://www.hsc.wvu.edu/sod

Degree Offered
Master of Science

The School of Dentistry and its Department of Orthodontics offer a program of advanced study and clinical training leading to the degree of master of science. The program requires a minimum of 34 months (three academic years and two summers) of full-time residency in the School of Dentistry. It is designed to qualify dentists for careers in orthodontic clinical practice, teaching, and research.

Inquiries concerning this program should be directed to the Office of Academic and Postdoctoral Affairs. Applications will be processed in the School of Dentistry. Applicants approved for admission to the program will be notified soon after December 1.

Admission Requirements
The program’s admission requirements are as follows:
• Must have passed the National Dental Board Examination — Part I.
• Must have earned a D.M.D./D.D.S. degree, or its equivalent.
• Must be proficient in the English language.
• Must provide the most recent TOEFL score (if you are a foreign applicant).
• Must submit undergraduate transcripts.
• Must display evidence of scholastic and clinical achievement that would indicate the applicant’s ability to progress in a program of this nature. Generally, a minimum grade point average of 3.0 is required.
• Must apply to the program through the Postdoctoral Application Support Service (PASS, http://www.adea.org/) and have all application materials in PASS by September 1. Each applicant must also have a MATCH number from National Matching Services (http://www.natmatch.com). Please see the How to Apply section for more detailed information.
• Must consent to and pass a criminal background investigation prior to final acceptance.

Degree Requirements — Master of Science degree
• Fulfill of University requirements for graduate study.
• Complete 34 months (three academic years and two summer sessions) of consecutive full-time advanced study and clinical training at the School of Dentistry.
• Complete an approved master’s thesis based on original research completed during the course of study in an area related to orthodontics.
• Pass the Mock ABO clinical examination which includes a written and an oral examination.
• Pass the written component of the ABO examination.
• Complete all didactic and clinical work in the required curriculum.
• Demonstrate satisfactory clinical competency in this field.
• Complete a minimum of 81 credit hours, including 54 hours of orthodontic courses and a minimum of eight hours of selected basic science subjects, six hours of teaching practicum, and a research/thesis (13 hours).
• Achieve a 3.0 GPA or an overall competence in the student’s field. A minimum grade of B must be earned in all work attempted in the master’s program. A grade of C or below in two courses will require a faculty review of the student’s progress. A third C or below will result in suspension from the program.
Prosthodontics
Mark W. Richards, D.D.S., M.Ed., F.A.C.P., Director
1199B Health Sciences North
http://www.hsc.wvu.edu/sod

Degree Offered

Master of Science

The School of Dentistry and its Department of Restorative Dentistry offers a three-year program of advanced study and clinical training in the dental specialty of prosthodontics. The program requires a minimum of 33 months (three academic years and two summers) leading to a certificate in prosthodontics and a master of science degree. The purpose of this program is to train well-qualified dentists in all aspects of prosthodontics and is designed to qualify them for careers in prosthodontic clinical practice, teaching, and research.

Inquiries concerning this program should be directed to the Office of Academic and Post-doctoral Affairs. Applications will be processed in the School of Dentistry. Applicants approved for admission to the program will be notified soon after interviews have been completed.

Admission Requirements

The program's admission requirements are as follows:

- Must have passed National Dental Board Examination – Part I.
- Must have earned a D.M.D./D.D.S. degree, or its equivalent.
- Must be a graduate of a U.S. or Canadian dental school.
- Must be proficient in the English language.
- Must display evidence of scholastic and clinical achievement that would indicate the applicant's ability to progress in a program of this nature. Generally, a minimum grade point average of 3.0 is required.
- Must apply to the program through the Postdoctoral Application Support Service (PASS, http://www.adea.org/) and have all application materials in PASS by October 1. Please see the How to Apply section for more detailed information.
- Must consent to and pass a criminal background investigation prior to final acceptance.

Degree Requirements — Master of Science degree

- Fulfill University requirements for graduate study.
- Complete 33 months (three academic years and two summer sessions) of consecutive full-time advanced study and clinical training at the School of Dentistry.
- Complete an approved master’s thesis based on original research completed during the course of study in an area related to prosthodontics.
- Pass a final oral examination.
- Complete all didactic and clinical work in the required curriculum.
- Demonstrate satisfactory clinical competency in this field.
- Complete a minimum of 77 credit hours. This includes 49 credit hours of prosthodontic courses, a minimum of 13 credit hours of selected basic science subjects, two hours of teaching practicum, and 13 credit hours for completion of a master’s thesis.
- Achieve a 3.0 GPA or an overall competence in the student’s field. A minimum grade of B must be earned in all work attempted in the master’s program. A grade of C or below in two courses will require a faculty review of the student’s progress. A third C or below will result in suspension from the program.
School of Medicine
James E. Brick, M.D., Interim Dean
Michelle Nuss, M.D., Interim Associate Dean, Hospital Services
James P. Griffith, M.D., Associate Dean, Student Services, Charleston Division
Norman D. Ferrari, M.D., Senior Associate Dean, Medical Education
Timothy Palencik, Associate Dean, Finance
Fred L. Minnear, Ph.D., Assistant Dean, Graduate Studies
MaryBeth Mandich, Ph.D., Associate Dean for Professional and Undergraduate Programs
James M. Shumway, Ph.D., Associate Dean, Medical Education
James M. Stevenson, M.D., Associate Dean, Continuing Medical Education
G. Anne Cather, M.D., Associate Dean, Student Services and Professional Development
C.H. Mitch Jacques, M.D., Dean, Eastern Division and Associate Vice President
Rosemarie Cannarella, M.D., Assistant Dean for Student Services, Eastern Division
Clark Hansbarger, M.D., Associate Vice President, Dean, Charleston Division
Konrad C. Nau, M.D., Associate Dean, Eastern Division
Gary Marano, M.D., Interim Associate Dean, Clinical Services
Kathleen C. Bors, M.D., Assistant Dean, Student Services, Charleston Division
Maria Kolar, M.D., Associate Dean, Veterans Affairs
Barbara Ducatman, M.D., Associate Dean, Faculty Services
David Wilks, M.D., Assistant Dean, Medical Education Technology
James O'Donnell, Ph.D., Assistant Dean, Research
Jamal Mustafa, Ph.D., Assistant Dean, Research
Leslie Miele, Chief Administrative Officer

Degrees Offered

M.D., Doctor of Medicine
M.D./Ph.D., Joint Doctor of Medicine and Doctor of Philosophy
Ph.D., in Biochemistry and Molecular Biology
Ph.D. in Cancer Cell Biology
Ph.D. in Cellular and Integrative Physiology
Ph.D. in Immunology and Microbial Pathogenesis
Ph.D. in Neuroscience
M.H.S. in Pathologists’ Assistant
B.S., M.S., Ph.D., Exercise Physiology
M.S. in School Health Education
B.S. in Medical Laboratory Science
M.O.T., Master of Occupational Therapy
D.P.T., Doctor of Physical Therapy
Ph.D., Pharmaceutical and Pharmacological Sciences
M.D./M.P.H., Doctor of Medicine and Master of Public Health
Ph.D., Public Health Sciences
M.S., Biomedical Sciences

Introduction
The West Virginia University School of Medicine is a part of the Robert C. Byrd Health Sciences Center, a comprehensive academic health system with three campuses in the state, a network of affiliated hospitals and practice plans, and a mission of education, research, clinical care, and service to the state. On the main Morgantown campus, students have access to a full range of research and clinical facilities, including a new laboratory building and a wide range of advanced research centers. West Virginia University Hospitals includes sophisticated medical technology, including magnetic resonance imagery, lithotripsy, and laser surgery; the campus includes a large and busy tertiary hospital, a trauma center, children’s hospital, cancer center, a psychiatric hospital, primary care and specialty clinics, a rehabilitation hospital, and many other patient care facilities.

http://www.hsc.wvu.edu/som
Biomedical sciences graduate programs (in collaboration with School of Pharmacy) offer training in seven areas: Biochemistry and molecular biology; cancer cell biology; cellular and integrative physiology; exercise physiology; immunology and microbial pathogenesis; neuroscience; and pharmaceutical and pharmacological sciences. Biomedical sciences graduate students take a common core curriculum the first year and match with a faculty mentor and self-select into their specialty areas in year two.

The public health sciences Ph.D. program offers training in two tracts: Social and behavioral sciences and population epidemiology and biostatistics. First-year graduate students take a common core curriculum and match with a faculty mentor and choose a specialty area in year two.

The Department of Human Performance and Applied Exercise Sciences incorporates exercise physiology, physical therapy, and occupational therapy. Additionally, the Department of Community Medicine has a M.P.H. program in public health with five specialty tracts, a generalist M.P.H online program, and an M.S. in school health. These programs complement all of the other existing programs in the other health professions schools (dentistry, nursing, and pharmacy).

**Departments**
- Anesthesiology
- Behavioral Medicine and Psychiatry
- Biochemistry
- Community Medicine
- Emergency Medicine
- Family Medicine
- Human Performance and Applied Exercise Science
- Medicine
- Microbiology, Immunology, and Cell Biology
- Neurobiology and Anatomy
- Neurology
- Neurosurgery
- Obstetrics and Gynecology
- Ophthalmology
- Orthopaedics
- Otolaryngology
- Pathology
- Pediatrics
- Physiology and Pharmacology
- Radiology
- Surgery

**Committees**
- Academic Standards
- Admissions Committee, M.D./Ph.D. Program
- Admissions Committee/Graduate Biomedical Sciences
- Admissions Committee/Medical Laboratory Science
- Admissions Committee/Occupational Therapy
- Admissions Committee/Pathologists’ Assistant
- Admissions Committee/Physical Therapy
- Continuing Medical Education
- Curriculum Committee
- Distinguished Teacher Committee
- Faculty Promotion and Tenure
- Graduate Medical Education
- Research Funding Development Grant Committee
- Bridge Funding Grant Committee

**Chairs**
- Richard Driver, M.D.
- James M. Stevenson, M.D.
- Michael Schaller, Ph.D.
- Alan Ducatman, M.D.
- Todd Crocco, M.D.
- James G. Arbo gast, M.D.
- MaryBeth Mandich, Ph.D.
- Kevin Halbritter, M.D., (Interim)
- John B. Barnett, Ph.D.
- Richard D. Dey, Ph.D.
- John F. Brick, M.D.
- Julian E. Bailes, M.D.
- Michael Vernon, Ph.D.
- Judie Charlton, M.D.
- Sanford E. Emery, M.D.
- Stephen J. Wetmore, M.D.
- Barbara Ducatman, M.D.
- Giovanni Piedimonte, M.D.
- Robert L. Goodman, Ph.D.
- Mathis P. Frick, M.D.
- Richard Vaughan, M.D.
- Michelle Nuss, M.D.
- Michael Ruppert, M.D., Ph.D.
- Albert Berrebi, Ph.D.
- Beverly Kirby, Ed.D.
- Donna Colaianni, M.S., O.T.R./L.
- Cheryl Germain, M.H.S.
- Carol Waggy, P.T., Ph.D. and Ralph Utzman, M.S.
- James Helsley, M.D.
- Michael Stitely, M.D.
- Ruth Kershner, Ed.D.
- Diane Trumbull, M.D.
- Norman Ferrari, M.D.
- Jefferson Frisbee, Ph.D. and Jeffrey Cohen, M.D.
- Albert Berrebi, Ph.D.
Graduate Faculty

† Indicates regular membership in the graduate faculty.
* Indicates associate membership in the graduate faculty.

Biochemistry

Professors
Fred R. Butcher, Ph.D. (Ohio St. U.). Hormone action, Regulation of exocytosis, Calcium.
Marilyn I. Evans, Ph.D. (U. Wash.). Emeritus. Regulation of genes by estrogen.
Jeffrey S. Fedan, Ph.D. (U. Ala.). Adjunct. Photo affinity labeling of receptors, Mechanisms of airway hyperactivity.
Charles L. Harris, Ph.D. (U. Ill.). Structure and function of transfer RNA, RNA synthesis in mammalian cells.
Qiang Ma, Ph.D. (Rutgers U.). Adjunct. Regulation of gene expression by oxidative chemicals.
Michael R. Miller, Ph.D. (Penn. St. U.). Regulation of DNA metabolism, DNA replication, Repair in mammalian and fish cells.
Lisa M. Salati, Ph.D. (U. Minn.). Regulation of gene expression by fatty acids.
David J. Smith, Ph.D. (WVU). Alterations induced by analgesics and anesthetics in monoaminergic and opiate neuronal transmission, Pain reactions.
Knox Van Dyke, Ph.D. (St. Louis U.). Chemiluminescence in human cells, Effects of antiinflammatory drugs on chemiluminescence.

Associate Professors
Peter H. Mathers, Ph.D. (Calif. Inst. of Tech.). Molecular biology of the developing eye.
Andrew K. Shiemke, Ph.D. (Oregon Grad. Inst.). Biological oxidation of methane and cyanide; Metalloproteins and bioinorganic chemistry.
William F. Wonderlin, Ph.D. (Johns Hopkins U.). Ion channel pharmacology, Physiological development of ion channels.

Assistant Professors
Karen Woodfork, Ph.D. (WVU). Educational software development.
Jing Jie Yu, Ph.D. (China). DNA repair and drug resistance.

Community Medicine

Professors
Jeffrey Cogen, M.D. (U. of Pitt.). Trauma prevention, Domestic violence injury prevention, Transportation injury prevention.


**Associate Professors**


Mary Carter, Ph.D. (U of Mass.). Health outcomes among nursing home residents.


Christopher Martin, M.D., M.Sc. (U. of Edmonton, Canada). Residency director, Occupational medicine physician training program, Environmental medicine, Toxicology of metals.


**Assistant Professors**

Rachel Abraham, M.D. (U. of Bangalore, India). Bridging the gap between medicine and public health.

Anna Allen, M.D., M.P.H. (WVU) Occupational and environmental health.


Lan Guo, Ph.D. (WVU). Bioinformatics and information integration.

Kimberly Innes, Ph.D. (Cornell U.). Epidemiology and complementary medicine.

Chuanfang Jin, M.D. (ShanXi Med. U., China). Medical and psychological effects of industrial solvents.


Nancy O’Hara Tompkins, Ph.D. (U. of Md.). Youth physical activity, Obesity prevention.


Kimberly Williams, Ph.D. (McMaster U., Canada). Effects of yoga therapy on low back pain.


**Associate Research Professors**

Melissa Ahern, Ph.D. (Fla. St. U.) Health economics.


**Instructors**


Toni Morris, M.S. (WVU). First aid instruction, Relationship of acting techniques to effective classroom instruction.

**Teaching Assistant Professor**

Janet Hunt, M.P.H. (U. of Tenn.). Community development, Health communication.
Human Performance and Applied Exercise Science
Division of Exercise Physiology

Professors
Rachel Yeater, Ph.D. (WVU). Heart disease prevention, Cardiac rehabilitation.

Associate Professors
Matthew Boegehold, Ph.D. (U. of Az.). Regulation of the microcirculation, Microvascular alterations in hypertension.
Randall Bryner, Ed.D. (WVU). Director of Undergraduate Education. Reproductive physiology, Exercise uncoupling protein and metabolism.
Laurie Gutmann, M.D. (WVU). Neurological disease.

Assistant Professors
Daniel Bonner, M.S. (WVU).
Paula Briggs, M.S. (WVU).
Gregory Dick, Ph.D. (U. of Missouri.). Function, expression, and regulation of ion channels in vascular smooth muscle.
David A. Donley, M.S. (WVU).
Diana L. Gilleland, M.S. (WVU), M.B.A. (Waynesburg).
G. Gregory Haft, Ph.D. (U Kan.).
Ming Pei, Ph.D. (Beijing U.). Mechanical signal and tissue regeneration, Drug delivery and gene therapy, Nanothechnology.
Lori A. Sherlock, M.S. (WVU).
James M. Thomas III, M.S. (WVU).

Instructor

Occupational Therapy

Associate Professors
Anne F. Cronin, O.T.R./L., Ph.D. (U. of Fla., Webster U., U. of Mo.).

Assistant Professors
Robert Chetlin, Ph.D. (WVU).
Donna J. Colaianni, M.S. (U. Indianapolis).
Steve Wheeler, Ph.D. (U. Va.).

Physical Therapy

Professors
MaryBeth Mandich, P.T., Ph.D. (WVU). Chair, Pediatric and neuroscience physical therapy.
John J Petronis, P.T., M.S. (WVU). Orthopedics physical therapy.

Associate Professors
Duane Scott Davis, P.T., M.S. O.C.S. (WVU). Orthopedic physical therapy.
Corrie Mancinelli, P.T., Ph.D. (WVU). Anatomy and orthopedic physical therapy.
Anne Swisher, P.T., Ph.D. (WVU). Graduate and distance education coordinator, Cardiopulmonary physical therapy, Exercise physiology.
Ralph Utzman, P.T., M.P.H. (WVU). Academic coordinator of clinical education, Junior level, Basic principles of physical therapy, Organization/management.
Assistant Professors
Dina Jones, P.T., Ph.D. (Pitt).
Teresa Rice, PR NCS (WVU). Neurorehabilitation.
Krystal Thomas-Whetsel, D.P.T., M.S. (WVU). Women’s health physical therapy.
Carol Waggy, P.T., Ph.D. (WVU). Anatomy and hand physical therapy.

Microbiology, Immunology, and Cell Biology Professors
†John B. Barnett, Ph.D. (U. Louisville). Chairperson, Immunology, Mechanism of the effects of xenobiotics on the immune system.
†Nyles Charon, Ph.D. (U. Minn.). Medical bacteriology, Genetics and physiology of spirochetes.
†Kenneth Landreth, Ph.D. (U. Wash.). Immunology, Developmental immunobiology, Lymphopoiesis.
†Daniel M. Lewis, Ph.D. (WVU). Adjunct. Immunology, Mechanism of immunological reactions in the lung.
†Robert S. Pore, Ph.D. (U. Calif.). Mycology, Pathobiology of prototheca sp. and the mycoses.
†Rosana Schafer, Ph.D. (Temple). Immunology. Immune response to infection by intracellular pathogens.
†Herbert A. Thompson, Ph.D. (U. Kans.). Medical bacteriology, Mechanisms of pathogenicity, Clinical microbiology.
†David B. Yelton, Ph.D. (U. Mass.). Microbial genetics, Molecular genetics, Bacteriophage.

Associate Professors
†Christopher Cuff, Ph.D. (Temple). Mucosal immunity of the gastrointestinal tract.
Laura F. Gibson, Ph.D. (WVU). Cell and molecular biology, Developmental hematopoiesis, Bone marrow microenvironment, Stromal cell function in bone marrow.
*James M. Sheil, Ph.D. (U. Ky.). Immunology, Mechanism of cytotoxic T lymphocyte-mediated antigen recognition and effector function.
David Weissman, M.D. (Nwstrn U.). Immunology, Pulmonary immune responses, Effect of airway disease and smoking on immune function of the lung.

Assistant Professors
†Bing-Hua Jiang (Miss. St. U.). PI-3 Kinase in tumorigenesis.

Neurobiology and Anatomy Professors
James L. Culberson, Ph.D. (Tulane U.). Comparative vertebrate neuroanatomy of mammalian somatosensory systems.
Frank D. Reilly, Ph.D. (U. Cinn.). Neurohistochemical, biochemical, in vivo, and electron microscopic studies of mechanisms regulating hepatic or splenic blood flow and metabolism in conditions of health and disease.

Associate Professors
Ariel Agmon, Ph.D. (Stanford). Electrophysiology and morphology of developing cortex.
Elizabeth R. Walker, Ph.D. (WVU). Science outreach activities to students at state, national, and international levels.
Physiology and Pharmacology

Professors
Matthew Boegehold, Ph.D. (U. Ariz.). Physiology and pathophysiology of the microcirculation.
Jeff Fedan, Ph.D. (U. Ala.). Mechanisms of asthma. (Primary appointment with NIOSH).
Robert L. Goodman, Ph.D. (Pitt.). Neuroendocrine control of gonadotropin secretions.
Pingnian He, Ph.D., M.D. (U. Calif., China Med.) Cardiovascular physiology, Microcirculation.
Michael G. Mawhinney, Ph.D. (WVU). Etiology of prostatic neoplasms. (Primary appointment in surgery.)
Fred Minnear, Ph.D. (Oregon Health Sc. U). Vascular permeability; VE-cadherin trafficking.
Jeff Fedan, Ph.D. (Pitt.). Neuroendocrine control of gonadotropin secretions.
Pingnian He, Ph.D., M.D. (U. Calif., China Med.) Cardiovascular physiology, Microcirculation.
Robert L. Goodman, Ph.D. (Pitt.). Neuroendocrine control of gonadotropin secretions.
Fred Minnear, Ph.D. (Oregon Health Sc. U). Vascular permeability; VE-cadherin trafficking.

Associate Professors
David G. Frazer, Ph.D. (Penn. St. and WVU). Pulmonary function testing, Inhalation exposure. (Primary appointment with NIOSH.)
Stanley Hileman, Ph.D. (U. Ky.). Neurobiology of food intake and reproduction.
Robert Mercer, Ph.D. (U.N.C. Chapel Hill). Physiology and pathophysiology of the lungs, (Primary appointment with NIOSH.)
Eisuke Murono, Ph.D. (Rutgers U.). The examination of the potential effects of occupational chemicals. (Primary appointment with NIOSH.)
Anna A. Shevdova, Ph.D., D.Sc. (Moscow U.). Mechanism of chronic allergic skin and lung disease. (Primary appointment with NIOSH.)

Assistant Professors
Timothy R. Nurkiewicz, Ph.D. (WVU). Microvascular control.
Han-Gang Yu, Ph.D. (St. U. NY). Cardiovascular, Ionic mechanism of cardiac pacemaker activity.

Research Assistant Professors
Mohammed Nayeem, Ph.D. (Osmania U. India). Cardiovascular research.
Bunyaen Teng, Ph.D. (Ohio St.). Cardiovascular system.
Biomedical Sciences Graduate Programs
Fred L. Minnear, Ph.D., Assistant Dean for Graduate Studies, Director, M.D./Ph.D. Scholars Program
fminnear@hsc.wvu.edu
Al Berrebi, Ph.D., Chair, Biomedical Sciences Admission Committee
aberrebi@hsc.wvu.edu
Claire Noel, Assistant Graduate Director, WVU Health Sciences
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Penny Phillips, Staff Assistant, M.D./Ph.D. Scholars Program
pphillips@hsc.wvu.edu


Overview
The WVU Health Sciences Center offers biomedical research training leading to the Ph.D. and M.S. degrees and the joint M.D./Ph.D. degree. Our Ph.D. and M.S. students matriculate into a common, integrated core curriculum including research laboratory rotations. This integrated first year allows students to build competence in key areas of contemporary science, gain exposure to our seven training programs, and network scientifically and socially. In the second semester, students customize their coursework by selecting from an array of program-specific electives. By April of year 1, students have acquired the necessary didactic and research knowledge to make an informed selection of a research advisor and one of our seven graduate training programs. M.D./Ph.D. scholars take the first two years of medical school, do research for three to four years in one of our seven training programs under the guidance of a graduate faculty advisor, then complete the last two years of medical school.

Our seven graduate training programs are: biochemistry and molecular biology; cancer cell biology; cellular and integrative physiology; exercise physiology; immunology and microbial pathogenesis; neuroscience; and pharmaceutical and pharmacological sciences.

Successful completion of the Ph.D. degree requires a 3.0 GPA, As, Bs, or S in research, passages of the qualifying examination, which usually includes a defense of the research proposal and dissertation defense, and at least one first-author manuscript, based on the Ph.D. dissertation research, published or in press in a peer-reviewed journal before the formal defense of the dissertation.

The goal of all seven biomedical sciences graduate Ph.D. programs is to train highly qualified students for academic and scientific careers as research investigators. The program provides the instructional and research background needed to enable doctoral candidates to complete an original Ph.D. project that advances the field and is acceptable for publication in peer-reviewed journals. This doctoral training serves as a foundation for further career development, which usually includes three to five years of postdoctoral research training.

Admissions
Ph.D. Students
Applicants to the Ph.D. graduate programs in the biomedical sciences and the Schools of Medicine and Pharmacy apply directly to the Office of Research and Graduate Education in the WVU School of Medicine. In addition, official transcripts and an official application for admission must be sent to the WVU Office of Admissions, P.O. Box 6009, Morgantown, WV 26506-6009. Both an online application and a printable hard copy application, as well as other essential forms, can be found online at http://www.hsc.wvu.edu/resoff/.

Applicants must have a bachelor’s degree and excellent GRE scores. Three letters of recommendation and a personal statement are required. Students are invited in groups of ten to 15 for paid, two-day visit/interviews from January through March. Students are admitted as a class by a common Graduate Admissions Committee comprised of the graduate directors of each of our seven Ph.D.-degree granting programs, a senior Ph.D. student from the Graduate Student Organization (GSO), and the assistant dean for graduate studies.
Applicants must have a bachelor’s or equivalent academic degree and should demonstrate a strong background in the biological sciences, inorganic and organic chemistry, physics, and mathematics through calculus. Courses in biochemistry, cell biology, molecular genetics, and physical chemistry, and experience in research are recommended. Students with demonstrated abilities but lacking some recommended courses should correct these deficiencies in the summer preceding or after enrollment. Recommended are a minimum GPA of 3.0 and a GRE total of 1,000 for verbal and quantitative with a 4.0 in the analytical essay.

M.D./Ph.D. Students

Formal application requires successful application to the School of Medicine through the American Medical College Application Service (AMCAS), followed by a separate application to the director of the M.D./Ph.D. scholars program. M.D./Ph.D. candidates interview with two current M.D./Ph.D. scholars, the director of the scholars program, and selected graduate faculty.

Financial Aid

All Ph.D. and M.D./Ph.D. students matriculated in the biomedical sciences graduate programs in the WVU Health Sciences Center receive full financial support during their training, provided that they remain in good academic standing, a 3.0 GPA, and excellent performance in research. Stipend levels are considered for adjustment approximately every two years. Such support currently includes a $20,000 annual stipend, full tuition coverage, and student health insurance (hospitalization and disability).

Ph.D. Undifferentiated First-Year

Advantages of an undifferentiated first-year:

- Students acquire a fundamental yet in-depth exposure to relevant contemporary science.
- Students have one year to select a specific training program and research advisor.
- Larger numbers of available graduate faculty to select from for a research advisor.
- Students develop important intellectual and social connections.
- Enhances future collaborations among research laboratories.

In Year 1, students:

- Take an integrated core curriculum that focuses on contemporary science and scientific integrity.
- Take specialized areas of science that align with the research strengths of the graduate faculty.
- Rotate through three active research laboratories supported by federal grants.

First semester: Cellular Structure and Function and Fundamentals of Integrated Systems are the two major courses. Journal clubs are incorporated and complement the didactic information, emphasizing discussions of literature articles led by students and facilitated by the faculty. Biostatistics for the basic sciences provides an introductory background to statistics. Students take discussions on scientific integrity that meets weekly, is led by individual faculty, and incorporates small and large group discussions of ethical and moral issues presented as scientific case studies.

Second semester: Molecular Biology, which also incorporates a journal club, is required of all students. In addition, students help design their own curriculum. Each of the seven graduate programs offers a module taught primarily from the current literature with an emphasis on discussions among students and faculty. Each student, with assistance from the graduate directors, selects two or three of these modules.

By April of Year 1, students are provided the necessary didactic and research experiences to make an informed selection of a research advisor and one of the seven graduate training programs.

In the first summer, students take Scientific Writing. Students attend weekly lectures and complete assignments in two separate writing skills, a scientific journal article, and an NIH pre-doctoral fellowship grant.
M.D./Ph.D. Scholars Program

The WVU School of Medicine’s M.D./Ph.D. scholars program prepares students for academic careers that combine the practice and teaching of clinical medicine with laboratory investigation of disease mechanisms. The goal is to train independent investigators who can function in the future as physician-scientists. This joint training program requires at least seven years to complete.

Medical School, Years One and Two

Students enter the program in July before beginning medical school with an orientation to the various areas of research. Students choose one six-week research rotation before medical school starts in August. In years one and two, trainees take the integrated medical school basic science curriculum. All M.D./Ph.D. trainees participate in monthly research forums. At these forums, students present their research, learn from physician-scientist role models, and discuss academic career opportunities. During the summer of year one, trainees complete a rotation in one additional research laboratory to facilitate their final selection of a specific graduate program and research advisor by April of year two.

Ph.D. Training

After successful completion of years one and two of the medical curriculum and step 1 of the United States Medical Licensing Examination (USMLE), students enter the research portion of their Ph.D. training. Research opportunities in these two training programs are numerous and include cell and molecular biology, integrative physiology, immunology, exercise physiology, cardiovascular sciences, receptor biochemistry, bacterial pathogenesis, lung cell biology and environmental exposures, inflammation, molecular genetics, pharmacological sciences, neuroendocrine and reproductive biology, developmental biology, tumor invasion and angiogenesis, cancer cell biology, neurodegenerative disorders and stroke, functional brain imaging and cognitive behavior, learning and memory, as well as population-based outcomes and epidemiology studies relevant to public health. There are two M.D./Ph.D. training programs: biomedical sciences and public health sciences. Before transitioning back to the clinical clerkships, students brush-up on their clinical skills by shadowing physicians, conducting physicals, and presenting case studies at the monthly M.D./Ph.D. forums.

Medical School, Years Three and Four

After the writing and successful defense of the doctoral dissertation, students complete years three and four of medical school at the Morgantown campus.

Biochemistry and Molecular Biology

Dr. Lisa Salati, Graduate Program Director
lsalati@hsc.wvu.edu
http://www.hsc.wvu.edu/som/bmp

Degrees Offered

Doctor of Philosophy
Joint Doctor of Medicine and Doctor of Philosophy

The disciplines of biochemistry and molecular biology seek to understand biology by exploring the functions of the molecular components of cells. A major goal of this program is to foster your ability for independent thought. To this end, our faculty cultivates an open, collegial relationship with one another and with our students. Close collaboration between scientists, the sharing of ideas, and open inquiry are critical components of our training plan. Our goal is to develop your independence as a scientist.

The hallmarks of graduate training in biochemistry and molecular biology are the emphasis placed on the use of the scientific literature in advanced coursework and on protecting time for laboratory research. In addition, you will have time for professional development through seminar presentation, attendance at national meetings, teaching opportunities, and seminar programs both within the department and throughout the Health Sciences Center.
Faculty research in the program can provide the student with training in multiple basic sciences areas: regulation of gene expression; chromatin silencing; RNA processing; cell survival mechanisms; intermediary metabolism; regulation of signal transduction by nutrients and metabolites; nutritional biochemistry; cell proliferation and cell cycle regulation; cell adhesion; ion channel biochemistry; kinases and phosphatases in signal transduction mechanisms involved in cancer cell metabolism; spirochete biology; oxidant-induced cellular stress; structure/function relationships of proteins; molecular genetics of visual and auditory development; G protein-mediated signaling in retina photoreceptors; and molecular basis of age-related blindness.

These research areas provide fundamental knowledge toward both the normal health state and the amelioration of multiple diseases, atherosclerosis, blindness, cancer, deafness, diabetes, and metabolic disorders.

**Doctor of Philosophy**

Upon successful completion of the undifferentiated first year, as outlined earlier, students choose a dissertation research advisor, at which time emphasis is placed on research. During the second year, specialized courses in biochemistry are offered as students continue their research projects. During subsequent years, students emphasize independent dissertation research, and a few formal courses may be taken.

Completion of the Ph.D. program is realized when the student successfully presents the research results to both the department and their Graduate Advisory Committee. Typically, four to five years are required to realize this goal.

**Cancer Cell Biology**

Dr. Scott Weed, Graduate Program Director
sweed@hsc.wvu.edu

**Degrees Offered**

**Doctor of Philosophy**

**Joint Doctor of Medicine and Doctor of Philosophy**

Research interests include biochemical, molecular, and cellular basis of cancer origin and progression. Current research areas include:

**Tumor Microenvironment:** Tumor cell resistance to anoikis; effects of chemotherapy on the bone marrow microenvironment, stem cell regulation, leukemia/stromal interactions, effects of the extracellular matrix on angiogenesis and tumor cell invasion.

**Mechanisms of Metastasis:** Role of proteases in cell motility, regulation of the actin cytoskeleton in invadopodia formation and migration, signaling pathways in invasion and metastasis, imaging of metastasis in animal models.

**Genetic Regulation of Cancer:** Tumor suppressor genes and transcriptional regulation, post-translational modifications in transcriptional regulation.

**Heavy Metals and Cancer:** Effects of heavy metals on signal transduction pathways governing angiogenesis and tumor cell motility.

**Signal Transduction in Cancer:** Receptor tyrosine kinase signaling in cancer growth and metastasis, non-receptor tyrosine kinases in cell adhesion and proliferation, ROS in tumor progression, lipid kinase signaling in angiogenesis.

**Cancer Bioinformatics:** Biomarker classification in cancer, predictive models of carcinogenesis.

Cancer Cell Biology investigators working in these research areas routinely incorporate biochemical, molecular, cellular, animal, and computational-based techniques that are currently utilized at the forefront of leading basic cancer research laboratories around the world. The main tumor types that are the current focus of cancer cell biology investigators are based on cancers with disproportionate incidences in West Virginia, including breast, leukemia, ovarian, cervical, lung, and head and neck cancers.

The doctor of philosophy program in cancer cell biology is designed to expose Ph.D. and M.D./Ph.D.-level graduate students to a wide spectrum of opportunities available in basic and
translational cancer research. In addition to mechanistic and therapeutic approaches to studying problems in cancer at the bench, students have the opportunity for exposure to more clinical elements of cancer practice, including participation in tumor boards, shadowing clinicians and participation in the design and approval of clinical trials. The cancer cell biology program at WVU is a member of the Cancer Biology Training Consortium (CABTRAC), a national organization of similar cancer-specific Ph.D. programs that interact through annual, regional, and national meetings to improve and refine Ph.D. cancer training. Graduates of the cancer cell biology program are therefore well equipped to enter into a number of different career paths. These include postdoctoral research, biotechnology, industry, government, science writing, core facilities management, and legal counsel as examples.

Qualifying Examination
The qualifying examination consists of two parts. The written portion is conducted at the end of the first year of study, and is an evaluation of the student's performance and aptitude conducted by the rotation mentors the student had during their first year. Students are judged on their competency at the bench, in-depth knowledge of each research topic they worked on, overall enthusiasm and potential for success at the PhD level. After successful completion of the second academic year, the students take an oral examination that consists of the writing and defense of the student's research dissertation project in the format of a NIH grant proposal. Upon successful completion of both elements of the qualifying examination, the student is admitted to candidacy for the degree of doctor of philosophy.

Cellular and Integrative Physiology
Dr. Robert W. Brock, Graduate Program Director
rbrock@hsc.wvu.edu

Degrees Offered
Master of Science
Doctor of Philosophy
Joint Doctor of Medicine and Doctor of Philosophy

Physiology is a dynamic life science that focuses on the study of biological systems at many levels of complexity; ranging from genes and molecules to cells and organisms. Thus, training in physiology has the ultimate goal of linking molecular and cellular information to functional outcomes. Currently, groundbreaking research and discovery in the life sciences are more interdisciplinary than ever, and students studying within the realm of physiology can expect to work with a wider range of scientists than their predecessors could ever have imagined. Our program provides a multidisciplinary approach to modern life sciences, drawing on faculty expertise from several departments and centers in the School of Medicine.

The program's participating research faculty consists of scientists from the Center for Cardiovascular and Respiratory Sciences, NIOSH/CDC, Center for Neuroscience, and the Blanchette Rockefeller Neurosciences Institute. As such, this multidimensional program includes activities in integrative and systems physiology, pathophysiology, pharmacology, translational research, small animal physiology, biomedical engineering, and biophysics. It also integrates information from genetics, functional genomics, and proteomics into whole animal and human physiology.

This interactive and cross-disciplinary environment, together with an atmosphere filled with enthusiasm and passion for scientific discovery, makes our program a uniquely exciting place for doing research and the training of students. Specific topics of research emphasis include:

- Hemodynamics and cardiovascular control in health and disease
- Microcirculation and cellular biophysics
- Respiratory function and control in health and disease
- Neuroendocrine control of reproduction
- Neural control of sensory physiology
The goal of the cellular and integrative physiology graduate program is to engage students in creating a new approach to the life sciences, with the aim of explaining how the higher-level properties of complex systems appear from the interactions amongst their parts. Students will leave our program better able to identify important unsolved scientific problems, and with an appreciation of how to select problems for which quantitative and theoretical approaches will be most productive.

Qualifying Examination

After successful completion of their second academic year, students take a two-part qualifying examination. The exam consists of an oral examination covering the major areas of physiology, followed by a written and oral research defense of the student’s research proposal. Upon successful completion of the qualifying examinations, the student is admitted to candidacy for the degree of doctor of philosophy. Our graduates obtain excellent postdoctoral research training opportunities in prestigious laboratories and develop productive and satisfying careers in academics, industry, and government. Graduates have become departmental chairs, industrial department heads, university vice-presidents, and entrepreneurs.

Exercise Physiology
Dr. Stephen E. Alway, Graduate Program Director
salway@hsc.wvu.edu
http://www.hsc.wvu.edu/som/ep/Education/Masters-of-Science/

Degrees Offered

Master of Science
Doctor of Philosophy
Joint Doctor of Medicine and Doctor of Philosophy

The graduate program in exercise physiology fosters a high degree of collaboration among faculty with interests in clinical medicine and basic research. Current research areas include: cardiovascular health, muscle adaptation and injury, diabetes and endocrinology, coronary blood flow and dysfunction, and muscle signaling in strength training and aging.

Our Ph.D. training program is intended to give exceptional students training in basic medical and scientific areas to prepare them for careers as effective and knowledgeable researchers and teachers in the broad field of exercise physiology/kinesiology. Our rigorous training develops the attitudes, habits, and skills that are signature characteristics of competitive, independent scientists.

Ph.D. students are expected to:

• Take an array of courses in exercise physiology, physiology, biochemistry, molecular biology, and pharmacology.
• Conduct independent research, analyze and interpret the data, and defend the findings and conclusions.
• Learn the process of writing and submitting grants.
• Present and discuss their research findings at national and international scientific meetings.
• Develop and improve teaching skills.
• Submit their dissertation research for publication prior to graduation.

The Division of Exercise Physiology actively engages in patient care, including rehabilitation, disease prevention, and risk-factor management, with an emphasis on cardiovascular disease, obesity, and diabetes.

Doctor of Philosophy

The Division of Exercise Physiology offers a program leading to the doctor of philosophy degree (Ph.D.) in the School of Medicine. The program is intended to give exceptional students knowledge in basic medical and scientific areas to prepare them for careers as effective and knowledgeable researchers and teachers in the broad field of exercise physiology/kinesiology. These goals are achieved by several means. Formal coursework in the sub-disciplines of exercise physiology, physiology, biochemistry, molecular biology, pharmacology, and neuroscience...
provides the student with the opportunity to develop a solid foundation in basic subject matter of medical sciences that can be applied to aspects of exercise and disease. The student’s knowledge base is further strengthened by participation in elective courses offered within the division, selected courses offered by other departments within the School of Medicine, and by departments in other colleges and schools of WVU. Research training and experience are provided under the guidance and supervision of the graduate faculty. The aim is to promote attitudes, habits, skills, and abilities that will enable the student to grow and develop as an independent scientist.

Graduate work involves a program of study and research individually designed to utilize the abilities and strengths of the faculty (e.g., cardiovascular disease, heart disease, aging, and diabetes/obesity) and accommodates the needs of the student within an area of specific interest. The exact content of a program of study for a particular student usually will differ from one student to another. Nevertheless, there are common goals, expectations, policies, and procedures that will be universal for all graduate students. Likewise, there are activities and responsibilities that will be common among all faculty advisors in the Division of Exercise Physiology.

**Master of Science**

The master of science program in exercise physiology prepares students for careers in adult fitness, hospital or corporate-based wellness programs, or cardiac rehabilitation. Students specialize by completing a 200-hour clinical internship or a research thesis.

**Immunology and Microbial Pathogenesis**

Dr. John Barnett, Graduate Program Director  
jbarnett@hsc.wvu.edu  
http://www.hsc.wvu.edu/som/micro/

**Degrees Offered**

*Doctor of Philosophy*  
*Joint Doctor of Medicine and Doctor of Philosophy*

Faculty members and students explore diverse areas of inquiry related to the medical implications of microbes and the human body’s response to them.

**Current Research Areas**

- Immunology
- Effects of man-made pesticides and herbicides on the immune system  
- Effects of heavy metals on the immune system  
- Biochemistry of inflammatory cytokines  
- Immune response in bacterial and viral diseases  
- Regulation of signal transduction in immune responses  
- Molecular aspects of cell signaling as it relates to cancer chemotherapy and cell growth  
- Peptide and DNA vaccines for contraception  
- Microbiology  
- Physiology of pathogenic microbes  
- Microbial genetics  
- Mechanisms of bacterial pathogenesis  
- Chemotaxis and motility  
- Interactions between microbes and their hosts  
- Molecular mimicry and structure-function relationship of bacterial virulence factors  
- Microbial biofilms

The major purpose of graduate education in the program is research training. The basic philosophy of the program is that the students acquire a strong foundation in the basic concepts of immunology and microbial pathogenesis, and have flexibility in choosing advanced coursework in their specific areas of interest. A major emphasis of the graduate program is extensive laboratory research in microbiology, immunology, microbial pathogenesis, and cell biology. Each student will complete an original, in-depth research investigation. The overall aim of the program is to produce students capable of designing and doing independent research and teaching.
Program Requirements

Every student must take the required courses in the first year common core curriculum. Once students acquire a strong foundation in the core biomedical concepts, we offer flexibility in choosing advanced coursework in specific areas of interest. The remainder of the coursework is selected by the student and the Advisory Committee. Enrollment in MICB 796 Seminar and MICB 785 Journal Club is required each semester that the student is in residence. All full-time students in this graduate program are required to participate in teaching at least one semester a year for two years (MICB 790 Teaching Practicum).

Doctor of Philosophy

After completion of the first-year, integrated core curriculum, the doctoral student takes additional coursework as determined by the student’s Graduate Research Advisory Committee. Students will be expected to complete at least two additional graduate-level courses (numbered 700 or above) beyond the basic required courses taken as part of the common core curriculum in the first year of graduate school and those listed above. Where appropriate, coursework in related subjects such as computer science, cell biology, biochemistry, physical chemistry, and statistics is required. MICB 796 Seminar is a required course each semester that the student is in residence. The doctor of philosophy program requires a dissertation representing the results of an original research investigation and the passing of a written qualifying and final oral examination. The qualifying examination is given at the end of the first year of study. The final oral examination is given after completion of research and an acceptable dissertation. All full-time students are required to participate in teaching at least one semester a year for two years.

For a description of faculty research interests, guidelines for graduate study in the graduate program of immunology and microbial pathogenesis or additional information, write to the Chairperson, Admissions and Scholarship Committee, Department of Microbiology and Immunology, P.O. Box 9177, West Virginia University, Morgantown, WV 26506-9177, or visit our website at http://www.hsc.wvu.edu/micro/.

Neuroscience

Dr. Albert Berrebi, Graduate Program Director
aberrebi@hsc.wvu.edu

Degrees Offered

Doctor of Philosophy
Joint Doctor of Medicine and Doctor of Philosophy

The interdepartmental neuroscience graduate program is committed to training the next generation of researchers and educators. Successful completion of degree requirements is based on research and scholarly achievement. Students will have opportunities to experience and acquire the skills needed for successful careers as independent scientists, including critical thinking, problem solving, and leadership. Research experiences include evaluating scientific literature, identifying critical scientific issues, experimental design, grant and manuscript writing, publication of scientific papers, and presentations at national meetings. Students with career interests in teaching will have the opportunity to gain experience in innovative teaching methods and techniques, including problem-based learning, computer-assisted learning, and integrated teaching approaches. The program faculty’s expertise spans all neuroscience sub-disciplines, including structural, cellular, molecular, and developmental. After completion of core coursework, students conduct an original research project culminating in a doctoral dissertation.

Current Research Areas

Sensory Neuroscience: mechanisms of auditory and visual system development; inhibitory neural circuits in the brain stem and cortex; synaptic development of thalamocortical circuits; molecular genetic control of retinal development and neural patterning; cell biology of G-protein-mediated signal transduction in vertebrate photoreceptors; olfactory signal processing in the brain; post-translational modification of proteins and protein assembly.
Cognitive Neuroscience: sound recognition, spatial hearing and sensory integration using fMRI; use-dependent plasticity in motor cortex after stroke; neurogenic communication disorders.

Neural Injury: functional and structural integrity of the blood brain barrier in health and disease; role of neuroinflammation in CNS pathologies; stroke pathophysiology and neuro-protection

Behavioral Neuroscience: airway innervation and asthma; structural and functional changes in the hypothalamus of seasonal breeders; neurobiological pathways controlling food intake and obesity; plasticity in the amygdala; development of new compounds to treat neurological and psychiatric disorders; developmental aspects of sleep and sleep disorders; molecular psychopharmacology; learning, memory and synaptic plasticity; signal transduction pathways involved in neurodegenerative and neuropsychiatric disorders.

Interdisciplinary research projects include: structure and transcriptional mechanisms controlling neural gene expression; molecular biology and molecular genetics of neural degeneration and regeneration in the central nervous system; developmental neurochemistry and environmental influences on brain development, especially nutrition; neuroanatomy and neurophysiology of somatosensory and auditory systems; structural plasticity of astrocytes and modulation of synaptic contacts in the central nervous system; developmental neurobiology of anxiety disorders; development of synaptic connections in the neocortex; developmental genetics of behavioral rodent mutants; neural basis of pulmonary diseases, especially asthma and occupational/environmental diseases; mechanisms regulating microcirculation under pathophysiological conditions.

Seminars and Journal Clubs
Students develop skills in formal presentation, critical thinking, and scientific analysis by participating in neuroscience seminars and journal clubs.

Ph.D. Candidacy
To be admitted to candidacy for the Ph.D. degree, the student must pass a preliminary examination and present a plan for the dissertation research project for approval by the candidate’s Advisory Committee.

Ph.D. Dissertation
To be recommended for the Ph.D. degree, each student must satisfactorily complete a dissertation based on original research and defend the dissertation at an oral examination. Success in the dissertation research is the core of the degree.

Pharmaceutical and Pharmacological Sciences
Dr. Rae Matsumoto, Graduate Program Director
rmatsumoto@hsc.wvu.edu
Dr. Jason Huber, Graduate Pathway Director
jhuber@hsc.wvu.edu
http://www.hsc.wvu.edu/sop/graduate_programs/phd_specializations.html

Degrees Offered
Master of Science
Doctor of Philosophy
Joint Doctor of Medicine and Doctor of Philosophy

Research interests are complementary to a focus on drug discovery and development. Key areas of research interest and expertise are in:

• Drug discovery science: in silico drug design; medicinal chemistry; bioanalytical chemistry
• Drug metabolism: pharmacokinetics; pharmacogenomics; enzyme structure-activity relationships; toxicology mechanisms
• Drug delivery: formulation; drug transport mechanisms; nanopharmaceutics; polymer-based drug delivery
• Molecular therapeutics: drug target identification and validation; nucleic acid-based therapeutics; protein-based therapeutics; phosphodiesterase inhibitors
• Pharmacology: neuropharmacology; cardiovascular pharmacology; pulmonary pharmacology; toxicology: drug-induced adverse effects; free radical toxicology and carcinogenesis; pulmonary toxicology; drug interactions; nanotoxicology
• Translational research: pre-clinical and clinical testing; cancer nanotechnology; pharmaceutical technology and processes.
• The Computational Chemistry Molecular Modeling (CCMM) laboratory is a focal point for drug discovery at WVU.

Graduate Program
Pharmaceutical and Pharmacological Science

The School of Pharmacy offers a master of science (M.S.) and doctor of philosophy (Ph.D.) degree in pharmaceutical and pharmacological sciences with two pathways aimed at training competent researchers and educators: health outcomes research, and pharmaceutical and pharmacological sciences. Both pathways in the graduate program provide interdisciplinary, research-oriented curricula designed to develop the interests, capabilities, and potential of the individual student.

Admission Requirements
Applicants for admission into the graduate program must satisfy the WVU and Health Sciences Center general requirements for admission as a graduate student. The applicant must possess a baccalaureate degree, background in a suitable area of study, an overall grade point average of at least 3.0, and the aptitude and interest for graduate work in pharmaceutical and pharmacological sciences or health outcomes research to be admitted. Graduate Record Examination (GRE) scores in the verbal, quantitative, and analytic essay portions are required from all students planning on entering the graduate program. TOEFL scores are required of all international students from countries where English is not the primary language.

Academic Standards
No credits are acceptable toward a graduate degree with a grade lower than a C. A graduate student must have a cumulative grade point average of at least 3.0 in all graduate courses to continue in the program and to qualify for a M.S. or Ph.D. degree.

Doctor of Philosophy (Ph.D.)

The School of Pharmacy offers programs of study leading to the doctor of philosophy (Ph.D.) degree in the pharmaceutical and pharmacological sciences via two pathways: health outcomes research, and pharmaceutical and pharmacological sciences. Specialty areas of study include pharmacology, drug metabolism, cancer cell biology, nanotechnology, health outcomes, epidemiology, and policy research.

Requirements for Ph.D Degree
To obtain specific application and admission information about the Ph.D. program pathway in health outcomes research please visit http://www.hsc.wvu.edu/sop/students/ProspectiveStudentsInfo/index.html.

Students planning on enrolling in the pharmaceutical and pharmacological sciences pathway are admitted through the health sciences center interdisciplinary graduate program in biomedical science, through which they complete the first year of study. During the first year, students take a required set of courses and rotate through the laboratories of potential research mentors. At the end of the first year, students may formally enroll in the pharmaceutical and pharmacological sciences graduate program and select a research advisor. For each pathway in the graduate program, upon completion of the second year of study, students must submit a formal plan of study and a research plan that is approved by their Ph.D. committee. Progress is expected to continue with guidance from the student’s research committee. Final admission to candidacy requires satisfactory performance on written and oral qualifying examinations. Subsequent to admission to candidacy, a substantial part of the program is devoted to an original research project which culminates in a first-authored publication and dissertation. To be recommended for a Ph.D., the dissertation must be satisfactorily completed and defended at an oral examination.
Master of Science
The school of pharmacy offers programs of graduate study leading to the degree of master of science in two program pathways: health outcomes research, and pharmaceutical and pharmacological sciences.

Requirements for M.S. Degree
To be eligible for the M.S. degree, students must complete a minimum of 30 hours of graduate credit, of which no more than six credit hours may be for thesis research. Upon completion of the coursework and research requirements and after submission of the thesis, an oral examination will be administered by the appointed examination committee. For more specific information, contact the associate dean for research and graduate programs, School of Pharmacy, P.O. Box 9500, Morgantown, WV 26506-9500.

Community Medicine
Educational Programs in Public Health
Alan M. Ducatman, M.D., MSc, Professor and Chair, Community Medicine
Ian R. H. Rockett, Ph.D., M.P.H., Professor and Associate Chair, Community Medicine and Director of Educational Programs
Keith Zullig, Ph.D., M.S.P.H., Associate Professor, Community Medicine, Director of the Ph.D. Program in Public Health Sciences
Ruth E. Kershner, Ed.D., R.N., Associate Professor, Community Medicine, Coordinator of M.S. in School Health Education
Leah A. Adkins, Educational Programs Senior Program Coordinator

Graduate Education Opportunities
Public Health
Degrees Offered
- Master of Public Health (on campus and online)
- Ph.D. in Public Health Sciences

School Health Education
Degree Offered
- Master of Science

Master of Public Health (M.P.H.)
The field of public health encompasses a number of specific disciplines whose mission is to prepare individuals to help improve the health and quality of life in the population through education, research, and service. Public health strategies typically are implemented at a broad societal and population level; for example, environmental regulations, water quality control, immunization programs, and health education initiatives.

The M.P.H. program seeks students with a strong, genuine commitment to a career in public health. An M.P.H. degree is appropriate for physicians, nurses, nutritionists, and other health care professionals with a strong interest in preventive medicine and community health. We welcome applications from both mid-career professionals and students who have recently completed a bachelor’s degree. Physicians may also apply to the occupational medicine residency program, designating the M.P.H. as part of their residency.

Program Description
The future of public health will be shaped by our nation’s public health agencies via health assessment, policy development, and public health services. The WVU School of Medicine addresses these core functions of public health through the M.P.H. degree (both on campus and online) with tracks focused on epidemiology and biostatistics, social and behavioral theory, environmental health, health policy and management, and generalist, all of which are offered by the Department of Community Medicine. The M.P.H. program prepares students to fill
decision-making roles in managed care and other integrated delivery systems, the medical products industry, health departments, and other governmental agencies, consumer groups, and community-based organizations. This program is accredited by the National Council on Education for Public Health (CEPH).

**Mission and Goals**

The mission of the M.P.H. program is closely aligned with the educational mission of the WVU School of Medicine’s which is to improve the health of West Virginians through the education of health professionals, basic/clinical scientific research and research in rural health care delivery, the provision of continuing professional education, and participation in the provision of direct and supportive health care.

The specific M.P.H. program educational mission includes the following goals:

1. Maintain an educational environment that provides students with the opportunity to acquire public health knowledge, skills, and practice grounded in theory and evidence, provided by quality faculty in an environment that respects diversity.
2. Support a research agenda that is grounded in current theory and evidence to provide leadership in public health knowledge and practice.
3. Support a service agenda that complements program goals through faculty and student participation in public health policy and practice.

**Admission Requirements**

Admissions decisions will be based on an overall assessment of the applicant’s demonstrated commitment to public health and her/his educational and professional preparation for the successful completion of the M.P.H. degree program. All aspects of an applicant’s record, such as professional experience and career achievements, will be considered. The Admissions Committee reviews applications on a rolling basis. Contact the Department of Community Medicine for current application deadline dates.

Applicants to the M.P.H. program must:

1. Hold a bachelor’s degree from an accredited college or university and a minimum grade point average of 2.75 on a 4.0 scale.
2. Submit scores for the General Test of the Graduate Record Examination (GRE). (Contact the department for a list of examinations that may substitute for the GRE exam).
3. Submit an Application for Graduate Admission to West Virginia University and attach a nonrefundable check for the amount specified on the application form.
4. Submit sealed transcripts of all college coursework to the Graduate unit, West Virginia University, Office of Admissions.
5. Complete an official M.P.H. Program Application and three letters of recommendation.
6. Submit a Track of Interest form (on campus applicants only).
7. Submit an essay stating interest in public health/community health.
8. Submit a CV/resume.
9. Computer skills are a program requirement. It is the responsibility of students to become skilled in computer applications.
10. A minimum score of 550 (paper-based) or 213 (computer-based) on the TOEFL (Test of English as a Foreign Language) exam is required for all international applicants whose first language is not English.

**Performance Standards**

GPA and grade requirements are as follows:

1. Students are required to maintain a GPA of at least 3.0 on all work taken as a graduate student while enrolled in community medicine graduate programs. A student must have 3.0 GPA or better in order to graduate from the program.
2. Students admitted with a 2.75 to 2.99 GPA must have attained a 3.0 GPA or above at the end of their first semester or they will be dismissed.
3. Students admitted with a 3.0 GPA must have a minimum 3.0 GPA every semester. If their GPA falls below 3.0 one semester, they will be placed on probation. If the GPA falls below 2.75 they will be suspended.
4. Two grades of C or below while enrolled as a graduate student will result in probation. Three grades of C or below while enrolled as a graduate student will result in suspension.
5. A grade lower than C will not be counted towards satisfying degree requirements. Grades lower than a C must be repeated for all required graduate program courses.

6. A grade of F in any course taken to satisfy degree requirements in a community medicine graduate program will result in automatic program dismissal.

7. Students may refer to the WVU Student Handbook for more information: http://www.arc.wvu.edu/rights.html and on the CMED website: http://www.hsc.wvu.edu/som/cmed/education/studentpolicies.pdf

Course of Study for On-Campus M.P.H., including Specialty Tracks
1. The M.P.H. on-campus degree requires 42 credit hours.

2. Upon matriculation, students will be asked to provisionally select a track. There are five specialty tracks: biostatistics and epidemiology, environmental health, health policy and management, social and behavioral science (with an option of two concentrations: women’s health; and wellness and health promotion), and a generalist track.

3. Students are required to formally select a track after nine credit hours have been completed. If necessary, new advisors will be assigned.

4. Six core three-credit hour courses are required in addition to an eight-credit hour practicum and a one-credit hour seminar-total of 27 credit hours required.

5. Students are required to take nine credit hours (three courses) of track-specific courses. (Exception: generalist requires 15 credit hours of electives).

6. Six credit hours of other electives can be selected from a list of suggested courses for the track or from the general list of electives approved by the M.P.H. program.

Course of Study for Online M.P.H. Program (Generalist Track only)
1. The M.P.H. on line degree requires 42 hours.

2. Six core three-credit hour courses are required in addition to an eight-credit hour practicum, and a one-credit hour seminar-total of 27 credit hours required.

3. Fifteen hours of online elective coursework are required.

Since unforeseen circumstances and program implementation might necessitate a change in our curriculum, we encourage prospective and current students to visit the educational programs website at: http://www.hsc.wvu.edu/som/cmed/ for current requirements. Information on Department of Community Medicine specializations/certificates (M.P.H. certificate in Women’s Health, M.D./MPH, Public Health Track M.D./M.P.H.) is available at http://www.hsc.wvu.edu/som/cmed/.

For more information about the M.P.H. program contact: Leah Adkins, Educational Programs Senior Program Coordinator or Ian Rockett, Ph.D., M.P.H., Professor and Associate Chair, Director of Educational Programs at P.O. Box 9190, WVU School of Medicine, Morgantown WV 26506, phone (304) 293-2502, fax (304) 293-3755, e-mail: ladkins@hsc.wvu.edu or irockett@hsc.wvu.edu.

Doctor of Philosophy (Ph.D.) in Public Health Sciences
The Ph.D. program in public health sciences is a degree for scientist-practitioners in the area of prevention of premature mortality, morbidity, and disability resulting from communicable disease, chronic disease, and injury. This program features a common first-year core curriculum that includes intensive training in public health research methods, epidemiology, and biostatistics. The program offers two specialist tracks in distinct areas of public health: social and behavioral sciences, and population epidemiology and biostatistics.

The social and behavioral sciences track features public health-specific coursework in social and behavioral theory, qualitative and quantitative public health research methods, social and behavioral risk factor measurement, multivariate statistics, public health needs assessment, intervention design, graduate electives in topical areas, and advanced research.

The population epidemiology and biostatistics track will feature coursework in epidemiology, biostatistics, research design, multivariate data analysis, chronic disease epidemiology, secondary data analysis, categorical data analysis, topical graduate electives, and advanced research.

Detailed curricula are available at the Ph.D. program website: http://www.hsc.wvu.edu/som/cmed/degree_programs/phd.asp.
Goals of the Ph.D. Program

The Ph.D. in public health sciences emphasizes both evidence-based primary prevention of disease and injury, and health promotion research and practice. Program goals are to:

- Train the next generation of public health leaders and produce a self-renewing cadre of teachers, researchers, and practitioners who will help shape and sustain the best public health practices.
- Identify and address public health disparities.
- Improve health and health care in our state, and simultaneously improve the economic competitiveness of the WVU Health Sciences Center, emulating what similar training programs have done in other states.
- Feature trans-disciplinary teaching and research so that trainees of the program will be able to compete for the highest level public health jobs, grants, and research opportunities.
- Create a pool of epidemiologic, behavioral science, demographic, and environmental health talent for developing highly technical enterprises in West Virginia that seek to influence health behavior at the community and policy level.

Coursework Summary

The 116-hour program features a common undifferentiated curriculum for the first year. During this time students can select one of the two tracks in which to matriculate. The first year will feature a seminar series for faculty to introduce their research to students.

Key components of the core-integrated first year are a series of courses in epidemiology, scientific integrity and ethics, grant writing, and research and statistical methodology, and three research rotations with potential faculty mentors. Over two semesters and the summer, the first year curriculum is 33 credit hours in duration. Additional years are of similar length.

The program features a common undifferentiated curriculum for the first year. During this time students can elect one of the two tracks in which to matriculate. As in any public health doctoral program, key components of the proposed core-integrated first year are a series of courses in epidemiology, scientific integrity and ethics, and research and statistical methodology. In the second year of coursework students will engage in required courses and electives in their topical track area of expertise. The second year features advanced methods and theory with additional research study opportunities. At the conclusion of the second year, students will be matched with a mentor. In the third and fourth years, students will begin and complete the dissertation proposal process.

Qualifying Examination Summary

At the conclusion of the second year of coursework, the students will be required to pass a comprehensive qualifying examination after which they may prepare their dissertation proposal. Also, at the conclusion of the second year, students will transition to a funded research lab/group of one of the public health graduate faculty.

The comprehensive exam will be based on both core and content material and administered by the student’s dissertation committee. Students will only be allowed to take the comprehensive exam twice. If a student fails the exam twice they will be dismissed from the program.

Doctoral Dissertation Proposal

Upon successful completion of the qualifying exam, the student may set a date for the doctoral dissertation proposal defense. The proposal will take the form of a PHS 398 grant proposal including: specific aims, introduction, succinct yet detailed literature review, complete sections on applicant capability, materials and research methodology, references, human subjects, and supporting documents. The proposal must be defended by the student in a forum that includes the student’s complete Doctoral Dissertation Committee.

Dissertation Summary

The program will culminate in a dissertation research project on an important public health topic. The dissertation will take the form of a traditional research dissertation or, at the student’s option, a series of three publishable papers or monographs on a related, important public health topic. The papers must be cleared for submission by the committee and submitted...
before the dissertation defense. We emphasize peer-reviewed research publications as desired outcomes because of their positive impact on skills and the professional placement options for our graduates. This is consistent with a trend in public health Ph.D. programs around the country.

The dissertation will be defended in public in a forum that has been announced at the school and university level. The Dissertation Committee comprises five members, all of whom must sign the approval form for the dissertation to be complete. The dissertation must be completed following WVU policy regulating electronic submission of theses and dissertations.

**Program Delivery**

Virtually all courses in the program will be taught using the face-to-face, on-campus, small or large group format. Only two or three courses will be delivered by Web-based technology.

**Admission to the Program**

Admission to the doctoral program will be limited to highly qualified and motivated candidates. Competitive stipend support will be offered to these students.

An above average undergraduate GPA is required for applicants to be eligible for program admission. The Graduate Record Examination (GRE) or equivalent graduate-level standardized test is used to screen applicants. For such tests, the scores must be less than five years old. In addition to official transcripts and GRE scores, each applicant is screened based on: 1) A commitment to national and international public health research, training, and service as demonstrated in a statement of purpose (two to three pages single-spaced); 2) Curriculum vitae/resume; 3) Official educational programs and WVU application materials; and 4) three letters of recommendation (two must be academic references). A Test of English as a Foreign Language (TOEFL) score of at least 550 will be required for students who obtained their bachelor’s and master’s degrees in a country where English is not the first language. Short-listed applicants will be interviewed based on academic merit, considering all of the above criteria. The interview may be conducted in person, via telephone, or in video conference.

Detailed admissions procedures, including online application materials can be found the Ph.D. program’s website: http://www.hsc.wvu.edu/som/cmed/Education/Future-Students/PhD/Default.aspx.

**Performance Standards**

To be admitted to any Ph.D. track, students must demonstrate the ability to maintain at least a 3.0 GPA in the first core year of study and thereafter. For courses in which a grade lower than a “C” is received the credit hours will not count toward satisfying degree requirements. Students who fail to maintain a 3.0 GPA will be placed on probation and must bring their GPA up to 3.0 during the following semester. Students who then fail to attain a 3.0 will be dismissed from the program. Student research will be graded by the faculty mentor each semester. Research grades will be satisfactory or unsatisfactory (S/U) during the 1st year.

For more information about the Ph.D. program contact: Keith Zullig, Ph.D., M.S.P.H., Associate Professor, Director of the Ph.D. Program in Public Health Sciences, P.O. Box 9190, WVU School of Medicine, Morgantown WV 26506, Phone (304) 293-1091, Fax (304) 293-6685 e-mail: kzullig@hsc.wvu.edu, WVU School of Medicine, Department of Community Medicine, Phone (304) 293-2502.

**Master of Science (M.S.) in School Health Education**

The Department of Community Medicine offers the M.S. degree in school health education. This program is open only to applicants holding a professional teaching certificate/licensure. A copy of your teaching certificate is required for admission. (SREB approved)

**Goal of the M.S. Program**

The goal of the school health M.S. degree program is to provide teachers with the knowledge and skills necessary to instill in school-age students the information necessary to make healthy decisions regarding well-being. Experiential instruction, coupled with critical thinking skills, enables students to be informed health consumers. The program will provide an optimal experience to equip students to be models and mentors for their own students. This program is only for those who have an active teaching certificate in any teaching area.
Admission Requirements
Applicants to the M.S. program must:
1. Hold a bachelor’s degree from an accredited college of university and a minimum grade point average of 2.75 on a 4.0 scale.
2. Submit an Application for Graduate Admission to West Virginia University and attach a nonrefundable check for the amount specified on the application form.
3. Submit sealed transcripts of all college coursework to the Graduate Unit, West Virginia University Office of Admissions.
4. Complete an M.S. (school health education) program application with a copy of an official teaching certificate.
5. Submit a one-page typed essay expressing your interest in the M.S. school health education program.
6. Submit a CV/resume.

Performance Standards
GPA and grade requirements are as follows:
1. Students are required to maintain a GPA of at least 3.0 on all work taken as a graduate student while enrolled in community medicine graduate programs. A student must have 3.0 GPA or better in order to graduate from the program.
2. Students admitted with a 2.75 to 2.99 GPA must have attained a 3.0 GPA or above at the end of their first semester or they will be dismissed.
3. Students admitted with a 3.0 GPA must have a minimum 3.0 GPA every semester. If their GPA falls below 3.0 one semester, they will be placed on probation. If the GPA falls below 2.75 they will be suspended.
4. Two grades of C or below while enrolled as a graduate student will result in probation. Three grades of C or below while enrolled as a graduate student will result in suspension.
5. A grade lower than C will not be counted towards satisfying degree requirements. For any required graduate program course where the student receives a grade lower than a “C” must be repeated.
6. A grade of F in any course taken to satisfy degree requirements in a community medicine graduate program will result in automatic program dismissal.

Course of Study
The program requires 30 credit hours of coursework. Students may transfer nine credit hours that are pre-approved upon admission. Students will take two courses per semester with three one-week intensive summer sessions. This program can be completed in two calendar years on a part-time basis.

Since unforeseen circumstances might necessitate a curriculum change, prospective and current students are encouraged to visit the educational programs website at: http://www.hsc.wvu.edu/som/cmed/ for current requirements.

For more information about the M.S. program please contact: Ruth E. Kershner, Ed.D., R.N., Associate Professor, Coordinator of the M.S. Program in School Health Education, P.O. Box 9190, WVU School of Medicine, Morgantown WV 26506, Phone (304) 293-7440, Fax (304) 293-6685, E-mail: rkershner@hsc.wvu.edu or WVU School of Medicine, Department of Community Medicine, Phone (304) 293-2502.
Human Performance and Applied Exercise Science

The Department of Human Performance and Applied Exercise Science has three divisions:

Division of Exercise Physiology
Includes an undergraduate and a graduate program.

Division of Occupational Therapy
Includes an entry-level master’s program.

Division of Physical Therapy
Includes an entry-level doctoral program.

Introduction
The WVU exercise physiology program was established in the Health Sciences Center’s School of Medicine in July 1993. The program offers a four-year curriculum leading to a bachelor of science degree in exercise physiology, a two-year program leading to a masters of science (clinical or thesis track) and a doctoral program leading to a Ph.D. in Exercise Physiology.

What is an Exercise Physiologist?
Exercise physiologists are trained to evaluate people in the areas of cardiovascular fitness, muscular strength and endurance, flexibility, neuromuscular integration, and body composition. They are also trained to provide exercise programs based on the results of these evaluations that are designed to increase the functional capacity of the participants.

Exercise physiologists work with athletes, patients, and healthy participants in the areas of disease prevention in wellness programs, or rehabilitation in hospital settings. The bachelor of science program is a preparatory program for graduate school. Graduates of this program continue their studies in exercise physiology, physical therapy, medicine, or other health-related careers. Graduates of the master of science or doctoral program find employment in corporate wellness, hospital rehabilitation, higher education, or other research settings. Additionally, they may be employed in a wide variety of private, community, state, and national agencies. Exercise physiology is an evolving field that is becoming increasingly important with the integration of preventive medicine into the health care system. Employment opportunities are expanding and increasing with experience and level of education.

Bachelor of Science
The Bachelor of Science in exercise physiology is a preparatory program for graduate or professional school. Graduates continue their education in areas such as exercise physiology, physical therapy, or medicine. The program is designed to provide students a background in basic science and exercise physiology as well as courses in nutrition, athletic training, first aid and emergency care, and business.
Admission

Students must meet the minimum requirements for WVU for admission to the program. All coursework completed prior to transfer to the exercise physiology program requires at least a 2.75 cumulative grade point average and a grade of C or better in all required courses.

Program Requirements

Students must complete the University requirements for the general education curriculum. Students must complete the following courses or course equivalents in theory and foundation to meet the exercise physiology program requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHPR 172 First Aid and Emergency Care</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 241 Developmental Psychology</td>
<td>3</td>
</tr>
<tr>
<td>ATTR 121 Sport Injury Control and Management</td>
<td>3</td>
</tr>
<tr>
<td>ATTR 219 Gross Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 240 Medical Terminology</td>
<td>1</td>
</tr>
<tr>
<td>EXPH 100 Introduction to Exercise Physiology I</td>
<td>1</td>
</tr>
<tr>
<td>EXPH 101 Introduction to Exercise Physiology II</td>
<td>1</td>
</tr>
<tr>
<td>EXPH 364 Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 365 Exercise Physiology I</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 368 Laboratory Techniques and Methods I</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 369 Strength and Conditioning Methods</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 370 Writing for Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 491 Professional Field Experience</td>
<td>6</td>
</tr>
<tr>
<td>EXPH 475 Industry Organization in Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 496 Senior Thesis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 126 College Algebra*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 128 Plane Trigonometry*</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 101 Introductory Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 102 Introductory Physics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 115 Fundamentals of Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 116 Fundamentals of Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 231 Organic Brief Course (or both of the following)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 233 and 235 Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 234 and 236 Organic Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 101 and 103 General Biology and Lab**</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 102 and 104 General Biology and Lab**</td>
<td>4</td>
</tr>
<tr>
<td>PSIO 241 or 441 Elementary Physiology</td>
<td>4</td>
</tr>
<tr>
<td>HN&amp;F 171 Introduction to Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>STAT 211 or ECON 225 Elementary Statistical Inference</td>
<td>3</td>
</tr>
</tbody>
</table>

Suggested Electives: BIOL 219 The Living Cell (4 hrs.) and BIOC 339 (3 hrs.)

*MATH 129, 155, or 150 may be substituted for MATH 126 and 128.

**BIOL 115 and 117 may be substituted for of BIOL 101–104.

Students must have a grade of C or better in all required courses. Students must have a minimum of 128 hours to graduate. Students must maintain a cumulative GPA of 2.5 or better to remain in the program.

Students may choose the general curriculum tract or health professionals’ tract. Students who intend on applying to medicine, dentistry, pharmacy, or graduate school should take the health professionals tract. Students applying to physical therapy can choose either the general or health professional track.
### Exercise Physiology Curriculum Plan

#### Freshman Year
- **First Semester**
  - ENGL 101 ........................................ 3
  - MATH 126 Algebra ................................ 3
  - BIOL 101 and 103 ................................ 4
  - EXPH 100 Intro. to EXPH I ..................... 1
  - PSYC 101 Intro. to Psychology ................. 3
  - ATTR 219 Anatomy ................................ 3
  - **Total** ........................................ 17

- **Second Semester**
  - MATH 128 Trig .................................... 3
  - BIOL 102 and 104 ................................ 4
  - GEC Objectives .................................... 3
  - ATTR 121 Athletic Training ..................... 3
  - EXPH 101 Intro. to EXPH II .................... 1
  - **Total** ........................................ 14

#### Sophomore Year
- **First Semester**
  - CHEM 115 ........................................ 4
  - PHYS 101 .......................................... 4
  - GEC Objectives .................................... 3
  - ENGL 102 .......................................... 3
  - EXPH 364 Kinesiology ........................... 3
  - **Total** ........................................ 17

- **Second Semester**
  - CHEM 116 ........................................ 4
  - PHYS 102 .......................................... 4
  - PSIO 241 Human Physiology ..................... 4
  - EXPH 240 Medical Terminology .................. 1
  - GEC Objectives .................................... 3
  - **Total** ........................................ 16

#### Junior Year
- **First Semester**
  - CHPR 172 First Aid and Emer. Care .......... 2
  - EXPH 365 Exercise Phys I ....................... 3
  - EXPH 368 Lab. Tech. and Meth. I ............. 3
  - PSYC 241 Human Growth and Dev ............. 3
  - GEC Objectives .................................... 3
  - EXPH 370 Writing Meth. in EXPH .......... ... 3
  - **Total** ........................................ 17

- **Second Semester**
  - CHEM 231 Org. Chem. Brf. Cor ............... 4
  - EXPH 369 Strength and Cond. Meth ........... 3
  - HN&F 171 Nutrition ............................. 3
  - Elective(s) ....................................... 6
  - **Total** ........................................ 16

#### Senior Year
- **First Semester**
  - EXPH 491 Professional Field Exp ............ 3
  - EXPH 496 Senior Thesis ......................... 3
  - STAT 211 ......................................... 3
  - Electives ......................................... 5
  - **Total** ........................................ 14

- **Second Semester**
  - EXPH 491 Professional Field Exp ............ 3
  - EXPH 475 Industry Org. Exercise ............. 3
  - GEC Objectives .................................... 3
  - Electives ......................................... 6
  - **Total** ........................................ 15

### Health Professions Emphasis Curriculum Plan

#### Freshman Year
- **First Semester**
  - ENGL 101 ........................................ 3
  - CHEM 115 .......................................... 4
  - MATH 126 Algebra ................................ 3
  - BIOL 115 .......................................... 4
  - EXPH 100 Intro. to EXPH I ..................... 1
  - PSYC 101 Intro. to Psychology ................. 3
  - **Total** ........................................ 18

- **Second Semester**
  - MATH 128 Trig .................................... 3
  - BIOL 117 .......................................... 4
  - GEC Objectives .................................... 3
  - CHEM 116 .......................................... 4
  - EXPH 101 Intro. to EXPH II .................... 1
  - ATTR 219 Anatomy ................................ 3
  - **Total** ........................................ 18

#### Sophomore Year
- **First Semester**
  - CHEM 233 & 235 Organic ....................... 4
  - ATTR 121 Athletic Training .................... 3
  - ENGL 102 .......................................... 3
  - EXPH 364 Kinesiology ........................... 3
  - PHYS 101 .......................................... 4
  - **Total** ........................................ 17

- **Second Semester**
  - CHEM 234 & 236 Organic ....................... 4
  - PHYS 102 .......................................... 4
  - PSIO 241 Human Physiology ..................... 4
  - CHPR 172 First Aid and Emer. Care .......... 2
  - EXPH 240 Medical Terminology ............... 1
  - GEC Objectives .................................... 3
  - **Total** ........................................ 18
Junior Year
First Semester Hrs. Second Semester Hrs.
EXPH 365 Exercise Physiology I...........3 EXPH 460 Pathophysiology ...............3
EXPH 368 Lab Tech. and Meth. I...........3 EXPH 369 Strength and Cond. Meth........3
PSYC 241 Human Growth and Dev. ........3 HN&F 171 Nutrition..........................3
BIOC 339........................................4 EXPH 370 Writing Meth. for EXPH........3
Elective Science (e.g. BIOL 219).........4
Total .......................................17

Senior Year
First Semester Hrs. Second Semester Hrs.
EXPH 491 Professional Field Exp...........3 EXPH 470 Research Methods ...............3
EXPH 496 Senior Thesis.....................3 EXPH 491 Professional Field Exp........3
Elective Science ................................4 EXPH 475 Industry organ EXPH............3
MBIM 200......................................4 Elective Science (BIOL 410)..............4
GEC Objective.................................3 GEC Objective.................................3
Total .......................................17

Total .........................................16

GEC Objective..........................................3

Total ..............................................18

Master of Science
The master of science program in exercise physiology is a two-year degree program that is offered in two tracks. The clinical track master of science program in exercise physiology provides coursework and laboratory experience that prepares students for careers in adult fitness, hospital or corporate-based wellness programs, or cardiac rehabilitation. Students will complete clinical internship training as part of the course and laboratory requirements. This is a two-year program, which will qualify students to sit for the national certification examination for a registered clinical exercise physiologist of the American College of Sports Medicine. The Thesis Track Master of Science program in exercise physiology is intended to give exceptional students knowledge in basic medical and scientific areas to prepare them for entry into advanced research intensive or professional careers (e.g., Ph.D., M.D./Ph.D.; P.T., O.T., dentistry, pharmacy, etc). Students in the thesis track will typically take two academic years to complete the coursework and research thesis. Graduate work involves a program of study and research individually designed to utilize the abilities and strengths of the faculty and accommodate the needs of the student within an area of specific interest. Although there are common goals, expectations, and courses that will be universal for all masters’ graduate students, the exact content of a program of study may differ from one student to another.

Grade requirements for the masters’ degree (clinical and thesis tracks) in exercise physiology include the following:

b. No grade less than B will be accepted for any exercise physiology course.
c. A maximum of one C will be accepted on a transcript for graduation. The C must be in a non-exercise physiology course.

Admission
Approximately 12 students are accepted into the clinical track and five students are accepted into the thesis track once a year on a competitive basis. Applicants must have a baccalaureate degree in an allied field from an accredited institution with a minimum undergraduate grade-point average of 3.0 (based on A = 4.0 grade points). Three letters of reference and GRE scores are required. Applicants are selected for admission on the basis of scholastic standing (special attention is given to science grades), and recommendations. The graduate application, three letters of reference, GRE scores, and college transcripts must be submitted by February 15th.

Program Requirements
Clinical Track. The following courses or course equivalents are required to complete the requirements for the clinical track M.S. degree program. The courses are taken over two years.

286 West Virginia University Graduate Catalog
<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSIO 743 Mechanisms of Body Function</td>
<td>4</td>
</tr>
<tr>
<td>ESTAT or STAT 511 Statistics (or another approved statistics)</td>
<td>3</td>
</tr>
<tr>
<td>PCOL 693 Pharmacology: Drugs and Medicines</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 567 Exercise Physiology 2</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 670 Laboratory Techniques And Methods 2</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 672 Professional Field Placement 2</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 693A Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 693B Clinical Lab 1 (stress testing)</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 693C Exercise Prescription and Testing 1</td>
<td>4</td>
</tr>
<tr>
<td>EXPH 693D Clinical Lab 2 (Cardiovascular and Metabolic)</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 693E Clinical Lab 3 (Neuro and immunology)</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 693F Exercise Prescription &amp; Testing 2</td>
<td>4</td>
</tr>
</tbody>
</table>

** Recommended Electives **

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>EXPH 691G Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>Spring/Summer</td>
<td>HN&amp;F 619 Nutrition and Disease</td>
<td>3</td>
</tr>
<tr>
<td>Spring</td>
<td>EXPH 697 Research</td>
<td>1–4</td>
</tr>
<tr>
<td>Fall</td>
<td>AGBI 610 General Biochemistry</td>
<td>4</td>
</tr>
</tbody>
</table>

** Thesis Track. ** The following courses or course equivalents are required to complete the requirements for the thesis track M.S. degree program, the courses are taken over two years.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSIO 743 Mechanisms of Body Function</td>
<td>4</td>
</tr>
<tr>
<td>STAT 511 Statistics (or another approved statistics)</td>
<td>3</td>
</tr>
<tr>
<td>AGBI 514 Animal Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 567 Exercise Physiology 2</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 693A Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 697 Research</td>
<td>15</td>
</tr>
<tr>
<td>EXPH 799 Graduate Colloquium</td>
<td>3</td>
</tr>
</tbody>
</table>

** Recommended Electives **

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>AG 610 General Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>Spring</td>
<td>EXPH 791B Adv. Muscle Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Fall</td>
<td>EXPH 791A Advanced Cardiovascular Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Spring</td>
<td>HN&amp;F 619 Nutrition in the Prevention of Human Diseases</td>
<td>3</td>
</tr>
</tbody>
</table>

** Doctor of Philosophy and Joint Doctor of Medicine/Doctor of Philosophy **

Exercise physiology is one of the seven biomedical sciences graduate programs that awards the doctor of philosophy degree (Ph.D.) The program is intended to give exceptional students knowledge in basic medical and scientific areas to prepare them for careers as effective and knowledgeable researchers and teachers in the broad field of exercise physiology/kinesiology. In the Division of Exercise Physiology these goals are achieved by several means. Formal coursework in the sub-disciplines of exercise physiology, physiology, biochemistry, molecular biology, and pharmacology provides the student with the opportunity to develop a solid foundation in basic subject matter of medical sciences that can be applied to aspects of exercise and disease. The student’s knowledge base will be further strengthened by participation in elective courses offered within the division, selected courses offered by other departments within the School of Medicine, and by departments in other colleges and schools of WVU.
Students who have been accepted in the M.D. program in the School of Medicine may apply for admission to the M.D./Ph.D. program. M.D./Ph.D. students will complete the first two years of medical school training (including all examinations). The M.D./Ph.D. student will begin the Ph.D. training in the third year of enrollment, and will resume the M.D. program after completing the dissertation and requirements for the Ph.D. program in exercise physiology.

The faculty in the Division of Exercise Physiology views the Ph.D. primarily as a research degree. Research training and experience are provided under the guidance and supervision of the graduate faculty. The aim of this effort is to promote attitudes, habits, skills, and abilities that will enable the student to grow and develop as an independent scientist.

Graduate work involves a program of study and research individually designed to utilize the abilities and strengths of the faculty (e.g., cardiovascular system, heart disease, neuromuscular system, aging, and diabetes/obesity) and accommodates the needs of the student within an area of specific interest. The exact content of a program of study for a particular student usually will differ from one student to another. Nevertheless, there are common goals, expectations, policies, and procedures that will be universal for all graduate students. Likewise, there are activities and responsibilities that will be common among all faculty advisors in the Division of Exercise Physiology.

Program Features

1. Admission and Performance Standards

Program requirements typically restrict the admission of first-time applicants to the fall semester.

The general application procedures to the Ph.D. program in exercise physiology follows guidelines for admission to the common Ph.D. graduate programs in the Schools of Medicine and Pharmacy. The general application procedures to the M.D./Ph.D. program in exercise physiology follows guidelines for admission to the common M.D./Ph.D. graduate programs in the Schools of Medicine. Students applying to the Ph.D. program normally have a minimum graduate grade point average of 3.0. In addition, applicants must submit three letters of recommendation from professors involved with the student’s academic work, including faculty who can comment on the applicant’s research ability and aptitude, an official transcript of all college work, and the results of the Graduate Record Examination. The minimum recommended score on the Graduate Record Examination is 1,000 for the verbal and quantitative scores combined. Normally, students are enrolled for four to five years in the Ph.D. program with the majority of time spent in preparation for dissertation research and conducting independent dissertation research.

Grade requirements for the doctoral degree in exercise physiology include the following:


b. No grade less than B will be accepted for any exercise physiology course.

c. A maximum of one grade of C in a non-exercise physiology course will be allowed on a transcript for graduation.

d. Students are expected to obtain a B or better in non-exercise physiology courses in which the Dissertation Committee views as critical for the student’s research success (i.e., students who obtain a C may be required to retake courses to obtain a grade that is B or better).

Failure to meet these requirements will result in dismissal from the program. The exercise physiology graduate faculty will review all petitions to remain in the program according to due process. The faculty may provisionally retain a student in the program if special circumstances exist. In this case, the graduate faculty and the Doctoral Committee of exercise physiology will review the student’s record and render its decision by majority vote. If a failing student is provisionally retained, the graduate faculty and the Dissertation/Advisory Committee will draft a plan of approach from which the student must follow to regain academic good standing within the specified time period. The student may appeal a decision for dismissal by writing an appeal to the chair of the Division of Exercise Physiology. The division chair will convene a meeting of the exercise physiology graduate faculty and the student’s Doctoral Committee members if the committee had been formed prior to the student’s dismissal. The student may appear at the meeting to make his/her appeal. The graduate faculty and Doctoral Committee members will review the appeal and render a decision by majority vote.
2. Program Requirements

By the end of the first academic year the Ph.D. student must choose a committee chair. An M.D./Ph.D. student must choose a Ph.D. mentor prior to the third year of enrollment (typically after completing the first two years of medical school). The student and chairperson will invite other faculty members to serve on a Graduate Committee. All members of the committee must be acceptable to both the student and the chair. The committee and student will develop a plan of study that will include required coursework for the program. The committee will consist of at least five faculty, the majority of who hold regular graduate faculty status. The chairperson and two other members of the committee must be members of the exercise physiology graduate faculty. One member of the committee must be from the student’s minor area. The committee members will be selected according to their abilities to assist the students with critical aspects of their doctoral work.

Basic Science Recommendations

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>4–8</td>
</tr>
<tr>
<td>General Chemistry or Organic Chemistry</td>
<td></td>
</tr>
<tr>
<td>Physics is recommended but not required</td>
<td>4</td>
</tr>
</tbody>
</table>

Required Doctoral Coursework (or equivalent)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1BMS 738 Cellular Structure and Function</td>
<td>5</td>
</tr>
<tr>
<td>1CCMD 712 Biostatistics for the Basic Sciences</td>
<td>1</td>
</tr>
<tr>
<td>1CCMD 789 Scientific Ethics and Certification</td>
<td>1</td>
</tr>
<tr>
<td>1CCMD 799 Graduate Colloquium</td>
<td>1</td>
</tr>
<tr>
<td>CCMD 797 Laboratory Rotations</td>
<td>3</td>
</tr>
<tr>
<td>1CCMD 793A Fundamentals of Integrated Systems</td>
<td>4</td>
</tr>
<tr>
<td>1CCMD 793H Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>1CCMD 793J Introduction to Biomedical Research</td>
<td>1</td>
</tr>
<tr>
<td>1CCMD 793G Cardiovascular and Respiratory Biology</td>
<td>2</td>
</tr>
<tr>
<td>1CCMD 793E Muscle Structure and Function</td>
<td>2</td>
</tr>
<tr>
<td>EXPH 791A Advanced Study Exercise Physiology I</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 791B Advanced Study Exercise Physiology II</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 797 Research (Must be completed prior to dissertation.)</td>
<td>12–24</td>
</tr>
<tr>
<td>EXPH 796 Graduate Seminar</td>
<td>3</td>
</tr>
<tr>
<td>EXPH 799 Graduate Colloquium</td>
<td>8–10</td>
</tr>
</tbody>
</table>

Statistics*

*These classes are waived for students in the M.D./Ph.D. program
*Specific courses to be determined by doctoral committee.

Recommended—One of the Following Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCMD 793F Immunology II</td>
<td>2</td>
</tr>
<tr>
<td>CCMD 793D Neuroscience II</td>
<td>2</td>
</tr>
<tr>
<td>CCMD 793C Respiratory System Biology</td>
<td>2</td>
</tr>
</tbody>
</table>

Additional Academic Responsibilities

All doctoral students will be required to present a minimum of six one-hour graduate seminars to faculty and students before graduating. Doctoral students are also required to teach as part of their training. Students are expected to present their research data at national meetings and publish their data in appropriate peer-reviewed journals prior to graduation. However, the student’s faculty advisor must give approval before any research or scholarly material is submitted for presentation or publication and the material must recognize all appropriate co-authors and grant sources.

Required Research Participation

Because the doctorate is a research degree, students will be expected to be involved in research from the beginning of their programs. Doctoral students will participate in three research rotations with faculty in exercise physiology during the first two semesters of enrollment. Students are expected to choose a dissertation chair and a Dissertation Committee by the end of the first year of enrollment. Students should work with their dissertation advisor
to design appropriate pilot studies and with that data identify a dissertation project and appropriate research questions/hypothesis to be tested by the proposed research. All approved research projects must be hypothesis based, and whenever possible, the research questions should address mechanistic questions that explain biological phenomenon relevant to exercise physiology.

Research is conducted throughout the doctoral program with a goal of having at least three manuscripts published or submitted to a journal for peer review before graduation. Students should strive to present their research findings at a minimum of one national/international meeting annually beginning no later than the second year of enrollment in the doctoral program. A minimum of one peer-reviewed manuscript that is derived from the student’s dissertation research must be published before graduation.

Directed Research

All preliminary research must be collected under the supervision and approval of the dissertation chair. The student is expected to engage in directed research under the supervision of the dissertation chair to learn techniques and collect pilot data that will be the basis of a future dissertation project. Studies to obtain pilot data should be presented to the dissertation committee to demonstrate the student’s competency in research skills, and that his/her research ideas and hypotheses are appropriate and justified. This process facilitates progression through the program in a timely and efficient manner. Nevertheless, the Dissertation Committee may require the student to obtain additional pilot data or research skills prior to approving the research proposal as a dissertation topic. The student’s directed research efforts should be progressing towards approval of a dissertation topic from the members of the Dissertation Committee, once they have been identified (before the end of the first semester of year two). This research training will provide the student background data/information from which to base grant proposal and dissertation topic as part of the requirements for completing Part II of the Comprehensive Examination.

Comprehensive/Qualifying examination

The Comprehensive (qualifying/candidacy) Examination will evaluate a student’s readiness for advancement to doctoral candidacy. This will consist of a written and an oral component to determine that the student is qualified to complete the doctoral dissertation and conduct independent research.

Requirements of the Qualifying/Candidacy Examination

Graduate students will be admitted to Ph.D. candidacy (both M.D./Ph.D. and Ph.D. students) after successfully completing all coursework and passing a candidacy examination. The purpose of the candidacy examination is to evaluate a student’s readiness for advancement to doctoral candidacy. The candidacy examination will consist of writing and orally defending a dissertation proposal. Advancement to candidacy means that in the judgment of the faculty, the doctoral student has an adequate knowledge of exercise physiology, knows how to use academic resources, and has potential to do original research autonomously. In other words, the student is qualified to complete the doctoral dissertation. In addition, no student with a grade point average of less than 3.0 will be eligible to take this examination. The qualifying examination should be taken after completion of the formal coursework as defined by the student’s dissertation committee and chair/advisor of the dissertation committee in conjunction with the director for graduate studies. When a student has passed the Candidacy/Qualifying Examination, he/she will be admitted to candidacy for the Ph.D.

The following are prerequisites for advancement to the qualifying examination:

- The student must have a dissertation advisor and a dissertation committee.
- The student must have demonstrated competent research skills.
- The student must have a suitable dissertation topic that is approved by the dissertation committee.
- The student must be in good academic standing as defined in the doctoral program and have satisfactorily completed the first two years of course requirements (including those specified by the student’s advisory committee) with at least six credit hours (or equivalent) of laboratory research experience.

Appropriate (recommended) lengths for each section of the qualifying examination/research proposal (single spaced) are:
Part 2: Oral Examination of Research Proposal

Normally the oral examination is set within two to four weeks following the acceptance of the written examination. However, the oral exam component can only be scheduled if the members of the Dissertation Committee judge the written submission to be acceptable (or acceptable pending minor revisions). If the written proposal is acceptable by the members of the Dissertation Committee, the chair of the Dissertation Committee will schedule the oral portion of Part II of the examination.

The following guidelines should be reviewed by the student and his/her Dissertation Committee before scheduling the oral examination.

In the oral examination the student will make a professional formal presentation (using slides or Power Point computer slides or similar media,) that clearly identifies the research area, hypotheses, and questions that they wish to pursue as part of his/her Ph.D. dissertation and pilot data that they have obtained (about 40 to 45 minutes). The chair of the Dissertation Committee will also chair Part II of the examination. The chair will permit members of the audience (faculty, graduate students, etc.) to ask questions of the graduate presenter for approximately 10 to 15 minutes. Thereafter the guests will be dismissed and the meeting will be closed except for the members of the student's Dissertation Committee and other invited (i.e., non-voting) members of the graduate faculty that have been approved by the chair of the Dissertation Committee.

Failure of to successfully complete the comprehensive examination after two attempts is grounds for dismissal. Students will be permitted due process and the division chair will convene the graduate faculty as a whole, who will consider written appeals from any student who has been dismissed by virtue of failing the qualifying/candidacy examination.

Temporary Committee Substitutions

• Membership on a Doctoral Dissertation Committee signifies the highest level of commitment to all phases of the student’s doctoral training. All committee members must therefore be present for the oral research design exam. If all the members of the committee are not present at the beginning of the oral defense for Part II, the oral examination cannot continue. Absence of a committee member from the exam is only acceptable in the event of illness or some other serious unforeseen problem.

• If a committee member is unexpectedly unable to participate in a scheduled oral examination, the examination should be rescheduled for another time within the next two weeks when all members can be present. The student may request that the examination not be rescheduled, provided that a substitute committee member can be found (if one is needed to meet minimal Dissertation Committee requirements). Requests for member substitution will be granted in only very rare and exceptional circumstances. The division chair must approve any temporary substitutions.

• The substitute must have adequate time to read the written proposal and prepare for the examination. The substitute must be a suitable graduate faculty with established expertise in an area previously represented by the absent committee member. It is not appropriate to substitute one faculty with another if a different research expertise would be represented by the substitution. Any substitute must be acceptable to both the student and the dissertation advisor, and the substitute must meet the requirements for dissertation committee membership. The substitute member will be considered a full-voting member of the Dissertation Committee for the purpose of administering and grading the examination. The substitute member will also be provided copies of the student’s written responses for Parts I and II. The final examining committee may contain no more than one substitute member, and the students’ advisor (normally Dissertation Committee chair) may not be substituted.
Qualifications For Advancement to Ph.D. Candidacy
The student must demonstrate:
• A wide base of knowledge in exercise physiology
• An ability to think independently
• Integration of existing knowledge into a practical research question, by identifying what is known, what is not known, etc.
• Critical evaluation of literature
• Problem-solving skills
• Acceptable written and oral communication skills including the ability to “think on one’s feet.”

Submission of Written Research Proposal to a Funding Agency
The written candidacy examination also serves an additional purpose. Graduate students are expected to submit at least one grant proposal to an external granting agency by the end of his/her second year of enrollment. Constructing the proposal is a part of the requirements for graduation. The candidacy examination provides the graduate student the opportunity to complete these requirements for submitting the grant proposal, while also preparing for the qualifying examination and assembling ideas for the dissertation project.

The student should wait until successfully negotiating the candidacy examination (both written and oral components) and revise the grant according to the suggestions of his/her dissertation chair and Dissertation Committee. Graduate students should not submit a grant proposal without input, feedback, and approval of the committee chair, and Dissertation Committee. It is acceptable and appropriate for the student to obtain feedback from all members of the Dissertation Committee before submitting it to a funding agency.

The submission of the grant proposal to a funding agency should be used to: (a) Seek a graduate student stipend and other research supplies as allowed by the external source; (b) Seek funding for travel to national/international meetings if it is permitted by the funding agency; (c) Obtain independent external review of the student’s research proposal/dissertation project; and (d) Obtain experience in writing grants for external funding. The student should also notify the director of graduate studies of the grant submission. This will be accomplished by submitting a copy of the front page of the grant proposal (with the title, signatures, etc.), the budget page of the grant to the director of graduate studies.

General Dissertation Requirements
The purpose of the dissertation is to provide experiences that will assist the student in becoming an independent investigator and constructing manuscripts from the data collected in the research process. Typical dissertation projects will be about three years in length.

The student must complete a dissertation in which they have obtained original data that makes a novel and important contribution to knowledge in the broad field of exercise physiology and submit all manuscripts containing these data to peer-reviewed journals. Students must pass an oral examination based upon his/her dissertation.

The dissertation must be constructed in a format suitable to the graduate school and the advisor. Preferable formats will include writing the data chapters as if they have been submitted to peer-reviewed journals (including abstract, introduction, methods and materials, results, discussion, and literature cited in each chapter). In addition, the final one to two chapters of the dissertation should include an integrative discussion concerning the total research project and evaluation of hypothesis that were tested. The typical doctoral dissertation will yield three to five peer-reviewed manuscripts. To optimize feedback from the coauthors and to ensure timely publication, the manuscripts originating from dissertation work should be submitted for peer review prior to graduation, and some manuscripts may be published before the student graduates. Proper acknowledgment for funding of the research should be noted in both the dissertation and the manuscripts obtained from dissertation work. It is expected that several of these manuscripts that will be included in the dissertation will have been published before graduation. It is further expected that all of the manuscripts will be submitted to a peer-reviewed journal for consideration for publication before graduation. The student must have published a minimum of one manuscript as a first author from the completed dissertation work prior to graduation. The process of writing the chapters as journal manuscripts will facilitate this process.
Student Evaluations

Students will be formally evaluated by the program faculty on a yearly basis with respect to courses, research, teaching, professional development, and progress through the program. The student will be asked to fill out an activity report encompassing these areas and submit it to the chair of the Division of Exercise Physiology. The chair will convene the program faculty to evaluate each student. The chair will provide the students a written assessment of their progress.

Division of Occupational Therapy

Randy P. McCombie, Ph.D., OTR/L, Chair
http://www.hsc.wvu.edu/som/ot

Degree Offered

Master of Occupational Therapy

Introduction

In the fall of 1993, the West Virginia Board of Trustees approved the establishment of a new master’s degree program at WVU, leading to an entry-level master’s degree in occupational therapy. WVU accepted its first students into the professional program in the fall semester of 1996. The academic and fieldwork program requires three years to complete. Prior to application, students are required to complete approximately 50 to 55 hours of prerequisite courses, which in most instances will take two years to fulfill.

The Profession of Occupational Therapy

Occupational therapy is a health profession which provides services to people of all ages with physical, mental, or developmental disabilities. The purpose of occupational therapy is to help individuals achieve a maximum level of independence. The focus is on developing the capacity to function in all activities (occupations) of daily life, including self care, work, and leisure. Hence the name occupational therapy.

Occupational therapy is a health and rehabilitation profession designed to help people regain and build skills that are important for health, well-being, security, and happiness.

Occupational therapists work with people of all ages who, because of physical, developmental, social, or emotional deficits, need specialized assistance in learning skills to enable them to lead independent, productive, and satisfying lives.

Occupational therapists work in schools, hospitals, rehabilitation centers, home health agencies, skilled nursing homes, and private practice.

Accreditation Status

WVU’s Division of Occupational Therapy has been granted accreditation status by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 4720 Montgomery Lane, P.O. Box 31220, Bethesda, M.D. 20824-1220. AOTA’s phone number is (301) 652-AOTA. The OT program at WVU was initially awarded accreditation in 1998, and awarded re-accreditation in 2003. The next scheduled onsite visit for accreditation will be 2013.

Graduates of the program are able to sit for the national certification examination for the occupational therapist administered by the National Board for Certification in Occupational Therapy Inc. (NBCOT). For more information, NBCOT can be contacted at (301) 990-7979 or at http://www.nbcot.org/. After successful completion of this exam, the individual will be an occupational therapist, registered (OTR). Most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination. Note: A felony conviction may impact a graduate’s ability to take the NBCOT examination and/or obtaining a state license. For further information on NBCOT’s Character Review Program, interested parties can obtain information from that board or their website.

Note: The following list of prerequisite courses and GEC requirements is subject to change without notice.
<table>
<thead>
<tr>
<th>Prerequisite Courses</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 101</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 102</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 241</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 281</td>
<td>3</td>
</tr>
<tr>
<td>SOCA 101 or SOCA 105</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 101 and BIOL 103</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 102 and BIOL 104</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 101*</td>
<td>4</td>
</tr>
<tr>
<td>PSIO 241* (or PSIO 441*)</td>
<td>4</td>
</tr>
<tr>
<td>STAT 211*</td>
<td>3</td>
</tr>
<tr>
<td>COMM 100</td>
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<td>COMM 102</td>
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*Note: Check for prerequisites for PHYS 101, PSIO 241, and/or STAT 211 by contacting either the Division of Occupational Therapy, or the department under which those courses are housed.

Fulfillment of WVU's General Education Curriculum (GEC) not covered by the above. (see the WVU Undergraduate Catalog) ................................................................. 13

These include one three-credit course in each of the following objectives: 3, 5, 8, 9; plus the one-credit UNIV 101 University Orientation.

Note: Applicants holding a bachelor's degree from an accredited institution are exempt from the GEC requirement.

WVU students must consult the Undergraduate Academic Services Center prior to enrolling in prerequisite courses. These courses may be taken at any institution which offers equivalent courses. Any questions regarding pre-requisite courses may be directed to the Undergraduate Academic Services Center, (304) 293-5805, and/or the Division of Occupational Therapy (304) 293-8828. Equivalence may be determined by contacting the transfer desk, Admissions Office, West Virginia University, P.O. Box 6009, Morgantown, WV 26506-6009.

**Admission Standards**

Normally, students apply to the program during their second year of college. They must have a minimum of 50 to 55 hours of college credit which includes the pre-requisites listed previously. Students who already have a degree in another field are also eligible to apply. All applicants must meet the following criteria:

- Minimum GPA of 3.0, including overall GPA and prerequisite GPA, is normally required (a higher GPA may be necessary given the competitive nature of the program).
- Minimum of 60 hours of volunteer experience with a licensed occupational therapist. Students should contact the Division of Occupational Therapy to determine the type of experience required. Forms to record volunteer experience can be found online at http://www.hsc.wvu.edu/som/ot.
- Two recommendations are also required, one from an occupational therapist who supervised the volunteer/work experience and the other from a college/university professor who has recently taught the applicant. These recommendation forms are included in the application packet.
- Completion of all prerequisite courses by the end of the semester of application (normally, second semester of sophomore year) is normally required.

Application packets are available from the Health Sciences Center Admissions office beginning November 15 (P.O. Box 9815, Morgantown, WV 26505-9815; (304) 293-3523). The deadline for submission of application materials is typically February 15. The official deadline will be posted on the occupational therapy website and printed in the admissions packet.

Course information for the Master of occupational therapy degree can be found on the following website: http://www.hsc.wvu.edu/som/ot.
**What to Expect**

Like many professional programs, the curriculum in the entry-level master's occupational therapy program is fairly fixed and intense. The first professional year will include courses in basic sciences and introductory professional courses. The second and third professional years will deal more specifically with training in occupational therapy theory and practice as administered across a wide variety of settings. The professional curriculum includes two off-campus, full-time clinical experiences known as Level II Fieldworks. Students are financially responsible for transportation, housing, and meal expenses related to clinical assignments. Students in the program are required to participate in the School of Medicine’s laptop computer purchase lease-to-own program, which provides each student with a state-of-the-art computer that contains course- and program-relevant software.

**Occupational Therapy Curriculum Plan**

Note: This curriculum plan is subject to change without notice.

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Program Timeframe

Students must complete all didactic coursework and Level II Fieldworks within a period of five years after commencing the occupational therapy program. Furthermore, all Level II Fieldwork must be completed within 18 months following completion of academic coursework while remaining within the five-year time frame.

Entry-Level Master’s Program in Occupational Therapy

Summer Session II
OTH 300 Essentials of Clinical Anatomy
OTH 480 Current Topics in Occupational Therapy

Fall Semester—First Year
OTH 301 Professional Foundations
OTH 302 Survey of Clinical Problem Solving
OTH 303 Functional Movement Across the Lifespan
OTH 304 Physical Impairment and Function 1
OTH 306 Kinesiologic Foundations for Intervention
OTH 335 Therapeutic Activity

Spring Semester—First Year
OTH 307 Neurobiologic Foundations
OTH 308 Evaluation Procedures
OTH 321 Developmental Life Tasks
OTH 360 Research Methods in OT
OTH 365 Physiology of Human Occupation
OTH 480 Current Topics in Occupational Therapy

Fall Semester—Second Year
OTH 384 Level I Fieldwork 1
OTH 401 Physical Impairment and Function 2
OTH 403 Occupational Therapy in Pediatrics 1
OTH 417 Occupational Therapy in Geriatrics
OTH 430 OT in Mental Health
OTH 440 Vision and Perception
OTH 497 Senior Research

Spring Semester—Second Year
OTH 386 Level I Fieldwork 3
OTH 405 Prosthetics and Orthotics
OTH 408 Physical Impairment and Function 3
OTH 416 Professional Decision Making
OTH 419 Professional Values
OTH 432 OT Interventions—Mental Health
OTH 480 Current Topics in Occupational Therapy
OTH 497 Senior Research

Spring Semester—Beginning Third Year
OTH 540 Level II Fieldwork 1

Fall Semester—Third Year
OTH 480 Current Topics in Occupational Therapy
OTH 500 Health Care Issues in OT
OTH 503 OT in Pediatrics
OTH 520 OT in the Work Environment
OTH 551 OT in Prevention and Wellness
OTH 570 Advanced Theory in OT
OTH 697 Supervised Research in OT
Division of Physical Therapy
MaryBeth Mandich, PT, Ph.D., Chair
http://www.hsc.wvu.edu/som/pt

Degree Offered
Doctor of Physical Therapy (D.P.T.)

Nature of Program
The WVU Division of Physical Therapy was established in 1970 under the auspices of the School of Medicine to help meet the need for physical therapists in West Virginia. The program is accredited by the Commission on Accreditation in Physical Therapy Education, a specialized body recognized by the Council on Postsecondary Accreditation. The program became an entry-level doctoral degree program in Fall 2005. Thirty full-time students are admitted each year. Preference is given to West Virginia residents and non-residents who have attended a West Virginia college or university or who have ties to West Virginia. All other non-residents who meet program requirements will also be considered for admission.

Students admitted into the program complete three years of combined classroom, laboratory, and clinical education, and part-time and full-time supervised clinical practice in various clinics in West Virginia and other states. A doctor of physical therapy (D.P.T.) degree is awarded to those completing the program, and entitles the graduate to apply for examination for state licensure. A license to practice physical therapy is required by all states.

The Profession of Physical Therapy
Physical therapy is a hands-on health care profession that promotes optimal health and function through the application of scientific principles to prevent, identify, assess, correct, or alleviate acute or prolonged movement dysfunction. The goal of physical therapy is to help individuals reach their maximum potential and to contribute to society while learning to live within the limits of their capabilities.

Demand for physical therapy services is expected to continue over the next ten years. The demand for physical therapists in all practice settings is affected by such factors as an aging population and increased emphasis on a healthy, active lifestyle. The professional organization represents therapists on health care issues and is working hard to assure that physical therapy will continue to be a favorable career choice.

Physical therapists are respected members of the health care team. They work with other health care providers such as physicians, occupational therapists, rehabilitation nurses, psychologists, social workers, dentists, podiatrists, and speech pathologists and audiologists. Physical therapists work in hospitals, private physical therapy offices, community health centers, corporate or industrial health centers, sports facilities, research institutions, rehabilitation centers, nursing homes, home health agencies, schools, pediatric centers, and colleges and universities.

Some physical therapists work as employees in these settings, while others are self-employed as owners or partners in private practices. Settings, employment arrangements, career responsibilities, and career opportunities depend on the interests and skills of each practitioner.

The Admissions Process
Courses recommended for high school students in preparation for the preparatory and professional physical therapy program include, but are not limited to, biological sciences (e.g. anatomy, advanced biology, physiology, etc.), chemistry, algebra/trigonometry and/or pre-calculus, physics, and social sciences. Computer literacy is highly recommended.
Because individualized instruction in laboratories and clinics is an essential component of the professional physical therapy program, enrollment must be limited. The physical therapy program selects 30 students per year for entrance into the professional phase of the program. All students who wish to enter the program must apply for admission, must have a bachelor’s degree, and have completed or be enrolled in the pre-requisite coursework detailed below. These courses are available at most colleges.

The following requirements must be met to apply to the WVU Physical Therapy Program:

• Applicant must have a minimum cumulative GPA of 3.0. Applicant must have a minimum prerequisite science GPA of 3.0 which includes two general biology courses, two chemistry courses, two physics courses, statistics, anatomy, and human physiology.

• Applicants must have a minimum of 60 hours of clinical volunteer or work experience obtained from two different physical therapy settings. Though these hours may be obtained during high school and college, some volunteer hours obtained during the junior or senior college years is strongly recommended.

• Applicants must submit two letters of recommendation from physical therapists with whom the student has worked or volunteered. Forms for the recommendation letters will be provided in the application packet. These letters must be from licensed physical therapists; the Admissions Committee will not consider letters from non-physical therapists.

• Applicant must submit one letter of recommendation from a professor from their undergraduate major. The form for the recommendation will be provided in the application packet.

• Applicant must take the Graduate Record Examination (GRE). While no minimum score is required, a combined verbal/quantitative score of at least 1,000 and a writing score of at least 4.0 will be considered competitive.

• Applicant must have a minimum grade of C in each pre-requisite course.

• Applicant must have completed or be enrolled in the required courses listed below:

<table>
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<tr>
<th>Pre-requisite Courses</th>
<th>WVU Course Number</th>
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<tbody>
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<td>8 hrs. Biology with lab</td>
<td>BIOL 101/103; 102/104</td>
</tr>
<tr>
<td>8 hrs. Chemistry with lab</td>
<td>CHEM 115, 116</td>
</tr>
<tr>
<td>8 hrs. Physics with lab</td>
<td>PHYS 101, 102</td>
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<tr>
<td>3 hrs. General Psychology</td>
<td>PSYC 101</td>
</tr>
<tr>
<td>3 hrs. Developmental Psychology</td>
<td>PSYC 241</td>
</tr>
<tr>
<td>3 hrs. Introductory Statistics</td>
<td>STAT 211 or ECON 225</td>
</tr>
<tr>
<td>3 hrs. Human Anatomy</td>
<td>ATTR 219 (recommended)</td>
</tr>
<tr>
<td>3 hrs. Human Physiology</td>
<td>PSIO 241 or PSIO 441 (recommended)</td>
</tr>
<tr>
<td>The anatomy courses included in the DPT curriculum are extremely rigorous. Students should seek out the highest level anatomy course(s) available. The minimum prerequisite is a 3 credit hour course in Human Anatomy; ideally with a laboratory. Combined anatomy &amp; physiology courses may not be substituted for this prerequisite.</td>
<td>NBAN 205</td>
</tr>
<tr>
<td>A two semester, one-year sequence of combined anatomy and physiology may be substituted for the human physiology course requirement.</td>
<td>BIOL 235. PSIO 441 is strongly recommended.</td>
</tr>
</tbody>
</table>

It is recommended that prerequisite courses in human anatomy and human physiology be completed within two years prior to admission.

WVU maintains an online Course Equivalency System (CES) (http://www.arc.wvu.edu/tes/index.php) that lists course equivalencies at many institutions in the state/region. Applicants who complete any of their prerequisites outside of WVU should check the CES to see if each prerequisite course transfers directly to WVU as the required WVU course. If your undergraduate institution is not listed in the CES, or if you have taken prerequisite courses that transfer in as open credit or not equivalent, you must submit a photocopy of the catalog description of the courses in question. Upon receiving your application, the Admissions Committee may request that you submit a copy of the course syllabus for further review.
Baccalaureate Preparation
Applicants must have earned a baccalaureate degree, or plan on completing a baccalaureate degree by May of the year of entering the program. Students may apply with a number of different baccalaureate degrees; however, they must complete the pre-requisites for the physical therapy program as described no later than the spring semester of the year of application.

Students who want careers in health care may find that physical therapy fulfills their goals. A recommended baccalaureate preparation is in the field of exercise physiology. At WVU, exercise physiology majors will be able to obtain all of the pre-requisites listed above during their course of study. Another common baccalaureate major may be biology. As discussed above, these are merely suggestions and students can apply from any institution of higher education with any degree background, as long as they meet the aforementioned pre-requisites.

Additional Information and Updates
For updates, be sure to periodically check the WVU Division of Physical Therapy website (http://www.hsc.wvu.edu/som/pt). You may also contact the program manager for the physical therapy program, Brenda Wolfe, at bwolfe@hsc.wvu.edu.

Applications
Application packets are available from the Health Sciences Center Admissions office beginning December 1. (P.O. Box 9815, Morgantown WV 26506-9815; (304) 293-3521.) The deadline for submission of application materials is typically January 31. The official deadline will be posted on the website and printed in the admissions packets.

Physical Therapy (PT)
Course information for the doctor of physical therapy degree can be found on the following website: http://www.hsc.wvu.edu/som/pt.

Physical Therapy Curriculum
Note: This is subject to change without notice.

Summer
Pre-First Year (II) Hrs.
PT 705 Intro. to Evid. Based PT ...2
PT 706 Advanced Clinical Anatomy ..5
Total .......................................................... 7

First Professional Year
First Semester Hrs. Second Semester Hrs.
PT 711 Professional Roles 1 ...........3 PT 724 Exercise Foundations .......... 3
PT 713 Fun. Mvmt. Across Lifespan ..2 PT 720 Clinical Education .............. 2
PT 714 Clinical Sciences 1 .......... 4 PT 723 Developmental Life Tasks ...... 3
PT 715 Evidence Based PT 1 ..........1 PT 725 Evidence Based PT 2 .......... 3
PT 716 Kinesiologic Foundations ....4 PT 727 Neurobiologic Foundations ... 4
PT 718 Evaluation Procedures ........3 PT 728 PT Procedures 1 ............... 3
Total ......................................................... 17 Total ....................................................... 18

Summer Years 1-2 (I, II) Hrs.
PT 730 Clinical Ed. Symposium 1 ....1 PT 732 Physical Thera. Agents 1 ........2
PT 733 Cardiopulmonary PT ..........3 PT 734 Clinical Sciences 2 ............ 2
PT 742 Phys. Therapeutic Agents ....2 PT 738 PT Procedures 2 ............... 3
Total .........................................................13
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<td>PT 743 Geriatric Physical Therapy</td>
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<td>PT 756 Orthopedic PT 2</td>
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<td>PT 744 Clinical Sciences 3</td>
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## Third Professional Year

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<td>PT 761 PT Roles 3</td>
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<td>PT 762 Health Care Issues in PT</td>
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<td>PT 768 Prosthetics and Orthotics</td>
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### Pathologists’ Assistant

Cheryl Germain, M.H.S., P.A. (ASCP), Program Director  
cgermain@hsc.wvu.edu  
Tiffany Harper, M.D., Assistant Professor and Medical Director  
http://www.hsc.wvu.edu/som/pa/

**Degree Offered**  
*Master of Health Science*

### The Profession

A pathologists’ assistant is a healthcare professional who is qualified through academic and practical training to provide services in anatomic pathology under the direction of a qualified pathologist. Pathologists’ assistants serve as “physician-extenders”—much in the same manner as physicians’ assistants. The addition of pathologists’ assistants to the pathology team can reduce cost, increase revenue, and improve access to health care.

In practice, pathologists’ assistants (PA) are responsible for the processing of the surgical pathology specimen from receipt to dissection and description to submission of tissue to histology. In autopsy practice, the PA is involved in reviewing the medical record of the decedent, evisceration, dissection, and selection of tissue for submission to histology as well as formulation of a preliminary anatomic diagnosis and autopsy report under the direction of a pathologist. Many PAs are involved in laboratory management, teaching at the University level, training of residents and medical students, forensic investigation, or research.

### Nature of Program

The graduate program in pathologists’ assistant began in January 2008 and is administered by the School of Medicine. Students are admitted into the master of health science program after earning a baccalaureate degree from a regionally accredited college or university. Students with a cumulative grade point average of 3.25 or higher in the B.S. degree program in medical laboratory science at West Virginia University may be provisionally admitted directly into the pathologists’ assistant program at the end of their junior year.

This program is a 24-month master’s level program that prepares graduates as allied health professionals for careers as pathologists’ assistants. During the second year, the student receives both didactic instruction and practical experience. Students receive practical experience at one of the program’s affiliated medical laboratories including, West Virginia...
University Hospital and Medical Examiner’s Office, Morgantown, WV; Allegheny General Hospital, Magee-Women’s Hospital of UPMC, UPMC Presbyterian and UPMC Shadyside, Pittsburgh, PA; Thomas Memorial Hospital and St. Francis Medical Center, Charleston, WV.

The WVU Pathologists’ Assistant program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 8410 W. Bryn Mawr Avenue, Suite 670, Chicago, IL 60631-3415, (773) 714-8880. Graduates are eligible for certification by the Board of Certification of the American Society for Clinical Pathology (ASCP).

Admission to the Pathologists’ Assistant Program
All students seeking admission to the master of health science, pathologists’ assistant program must meet the following admissions requirements:

• Hold an earned baccalaureate degree from a regionally accredited institution of higher education.
• Successfully complete the specific pre-requisite coursework in mathematics and sciences.
• A minimum GPA (cumulative and pre-requisite courses) of 3.0 on a 4.0 scale is preferred.
• Submit two letters of recommendation.
• Complete an interview with the Admissions Committee.
• Submit an admissions packet including the application form, personal statement, essential functions form, and official transcripts from all colleges and universities attended.

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<th>Requirement</th>
<th>College Prep</th>
<th>Pre-requisite Courses</th>
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<td>8 Hr. College Chemistry with Lab</td>
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<td>4 Hr. CHEM 231 Organic Chemistry: Brief Course or 4 Hr. Biochemistry with Laboratory or equivalent</td>
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<td>4 Hr. Microbiology with Laboratory</td>
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<td>3 Hr. College Algebra</td>
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<td>3.0 in the pre-requisite courses</td>
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<td>Recommendations</td>
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<td>Interview</td>
<td>A personal interview with the Pathology Assistant Program</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Admission Committee</td>
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</tr>
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</table>

Shadowing or Work Experience
Applicant must complete a shadowing experience with a practicing pathologists’ assistant or have applicable work experience in surgical or autopsy pathology. A statement regarding this experience is required in the application packet. Please contact the program director for assistance if necessary. Students must have a baccalaureate degree prior to beginning the professional sequence. However, the program has established the following admissions classifications:

• Direct Admit. A limited number of students completing the bachelor of science program in medical laboratory science who have a cumulative GPA of 3.25 may apply to the master of science, pathologists’ assistant program at the end of their junior year. These students will be admitted into the program after completing the B.S. in medical laboratory science degree at West Virginia University.
• Regular Decision. A student applies in the admission cycle during their senior year. Typically, application will be submitted in April of the senior year. Admission is contingent upon satisfactory completion of the baccalaureate degree.

Performance Standards
Students are required to maintain a semester GPA of 3.0 to progress in the first and second year of the professional program.

Application Procedure
Each year the pathologists’ assistant program selects a limited number of students from the applications received for admission. Application packets for admission to the program are available after March 1 from the Office of the Assistant Director of Admissions, WVU Health Sciences Center, P.O. Box 9815, Morgantown, WV 26506-9815 or from the WVU Office of Admissions website: http://adm.wvu.edu/home/health_sciences_students.
The application fee is $25 for residents and $40 for non-residents. Each applicant must arrange for transcripts to be sent directly from all undergraduate institutions attended to the Admissions Office. When the application is complete, the file is sent to the Pathologists’ Assistant Admissions Committee. A complete admissions packet contains: completed application form and personal statement, official transcripts, two references and the essential functions form. Please note that the admissions office does not handle reference letters. Each application requires two letters of reference (one from a professor and one from a laboratory professional with whom you have worked.) Letters of reference should be mailed to: Cheryl Germain, Program Director, WVU Pathologists’ Assistant Program, P.O. Box 9203, Morgantown, WV 26506-9203.

An interview will be granted to qualified applicants after a review of the application packets.

**Pathologists’ Assistant Program Essential Functions**

In accordance with Section 304 of the 1973 Vocational Rehabilitation Act, the West Virginia University pathologists’ assistant program has adopted minimum technical standards for assessment of all applicants to the pathologists’ assistant program.

Because the master’s degree in health science/pathologists’ assistant signifies that the holder has obtained minimum competencies in all areas of the anatomic pathology laboratories, it follows that graduates must have the knowledge and skills to function in a wide variety of laboratory situations and to perform a wide variety of procedures.

- Candidates for the master’s degree in health science/pathologists’ assistant must have somatic sensation (sense of touch) and the functional use of the senses of vision and hearing.
- Candidates’ diagnostic skills will also be lessened without the functional use of the sense of equilibrium, smell, and taste.
- Additionally they must have sufficient motor function to permit them to carry out the activities described in the sections that follow.
- They must be able to consistently, quickly, and accurately integrate all information received by whatever sense(s) employed, and they must have the intellectual ability to learn, integrate, analyze, and synthesize data.
- A candidate for the master’s degree in health science/pathologists’ assistant must have abilities and skills which include observation, communication, motor, conceptual, integrative, quantitative, behavioral, and social. Technological compensation can be made for some handicaps in certain of these areas but a candidate should be able to perform in a reasonably independent manner. The use of a trained intermediary means that a candidate’s judgment must be mediated by someone else’s power of selection and observation.

1. **Observation:** The candidate must be able to observe demonstrations, procedures and instruments in the basic sciences and clinical courses. Observation necessitates the functional use of the sense of vision and somatic sensation. It is enhanced by the functional use of the sense of smell.

2. **Communication:** A candidate should be able to speak, hear, and observe people in order to elicit information and perceive nonverbal communications. A candidate must be able to communicate effectively and efficiently in oral and written form with members of the health care team.

3. **Motor:** Candidates should have sufficient motor function to perform laboratory procedures. This action requires the coordination of both gross and fine muscular movements, equilibrium, and functional use of the senses of touch and vision.

4. **Intellectual—conceptual, integrative, and quantitative abilities:** These abilities include measurement, calculation, reasoning, analysis, and synthesis. Problem solving requires all of these intellectual abilities. In addition, the candidate should be able to comprehend three-dimensional relationships and to understand spatial relationships of structures.

5. **Behavioral and Social Attributes:** A candidate must possess the emotional health required for full utilization of his/her judgment, the prompt completion of all responsibilities, and the development of mature, sensitive relationships with patients and coworkers.
Candidates must be able to tolerate physically taxing workloads and to function effectively under stress. They must be able to adapt to changing environments, to display flexibility, and to learn to function in the face of uncertainties. Compassion, integrity, concern for others, interpersonal skills, interest, and motivation are all personal qualities that should be assessed during admissions and education process. In its evaluation of applicants to the West Virginia University pathologists’ assistant program the Admissions Committee will approach each applicant with the following questions in mind.

When an applicant does not meet a non-academic standard as defined above, and when this would in the professional judgment of the committee, not satisfy the pathologists’ assistant objectives for the student in performing laboratory procedures, education, and research, such opinion will be documented by the Admissions Committee.

The questions are not designed to disqualify an applicant but rather to give the Admissions Committee more complete information about an applicant’s ability to meet these nonacademic standards:

1. Is the candidate able to observe demonstrations and perform procedures in the basic sciences and clinical courses?
2. Is the candidate able to analyze, synthesize, solve problems, and make judgments about results obtained on patient specimens?
3. Does the candidate have sufficient use of the senses of vision, hearing, and somatic sensation necessary to perform the indicated laboratory procedures?
4. Can the candidate reasonably be expected to communicate the results of laboratory tests to other members of the health care team with accuracy, clarity, and efficiency?
5. Can the candidate reasonably be expected to learn and perform laboratory tests and operate instruments?
6. Can the candidate reasonably be expected to display good judgment in the analysis of procedure results?
7. Can the candidate reasonably be expected to accept criticism and respond by appropriate modification of behavior?
8. Can the candidate reasonably be expected to possess the perseverance, diligence, and consistency to complete the pathologists’ assistant program and to become a practicing pathologists’ assistant?

**Curriculum**

**Spring**

<table>
<thead>
<tr>
<th>Year One</th>
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<td>FIDP 493B Adv. Forensic Photo</td>
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<td>PATH 620 Clinical Path. Seminar</td>
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Graduation Requirements
Students are required to maintain a GPA of at least 3.0 on all work taken as a graduate student while enrolled in the pathologists’ assistant program. A minimum 3.0 GPA is required to graduate from the program.

Medicine
http://www.hsc.wvu.edu/som/students

Degrees Offered
Doctor of Medicine
Joint Doctor of Medicine and Doctor of Philosophy
Joint Doctor of Medicine and Master’s in Public Health

The degree of doctor of medicine (M.D.) is granted to students who have completed the prescribed curriculum and who have been recommended for the degree by the faculty of the School of Medicine.

The M.D./Ph.D. program is available to those students who show exceptional interest and scholarly promise. All admission requirements of the School of Medicine and the specific graduate program apply. An M.D./M.P.H. program is available for those interested in public health issues.

It is to be understood that the following information applies only to students in the School of Medicine who are enrolled in the prescribed curriculum which culminates in the M.D. degree. All other students, undergraduates, or graduates enrolled in other programs in the School of Medicine are governed by the policies found elsewhere in the WVU Health Sciences Catalog.

Accreditation
The West Virginia University School of Medicine is accredited by the Liaison Committee on Medical Education (LCME).

Admission Requirements
The student preparing for any career in the health professions must have a keen interest in the sciences.

The following courses are required for consideration of an application to medical school:
- English: 6 semester hours or equiv.
- Biological sciences (with lab): 8 semester hours or equiv.
- Inorganic chemistry (with lab): 8 semester hours or equiv.
- Organic chemistry (with lab): 8 semester hours or equiv.
- Physics (with lab): 8 semester hours or equiv.
- Social or behavioral sciences: 6 semester hours or equiv.

Biochemistry and cell biology are strongly recommended. A total of 90 semester hours, exclusive of ROTC and general physical education, is required. Computer skills are required. All required courses must be passed with a grade of B or better. A grade of C does not constitute a passing grade. All required classes must be completed prior to January 1 of the anticipated admission date.

An excess of credit hours or higher degrees does little to offset the disadvantage of low grades when being considered for admission to the School of Medicine. Repeating courses to raise the grade is discouraged. Applicants who have been subject to suspension from West Virginia University or other medical schools can be admitted only in very exceptional cases and at the discretion of the Admissions Committee.

Pre-Admission Tests
The score of the Medical College Admissions Test (MCAT) is one of the factors in considering an applicant for admission. It is recommended that students take the MCAT during the spring of their junior year in college. The MCAT must be taken by September of the year of application. MCATS taken in January of the year of admission will not be considered. The dates for beginning and closure of application acceptances are available through AMCAS and on our website.
Information concerning the time and place of the test can be obtained from:

- Your premedical advisor
- Admissions Committee
- The Office of Admissions

**Application Procedure**

The admission process is initiated by completing the online American Medical College Application Service (AMCAS) forms. Online at [http://www.aamc.org](http://www.aamc.org).

Application for admission in August should be made at the end of the previous school year. The last date for filing an application is November 1. The applicant should file as early as possible, making certain that recent MCAT scores, current transcripts, and letters of recommendation are available to the Admissions Committee.

Admission preference is given to West Virginia residents and those non-resident applicants who have strong ties to the state, or verifiable interests in rural and primary care. No one specific factor is used to determine admission. However, careful consideration is given to those personal qualifications which apply to the study and practice of medicine. The criteria for admission include academic performance, course load, letters of recommendation, MCAT scores, motivation, interpersonal skills, community service, health care experiences, and a personal interview. An early-decision program is available for those residents and non-residents with strong grades and MCATs who wish only to apply and attend WVU.

No applicant is admitted before an interview by the Admissions Committee. Residency status is determined by the Board of Trustees Policy Bulletin #36. Interviews and consideration of applicants begin in September. Acceptances are made on a rolling basis.

If an applicant is denied admission or does not enroll after acceptance, he or she must reapply in the regular manner for consideration in a subsequent year.

**Advanced Standing**

Advanced standing positions are considered only in very exceptional circumstances and only to students currently attending a medical school accredited by the Liaison Committee on Medical Education (LCME). A request for transfer is usually considered during the second year. The application must be received no later than April 1. The applicant must present certification of good academic and professional standing in the school from which he/she is transferring. An official transcript of all prior medical school work, and recommendation are required from all medical schools attended. In addition, successful results of Step I of the United States Medical Licensure Examination must be available before action on an application can be finalized.

**Conditions Following Acceptance**

An applicant accepted into the first year or in advanced standing is expected to meet all entrance requirements and satisfactorily complete all undergraduate/medical school work in progress. Failure to do so may result in the withdrawal of the acceptance by the Admissions Committee.

The student must be aware that furnishing or causing to be furnished, false or incorrect information for the purpose of the School of Medicine application constitutes grounds for disciplinary actions, including, but not limited to, expulsion or revocation of the acceptance.

Students in the School of Medicine agree to abide by the provision of an integrity code, which requires ethical and moral standards of conduct in all situations. Each student is required to return a signed statement to the Office of Student Services, indicating the student has read and understands the Student Professional and Academic Integrity Code of the West Virginia University School of Medicine. The code and copies of the statement are available in the Office of Student Services in the School of Medicine, and on the Student Services website.

Prior to entering medical school, all students must complete certain prescribed immunization and diagnostic procedures. Personal health insurance is required.

**Promotion and Graduation Requirements**

**Evaluation of Student Progress**

Promotion of a student in the M.D. degree program is evaluated in three major areas:

1. Successful completion of all required work.
2. Successful completion of Step 1 and Step 2 of the United States Medical Licensure Examination.
3. Successful completion of the WVU School of Medicine Clinical Performance Exam.
4. Successful fulfillment of the professional standards of the School of Medicine, including 100 hours of community service.

The following information is only a brief outline of the School of Medicine policies and procedures. Detailed requirements and policies for evaluation of student progress and graduation may be found in the Policy on Academic and Professional Standards Governing the M.D. degree program at West Virginia University School of Medicine on the Student Services website. The Committee on Academic and Professional Standards administers all promotion and dismissal rules.

**Academic Coursework Review**

The Committee on Academic and Professional Standards of the School of Medicine reviews the performance of each student in every course at the end of each academic period and makes recommendations to the dean. If a student has been found to have an unsatisfactory performance in any of the required courses, dismissal from the school may be recommended. In selected circumstances, the committee may recommend remedial work of all or a portion of the curriculum. Exceptions may be made only upon recommendation of the committee. The application of rules on dismissal is not automatically changed by removal of incomplete (I) grades or by the repetition of courses in other medical courses.

It is the policy of the School of Medicine that the departments conduct examinations to help in the overall evaluation of student progress. In addition to the departmental examinations, other examinations may be conducted for other purposes. At the end of each year a comprehensive examination, designed on an interdepartmental basis, may be required as a test of readiness for promotion.

A student may be subject to remedial work or dismissal on recommendation of the Committee on Academic and Professional Standards to the dean even though no unsatisfactory (U) grade has been received in a required course. Such an unusual event would occur only if, in the opinion of the committee, the student's overall performance does not meet the academic/professional standards of the School of Medicine.

Readmission of a dismissed student is the prerogative of the Admissions Committee after careful review of the student's performance, including but not limited to, recommendations of the Committee on Academic and Professional Standards.

**Grading Policy**

All courses required for the M.D. degree are graded as honors (H), satisfactory (S), or unsatisfactory (U) at the completion of the course in lieu of other letter grades. The H, S, and U designations are accompanied by a narrative report of the student’s progress, noting any factors requiring remedial work or counseling. The narrative is submitted by each course and filed in the Office of Student Services. A grade of U shall be regarded as a failing grade and all University regulations regarding a failed course shall apply.

The grade of incomplete (I) is given when the instructor believes that the work is unavoidably incomplete or that a supplementary examination is justifiable. If a grade of I is not removed by satisfactory completion of the work before the end of the next semester in which the student is in residence, it becomes a failure (unsatisfactory) unless special permission to postpone the work is obtained from the Committee on Academic and Professional Standards (University rule). All students who have a health problem which they feel may be causing difficulty with their academic progress are strongly advised to notify an associate dean for student services. It is the responsibility of the student to consult the instructor about the means and schedule for making up incomplete courses.

No student will be permitted to register for any work of the second or subsequent year until all courses for the year before have been completed successfully.

**United States Medical Licensure Examination (USMLE)**

All states require that physicians be licensed to practice medicine. Satisfactory completion of all portions of the United States Medical Licensing Examination (USMLE) is the only mechanism by which this license may be obtained. The School of Medicine requires a passing grade on Step I and Step II for promotion and graduation. A failing grade will delay progress and require remediation. School of Medicine policy limits a student to three attempts on each step.
Step I is required upon successful completion of all basic science coursework. A passing grade in Step I is required for promotion into the clinical rotations. Step II (clinical knowledge and clinical skills) is required after successful completion of third-year clinical rotations. A passing score on Step II is required before a recommendation can be made to grant the M.D. degree by the School of Medicine faculty and Committee on Academic and Professional Standards. Licensure examinations are administered using a computer-based testing format.

Professional Standards Review
All nondisciplinary matters are governed by the concept of academic due process. In view of public and professional responsibilities, the faculty of each of the professional schools of WVU has the authority to recommend to the president of the University the removal of any student from its rolls whenever, by formal decision reduced to writing, the faculty finds that the student is unfit to meet the qualifications and responsibilities of the profession. In all other matters, due process principles shall apply. For further information the reader is referred to the Policy on Academic and Professional Standards Governing the M.D. Degree Program at West Virginia University School of Medicine, which is available at the School of Medicine Office of Student Services, and on the Student Services website.

Departure from Scheduled Work
Medical students are registered for all prescribed courses for each semester except by special permission from the Committee on Academic Standards and an associate dean for student services of the School of Medicine. This permission is not valid until it has been reported to the assistant director of admissions, Health Sciences Center, and for record, the Office of Student Services, School of Medicine. Interruption of academic work must be approved by the Office of Student Services.

Curriculum
The field of medicine is rapidly changing. The following curriculum outline is the plan that is presently in place. However, the medical school curriculum at WVU will change as needs dictate.

Community Service
All students of the Health Sciences Center are required to perform community service as a component of their curriculum. Medical students must complete 100 hours of community service prior to graduation.

Medical Education Program of Study
The medical education curriculum was restructured in 1998, and again in 2007. The most significant changes include:
1. Students begin clinical experiences early in their first year of medical school.
2. The basic science disciplines have been integrated.
3. Incoming medical students are required to lease a windows-based laptop to use in the new curriculum that will incorporate information and academic technologies in the delivery of instruction.

With these principles in mind, the old semester (college-like) schedules of independent discipline-based course (for example, physiology, gross anatomy, biochemistry, neurobiology, microanatomy, epidemiology, and psychiatry) have been integrated.

First Year
Medical students’ first year is 38 weeks. The academic year is divided into three blocks (16 weeks, 15 weeks, and seven weeks); approximately 24 scheduled instructional contract hours per week. Each block contains three courses: a basic science multidisciplinary course, Physical Diagnosis and Clinical Integration (large group alternating every other week with small groups), and Public Health (epidemiology, biostatistics, and preventive medicine) in the fall. While Physical Diagnosis and Clinical Integration run throughout the year, the basic science component changes each block. The first block (16 weeks) contains a multidisciplinary run course: human function (physiology, biochemistry, and genetics.) Second block (15 weeks) consists of human structure (gross anatomy, embryology, and microanatomy: large group, and
laboratory). Third block (seven weeks) consists of multidisciplinary neuroscience (ten hours large group, laboratory and small group). A weekly problem-based learning group is maintained throughout the first year.

Second Year
Medical students' second academic year is 34 weeks. The schedule of course material from Microbiology and Immunology, Pathology, Pharmacology, and Physical Diagnosis and Clinical Integration—2 courses is integrated by organ system. Each course maintains it autonomy with respect to assessment of student performance. This integrated, yet independent approach, assists students in finding remediation courses if they experience academic difficulty in any one particular discipline. In addition to the integration of the schedule of these four courses, there is an additional course, Behavioral Science and Psychopathology, in the fall and Health Care Ethics in the spring. There are approximately 26 scheduled instructional contact hours per week.

Clinical Years
The last two years of study take place in the clinics, hospitals, and community settings where students have the opportunity to help diagnose and treat patients under supervision of the faculty and staff. All students will serve a significant portion of the clinical years training at an off-campus or rural site.

Third Year
In the third year the student must spend a designated period of time in each of the major clinical disciplines: internal medicine, surgery, pediatrics, obstetrics and gynecology, psychiatry and neurology, and family medicine. This gives the student a foundation in history-taking, examination, patient relations, laboratory aids, diagnosis, treatment, and use of the medical literature in the major clinical disciplines. One month is spent in rural primary care.

Approximately one-third of each class is selected during their first year to spend the third and fourth year at the Charleston Division of the Robert C. Byrd Health Sciences Center of West Virginia University. A smaller number of students will also complete their clinical work on the Eastern Division Campus.

Fourth Year
The fourth year is a partially structured and partially elective year. Each student works with an advisor to select the program best suited to the individual’s abilities and goals. The courses selected are subject to the approval of an associate dean in the Office of Student Services.

Five months of the senior year are committed to required clerkships at the home campus which include one month in internal medicine, family general medicine, surgery, or pediatric sub-internship; one month acute care; and two months of rural primary care. The remaining 4.5 months of the senior year are elective at approved teaching sites.

A catalog is available on the Web that lists the approved electives and selection guidelines at http://education.hsc.wvu.edu/ms4catalog.

Students interested in other extramural opportunities are advised to consult with the fourth-year curriculum coordinator in the Office of Student Services. Elective time must be spent in LCME (Liaison Committee on Medical Education) or JCAH (Joint Council of American Hospitals) accredited institutions. Foreign rotations, regardless of sponsorship, are limited to one month credit.
## Medicine III Clerkships

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<td>8</td>
<td>Surgery</td>
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<td>Behavioral Medicine and Psychiatry with two weeks of Neurology</td>
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<tr>
<td>8</td>
<td>Obstetrics and Gynecology</td>
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## Medicine IV Rotations

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School of Medicine
### Medicine I (38 wks.)

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**Problem-Based Learning**

(1.5 hrs./wk.)

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| **CCMD 712**   | **CCMD 746**     |
| *Epidemiology/Biostatistics/Public Health* | *Physical Diagnosis and Clinical Integration 1* |
| (4.0 hrs./wk.) | (3.0 hrs./wk.)   |

**Medicine II (34 wks.)**

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<tr>
<td><strong>CCMD 740</strong></td>
<td><strong>CCMD 725</strong></td>
<td></td>
</tr>
<tr>
<td><em>Behavioral Science &amp; Psychopathology</em></td>
<td><em>Ethics</em> (8 wks.)</td>
<td>(2.0 hrs./wk.)</td>
</tr>
<tr>
<td>(16 wks.)</td>
<td>(18.0 hrs./wk.)</td>
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</table>

These four courses run concurrently throughout the year. The schedule is integrated and organized around concepts and organ systems. (18.0 hrs./wk.)

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>22</td>
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<td>20</td>
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</table>
School of Nursing
Georgia L. Narsavage, Ph.D., R.N., F.A.A.N., Dean
Mary Jane Smith, Ph.D., R.N., Associate Dean for Graduate Academic Affairs
Elisabeth Shelton, Ph.D., R.N., Associate Dean for Undergraduate Academic Affairs
Cynthia Armstrong Persily, Ph.D., R.N., F.A.A.N., Associate Dean for Academic Affairs,
Southern Region; Chair, Charleston Division
Stuart Wells, M.A., Assistant Dean for Student Services

http://www.hsc.wvu.edu/son

Degrees Offered
- Bachelor of Science in Nursing
- Master of Science in Nursing
- Doctor of Nursing Practice
- Doctor of Philosophy

Introduction
The mission of the WVU School of Nursing is to serve the people of West Virginia and the larger society through education, research, and service, including faculty practice. This mission is responsive to changing health care needs and emerging national and state changes in technology and health care delivery, and is enhanced by a supportive and open environment. The faculty’s educational effort is directed at providing high quality student-centered programs of instruction at all levels which prepare superb professional nurses to meet basic health care needs; advanced practice nurses to address complex health needs; and doctorally educated nurses to advance nursing knowledge through research, to assist in the formulation of policies to improve health care, and to serve as faculty in higher degree programs. Unique characteristics of the state mandate that the health care needs of rural populations and vulnerable groups be a major focus of education, research, and service, including faculty practice.

The School of Nursing offers undergraduate, graduate, and post-master’s programs of study. The baccalaureate program (B.S.N.) is available for high school graduates who aspire to a career in nursing (basic students) and to registered nurses (R.N.) who are licensed graduates of associate degree or diploma nursing programs seeking to continue their career development. In addition, a B.S./B.A. to B.S.N. program is available for the college graduate seeking a B.S.N.

The master of science in nursing (M.S.N.) program prepares graduates for advanced practice roles in multiple settings, including rural primary care and hospitals. These roles include family nurse practitioner, pediatric nurse practitioner, neonatal nurse practitioner, geriatric nurse practitioner, women’s health nurse practitioner, and nursing leadership.

Post-graduate nurse practitioner certification programs in these role specialties are available for those who already hold an M.S.N. The R.N. to M.S.N. program also has these role specialties available.

The doctor of nursing practice (D.N.P.) program prepares advanced practice nurses who will practice at the highest level of professional nursing and will advance the application of nursing knowledge for the purpose of improving health care for diverse populations.

The doctor of philosophy in nursing (Ph.D.) program prepares nurse scholars/educators for roles in teaching, service, and research in nursing. The program prepares graduates who will contribute unique nursing expertise to the collaborative development of knowledge to improve health and quality of life.

Accreditation
The baccalaureate program received initial accreditation with graduation of the first class in 1964 and is approved by the West Virginia Board of Examiners for registered professional nurses. The master’s program was initially accredited in 1981. The doctor of nursing practice program was initially accredited in 2009. Currently, these three programs are fully accredited by the national accrediting agency, the Commission on Collegiate Nursing Education. The Ph.D. program is fully approved by the West Virginia Higher Education Policy Commission.
Fees, Expenses, Housing, Transportation, Immunization

Students enrolling at the Morgantown campus pay the fees shown in the WVU Health Sciences Catalog charts, plus special fees and deposits as required. Students enrolling at other sites pay the fees shown in the catalog for that site. Fees are subject to change without notice. Students’ expenses vary according to the course of study and individual preferences. Information concerning financial assistance, application forms, and the Free Application for Federal Student Aid (FAFSA) form may be obtained from the financial aid website: http://www.hsc.wvu.edu/fin or by contacting the HSC Financial Aid Office, Health Sciences North, P.O. Box 9810, Morgantown, WV 26506-9810, telephone (304) 293-3706.

The University Housing and Residence Life Office, telephone (304) 293-3621, provides information concerning University-owned housing. The Student Life Office in E. Moore Hall, telephone (304) 293-5611, provides information for privately owned, off-campus housing.

Students are expected to provide their own transportation, equipment, and instruments for the clinical courses. Some clinical experiences require travel in a multi-county area.

Proof of specific immunizations is required for all health sciences students. Students in the master of science in nursing program must undergo a criminal background check prior to clinical courses. Felony convictions and serious misdemeanors may preclude participation in the clinical courses. This could, in turn, prevent the completion of course requirements and completion of the M.S.N. program.

Scholarships

The School of Nursing offers scholarships administered by the University’s Financial Aid Office and require completion of the Free Application for Federal Student Aid (FAFSA) form in order to be considered for financial aid.

Additional Information

Visit the School of Nursing website at http://www.hsc.wvu.edu/son. Call the WVU School of Nursing Office of Student Services at 1-866-WVUNURS or (304) 293-1386. Write to WVU School of Nursing at P.O. Box 9600, Morgantown, WV 26506-9600.

Faculty

=Regular graduate faculty
=#Associate graduate faculty

Nancy Atkins, M.S.N., R.N.C., N.P. (Bellarmine Coll.). Lecturer, Charleston Division.
*Laurie Badzek, M.S., J.D., L.L.M., R.N. (WVU). Professor.
Emily Brinker Barnes, D.N.P., M.C.P. (WVU). Clinical Assistant Professor.
Debra Bostic, M.S.N., R.N. (WVU). Lecturer. WVU Tech Division.
K. Joy Buck, Ph.D., R.N. (U. Va.). Associate Professor.
*Peggy Burkhardt, Ph.D., R.N., F.N.P. (U. of Tex.). Associate Professor, Charleston Division.
Roger Carpenter, Ph.D., R.N. (WVU). Chair of Department of Health Restoration. Clinical Assistant Professor.
Ilana Chertok, Ph.D., R.N., IBCLC. (Ben-Gurion U. of the Negev). Associate Professor.
Ann Cleveland, Ed.D., R.N. (WVU). Assistant Professor Emerita.
Lori Constantine, M.S.N., R.N. (WVU). Senior Lecturer.
Sandra Cotton, M.S., C.R.N.P. (U. of Md.). Director of Faculty Practice. Clinical Assistant Professor.
Susan Coyle, Ph.D., R.N. (WVU). Assistant Professor.
Pamela Deiriggi, Ph.D., R.N., P.N.P., C.P.N.P. (U. Tex.). Coordinator PNP Track. Associate Professor.
Barbara Douglas, M.S.N., R.N. (Wright St. U.). Senior Lecturer, WVU Tech Division.
Mary Elizabeth DuRant, M.S.N., R.N.C., W.H.N.P. (WVU). Clinical Assistant Professor.
Peggy Fink, M.S.N., R.N. (WVU). Assistant Professor, WVU Tech Division.
Imogene P. Foster, Ed.D., R.N. (WVU). Associate Professor Emerita.
Suzanne Gross, Ph.D., R.N. (U. Tex.). Assistant Professor Emerita.
Mindy Harris, M.S.N., R.N. (Marshall U.). Senior Lecturer, WVU Tech Division.
Jean Hoff, M.P.H., R.N. (U. Pitt.). Associate Professor Emerita.
Dorothy M. Johnson, Ed.D., R.N. (WVU). Assistant Professor.
Kelli Kirk, M.S.N., R.N. (Mountain St. U.). Lecturer, WVU Tech Division.
Evelyn Klocke, Ed.D., R.N. (Marshall U.). Chair of WVU Tech Department of Nursing, Assistant Professor, WVU Tech Division.
Nancy A. Koontz, M.S.N., R.N. (U. of Md.). Associate Professor Emerita.
Barbara Koster, M.S.N., R.N. B.C. (WVU). Lecturer, Charleston Division.
Barbara Kupchak, Ph.D., R.N. (U. Tex.). Associate Professor.
Robert David Lane, D.N.P., M.S.N. (U. of Tenn.). Clinical Assistant Professor, Charleston Division.
June Larrabee, Ph.D., R.N. (U. of Tenn.). Professor.
Nan Leslie, Ph.D., R.N. (U. Pitt.). Professor.
Patricia Joyce Maramba, M.S.N., R.N. (WVU). Senior Lecturer.
Kathleen Marsland, M.S., R.N. (U. Colo.). Assistant Professor Emerita.
Elizabeth A. Minchau, M.S.N., F.N.P. (U. of Pitt.). Clinical Assistant Professor.
Alvita Nathaniel, Ph.D., R.N.C., F.N.P. (WVU). Coordinator FNP Track. Associate Professor, Charleston Division.
Susan Newfield, Ph.D., R.N., C.S. (U. Tex.). Associate Professor.
Barbara Nunley, Ph.D., R.N., C.S. (U. of Ky.). Associate Professor, Charleston Division.
Cynthia A. Persily, Ph.D., R.N., F.A.A.N. (U. of Pa.). Associate Dean for Academic Affairs, Southern Region. Chair of Charleston Division. Professor.
Heidi Putman-Casdorph, Ph.D., R.N. (Widener U.). Assistant Professor.
Jennifer Riggs, Ph.D., R.N. (Case Western Reserve U.) Assistant Professor.
Jacqueline Riley, M.N., R.N. (U. of Fla.). Associate Professor Emerita.
Teresa D. Ritchie, M.S.N. (WVU). Lecturer.
Rhonda Sansone, M.S.N., R.N. (Ohio St.). Senior Lecturer.
April Shay, B.S.N., R.N. (WVU). Lecturer.
Crystal Sheaves, M.S.N. (WVU). Lecturer, Charleston Division.
*Elisabeth N. Shelton, Ph.D., R.N. (Widener U.). Associate Dean for Undergraduate Academic Affairs. Associate Professor.
Patricia Simoni, Ed.D., R.N. (WVU). Associate Professor Emerita.
*Marilyn Smith, Ph.D., R.N. (U. of Tenn.). Assistant Professor, Charleston Division.
*Mary Jane Smith, Ph.D., R.N. (N.Y.U.). Associate Dean for Graduate Academic Affairs. Professor.
Kathleen Spadaro, Ph.D., R.N., P.M.H.C.N.S.-B.C. (U. of Pitt.). Clinical Assistant Professor.
Amy Sparks, M.S.N., R.N. (WVU). Clinical Assistant Professor.
Mary Kaye Staggers, M.S.N., R.N. (Wayne St.). Nursing Coordinator, Potomac State College of WVU. Associate Professor.
Fredona Stenger, M.S.N., R.N. (Boston U.). Associate Professor Emerita.

Adjunct Faculty

* = Regular graduate faculty

Aila Accad, M.S.N., R.N. (WVU). Adjunct Instructor.
Murrta C. Bolinger (U. of Va.). Adjunct Instructor.
Diana Boyle, M.S.N. (WVU). Adjunct Assistant Professor.
Lucinda M. Brown, M.S.N., C.N.M. (U. of Ky.). Adjunct Instructor.
Karen Campbell, M.S.N. (Vanderbilt U.). Adjunct Instructor.
Lena Antimonova Cerbone, M.S.N., C.N.M. (Yale SoN). Clinical Adjunct Instructor.
Malene Davis, M.S.N., M.B.A. (WVU). Adjunct Assistant Professor.
Jann E. Foley, M.S.N., R.N., C.N.M. (Case Western Reserve). Adjunct Instructor.
Shirley Zinn Gainer, B.S., B.S.N. (WVU). Adjunct Clinical Instructor.
The School of Nursing offers a program of study leading to the master of science in nursing (M.S.N.) degree. The major areas of study available in advanced practice nursing are family Nurse practitioner (FNP), pediatric nurse practitioner (PNP), neonatal nurse practitioner (NNP), geriatric nurse practitioner (GNP), women’s health nurse practitioner (WHNP), and nursing leadership. The school also offers post-master’s programs in these areas for those who already hold an M.S.N. The programs are offered at the University’s main campus in Morgantown and at the Charleston Division. Courses are offered via web-based modalities in real time and are scheduled in the late afternoon at times convenient for working students and may require that students attend special sessions in Morgantown or Charleston.

Dates of the special sessions are made available in advance so that students can plan their schedules in order to attend. The master’s program offers a curriculum that allows students to enroll on a part-time or full-time basis. Graduate students are strongly recommended to limit their credit load if they are also involved in full-time work. Students employed in full-time work should enroll for no more than six hours of master’s-level coursework in any one term.

Throughout the curriculum, students are guided in the process of self-development aimed at pursuing excellence in scholarly and professional endeavors. The program allows flexibility within the basic curricular structure through the individualization of learning experiences. The pattern and duration of the student’s study plan is determined in consultation with a faculty advisor and is based upon the student’s background and goals. The 44-credit program can be completed in five semesters (including a summer session) of full-time study. The average full-time load is nine to 12 credit hours per semester. Part-time options are also available. Graduates meet all requirements to sit for the national certification examination in their major program.
area of family nurse practitioner, pediatric nurse practitioner, neonatal nurse practitioner, geriatric nurse practitioner, women’s health nurse practitioner, and in nursing leadership. They are prepared to offer care at the advanced practice level to select populations, and are able to perform all activities encompassed in the traditional scope of practice.

**Goals of the Master’s Program**
1. Synthesize theories, research findings, and broad-based perspectives for application in the advanced practice of nursing.
2. Utilize systematic inquiry and refined analytical skills in the provision of health care services.
3. Create a relationship with clients that build and maintain a supportive and caring partnership.
4. Articulate viewpoints and positions in order to improve the quality of health care delivery and outcomes of successful care.
5. Consult and collaborate in interdisciplinary and interagency endeavors to advance culturally sensitive health care to clients, groups, and communities.
6. Integrate prior and current learning as a basis for growth and accountability in enacting the role of the advanced practice nurse.

**Application Process**
The application process should be completed by April 1. The beginning sequence of courses in the M.S.N. program starts in the fall semester only. Class size and progression plans may be limited based on available faculty resources and space. Applicants to the M.S.N. program need to complete the following steps in order to be considered for admission:
1. Complete two application forms as indicated below and return to the appropriate offices by the deadline.
   a. Application for Admission to Graduate Studies (available on the School of Nursing website at: http://www.hsc.wvu.edu/son).
   b. Supplemental Application for Admission to Graduate Study in the School of Nursing (available on the School of Nursing website at: http://www.hsc.wvu.edu/son). Students should be certain that all materials are sent to WVU School of Nursing, Student Services Office, P.O. Box 9600, Morgantown, WV 26506-9600.
2. Request an official transcript of records from each college or university attended. Transcripts and records should be sent directly to: WVU Health Science Center Office of Admissions, P.O. Box 9815, Morgantown, WV 26506-9815.
3. Send three letters of recommendation directly to the WVU School of Nursing, Student Services Office, P.O. Box 9600, Morgantown, WV 26506-9600.
4. Request a copy of Graduate Record Exam or Miller Analogies Test scores be sent to WVU Health Sciences Center Office of Admissions, P.O. Box 9815, Morgantown, WV 26506-9815. The parameters used for review of applicants include: academic achievement, Graduate Record Exam or Miller Analogies Test scores, career goals, and recommendations. For more information, write to the Assistant Dean for Student Services, West Virginia University School of Nursing, P.O. Box 9600, Morgantown, WV 26506-9600; phone (304) 293-1386.

**Admission Criteria**
The following criteria must be met for regular admission to graduate study in the School of Nursing. Note: Admission criteria are subject to change. Please see the School of Nursing website for the most up-to-date criteria at http://www.hsc.wvu.edu/son/.
1. Satisfy WVU requirements for admission to graduate study.
2. Have a cumulative grade point average of 3.0 or higher on a 4.0 scale on all college work attempted.
3. Have a competitive score on the Graduate Record Exam or Miller Analogies Test.
4. Have a current, unrestricted R.N. license in at least one state.
5. Hold a bachelor of science degree in nursing from a nationally accredited school.
6. Have completed three credits of undergraduate statistics acceptable for transfer with a grade of C or better.
7. Have completed a health assessment course, including physical examination skills, with a grade of B or better that is acceptable for transfer.
9. Submit a typewritten essay describing professional goals (limited to two type-written, double-spaced pages). A bachelor of science degree in nursing is mandatory. Applicants may be considered for provisional admission on an individual basis. The specific provisions which must be met for progression to regular status will be noted in the admission letter.

Once admitted, the student is assigned to a faculty advisor who provides guidance in curriculum and other academic matters. Enrollment in nursing courses is based upon readiness, availability of space, and other essential resources.

### Nursing Core Courses for all Master’s Degree Nursing Students

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>NSG 622 Theory and Disciplined Reasoning</td>
<td>3</td>
</tr>
<tr>
<td>NSG 623 Concepts of Advanced Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NSG 624 Advanced Pathophysiology</td>
<td>4</td>
</tr>
<tr>
<td>NSG 626 Lifespan Health Promotion</td>
<td>2</td>
</tr>
<tr>
<td>NSG 627 Research and Systematic Analysis</td>
<td>5</td>
</tr>
<tr>
<td>NSG 629 Advanced Practice/Families</td>
<td>2</td>
</tr>
<tr>
<td>NSG 685 Clinical Scholarship</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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### FNP Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>NSG 631 Advanced Pharmacotherapeutics</td>
<td>3</td>
</tr>
<tr>
<td>NSG 632 Advanced Assessment</td>
<td>2</td>
</tr>
<tr>
<td>NSG 633 Primary Care Rural Families 1</td>
<td>3</td>
</tr>
<tr>
<td>NSG 634 Primary Care Rural Families 2</td>
<td>4</td>
</tr>
<tr>
<td>NSG 635 Rural Family Practicum 1</td>
<td>4-5</td>
</tr>
<tr>
<td>NSG 636 Rural Family Practicum 2</td>
<td>4-5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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### Pediatric NP Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>NSG 631 Advanced Pharmacotherapeutics</td>
<td>3</td>
</tr>
<tr>
<td>NSG 647 Pediatric Assessment/Care 1</td>
<td>5</td>
</tr>
<tr>
<td>NSG 644 Pediatric Primary Care 2</td>
<td>5</td>
</tr>
<tr>
<td>NSG 645 Pediatric Practicum 1</td>
<td>5</td>
</tr>
<tr>
<td>NSG 646 Pediatric Practicum 2</td>
<td>5</td>
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### Neonatal NP Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>NSG 631 Advanced Pharmacotherapeutics</td>
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<tr>
<td>NSG 654 Neonatal Pathophysiology</td>
<td>4</td>
</tr>
<tr>
<td>NSG 655 Neonatal Health Promotion</td>
<td>2</td>
</tr>
<tr>
<td>NSG 663 Neonatal Assessment/Care 1</td>
<td>5</td>
</tr>
<tr>
<td>NSG 664 Neonatal Care 2</td>
<td>4</td>
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<tr>
<td>NSG 665 Neonatal Practicum 1</td>
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<tr>
<td>NSG 666 Neonatal Practicum 2</td>
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</tbody>
</table>

*In lieu of NSG 624 and NSG 626, NNP students will take NSG 654 *Neonatal Pathophysiology* and NSG 655 *Neonatal Health Promotion.*

### Geriatric NP Courses

<table>
<thead>
<tr>
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<tr>
<td>NSG 656 Current Issues in Aging</td>
<td>2</td>
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<tr>
<td>NSG 657 Advanced Assessment/Older Adults</td>
<td>2</td>
</tr>
<tr>
<td>NSG 658 Geriatric Primary Care 1</td>
<td>3</td>
</tr>
<tr>
<td>NSG 659 Geriatric Primary Care 2</td>
<td>4</td>
</tr>
<tr>
<td>NSG 675 Geriatric Practicum 1</td>
<td>5</td>
</tr>
<tr>
<td>NSG 676 Geriatric Practicum 2</td>
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School of Nursing
Post-Master’s Nurse Practitioner Certificate Program

The post-master’s nurse practitioner certificate program requires a minimum of 19 credit hours. The program prepares master’s prepared nurses to sit for the national certification examination as a nurse practitioner in the selected area of focus (family, pediatric, neonatal, geriatric, women’s health, and nursing leadership). To be considered for admission, the applicant must have a master’s degree in nursing from a nationally accredited program with a minimum cumulative GPA of 3.0 or better and an unrestricted R.N. license in at least one state. Students in the post-master’s program must maintain a 3.0 GPA and receive satisfactory clinical ratings to progress. Each student’s program will be individualized based on educational and experiential background. Prerequisites to registration for the required clinical courses in the program are evidence of competence in advanced pathophysiology and advanced pharmacotherapeutics.

Note: Admission criteria are subject to change. Please see the School of Nursing website for the most up-to-date criteria at http://www.hsc.wvu.edu/son/.

The required courses for post-master’s certification follow:

Required Courses for Post Master’s Family Nurse Practitioner  
NSG 632 Advanced Assessment ................................................................. 2  
(Competency exam for exemption)  
NSG 633 Primary Care: Rural Families 1 .................................................. 3  
NSG 634 Primary Care: Rural Families 2 .................................................. 4  
NSG 635 Rural Family Practicum 1 ............................................................ 4–5  
NSG 636 Rural Family Practicum 2 ............................................................ 4–5  
Total .......................................................................................................... 17–19

Required Courses for Post Master’s Pediatric Nurse Practitioner  
NSG 647 Pediatric Assessment/Care 1 ....................................................... 5  
NSG 644 Pediatric Primary Care 2 .............................................................. 4  
NSG 645 Pediatric Practicum 1 ................................................................. 5  
NSG 646 Pediatric Practicum 2 ................................................................. 5  
Total .......................................................................................................... 19

Required Courses for Post Master’s Neonatal Nurse Practitioner  
NSG 654 Neonatal Pathophysiology ......................................................... 4  
NSG 655 Neonatal Health Promotion ........................................................ 2  
NSG 663 Neonatal Assessment/Care 1 ...................................................... 5  
NSG 664 Neonatal Care 2 ........................................................................ 4  
NSG 665 Neonatal Practicum 1 ................................................................. 5  
NSG 666 Neonatal Practicum 2 ................................................................. 5  
Total .......................................................................................................... 25
Required Courses for Post Master’s Geriatric Nurse Practitioner  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>NSG 656  Current Issues in Aging</td>
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</tr>
<tr>
<td>NSG 657  Advanced Assessment/Older Adults</td>
<td>2</td>
</tr>
<tr>
<td>NSG 658  Geriatric Primary Care 1</td>
<td>3</td>
</tr>
<tr>
<td>NSG 659  Geriatric Primary Care 2</td>
<td>4</td>
</tr>
<tr>
<td>NSG 675  Geriatric Practicum 1</td>
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<tr>
<td>NSG 676  Geriatric Practicum 2</td>
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<td><strong>Total</strong></td>
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Required Courses for Post Master’s Women’s Health Nurse Practitioner  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>NSG 683  Primary Care Women and Girls 1</td>
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</tr>
<tr>
<td>NSG 684  Primary Care Women and Girls 2</td>
<td>4</td>
</tr>
<tr>
<td>NSG 686  Women’s Health Practicum 1</td>
<td>5</td>
</tr>
<tr>
<td>NSG 687  Women’s Health Practicum 2</td>
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<tr>
<td><strong>Total</strong></td>
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</table>

Required Courses for Post Master’s Nursing Leadership  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSG 610  Leadership in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>NSG 611  System Based Decision Making</td>
<td>2</td>
</tr>
<tr>
<td>NSG 612  Leading Health System Change</td>
<td>4</td>
</tr>
<tr>
<td>NSG 613  Managing Health Care Resources</td>
<td>3</td>
</tr>
<tr>
<td>NSG 614  Health Care Informatics</td>
<td>3</td>
</tr>
<tr>
<td>NSG 615  Program Planning/Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>NSG 617  Leadership Practicum 1</td>
<td>2–5</td>
</tr>
<tr>
<td>NSG 618  Leadership Practicum 2</td>
<td>2–5</td>
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<tr>
<td><strong>Total</strong></td>
<td>22–28</td>
</tr>
</tbody>
</table>

All students in post-master’s certificate programs will complete a minimum of 600 supervised clinical hours.

**Doctor of Nursing Practice Online Program**

**Program Description**

The School of Nursing offers a program of study leading to the doctor of nursing practice (D.N.P.) degree. Courses are offered via Web-based modalities in real time. Courses are scheduled in the late afternoon at times convenient for working students and may require that students attend special sessions in Morgantown or Charleston. Dates of the special sessions are made available in advance so that students can plan their schedules in order to attend.

The D.N.P. program offers a curriculum that allows students to enroll on a part-time or full-time basis. Graduate students are strongly recommended to limit their credit load if they are also involved in full-time work. Students employed in full-time work should enroll for no more than six hours of doctoral level coursework in any one term. Throughout the curriculum, students are guided in the processes of self-development aimed at pursuing excellence in scholarly and professional endeavors.

At the completion of the program, the doctor of nursing practice (D.N.P.) graduate will be able to practice at the highest professional level to:

1. Use science-based theories and concepts to:
   - Determine the nature and significance of health and health care delivery phenomena,
   - Describe actions and advance strategies to improve health care delivery, and
   - Develop, deliver, and evaluate theory-based health care.
2. Demonstrate organizational and systems leadership that emphasizes the primacy of clinical work, continually improving health outcomes, and ensuring patient safety.
3. Use analytical methods and research to develop best practices and practice guidelines and to facilitate the evaluation of systems of care that will improve patient outcomes.
4. Use information systems and technology-based resources that support clinical and administrative decision making, care systems, nurse-sensitive outcomes, and quality improvement.
5. Assume a leadership role in the development of health care policy.
6. Establish, participate, and lead interprofessional teams.
7. Utilize a strong conceptual foundation in clinical prevention and population health.
8. Base practice on biophysical, psychosocial, sociopolitical, cultural, economic, and nursing science and ethics.
9. Develop, implement, and evaluate practice and care delivery models, which are politically and culturally appropriate.

**Admissions Criteria**
1. Master’s or doctoral degree in nursing.
2. Unencumbered licensure as a registered professional nurse.
4. Minimum GPA of 3.5 in prior program of study.
5. Graduate-level course in research and statistics in the past five years.
6. Scheduled interview.
7. Online writing exercise.

**Application Process**
The application process should be completed by March 1. The beginning sequence of courses in the D.N.P. program starts in the fall semester only. Class size and progression plans may be limited based on available faculty resources and space. Applicants to the D.N.P. program need to complete the following steps in order to be considered for admission:
1. Complete two application forms as indicated below and return to the appropriate offices by the deadline.
   a. Application for Admission to Graduate Studies (available on the School of Nursing website at: http://www.hsc.wvu.edu/son).
   b. Supplemental application for admission to D.N.P. in the School of Nursing and D.N.P. application checklist (available on the School of Nursing website at: http://www.hsc.wvu.edu/son). Students should be certain that all materials are sent to WVU School of Nursing, Student Services Office, P.O. Box 9600, Morgantown, WV 26506-9600.
2. Request an official transcript of records from each college or university attended. Transcripts and records should be sent directly to: WVU Health Science Center Office of Admissions, P.O. Box 9815, Morgantown, WV 26506-9815.
3. Send three letters of recommendation directly to the WVU School of Nursing, Student Services Office, P.O. Box 9600, Morgantown, WV 26506-9600. Letters should address the applicant’s expertise in the advanced practice of nursing and likelihood for success in doctoral work. One letter should be from a former professor of the applicant.
4. Submit a current curriculum vitae and evidence of national certification (applicants desiring preparation in a leadership role are exempt from this requirement).

For more information, write to the Assistant Dean for Student Services, West Virginia University School of Nursing, P.O. Box 9600, Morgantown, WV 26506-9600; phone (304) 293-1386.

Note: Admission criteria are subject to change. Please see the School of Nursing website for the most up-to-date criteria at http://www.hsc.wvu.edu/son/.

**Nursing Core Courses for Doctor of Nursing Practice**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>NSG 715</td>
<td>Scientific Underpinnings</td>
<td>3</td>
</tr>
<tr>
<td>NSG 716</td>
<td>Analytical Methods</td>
<td>4</td>
</tr>
<tr>
<td>NSG 717</td>
<td>Organization and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>NSG 718</td>
<td>Population Health</td>
<td>3</td>
</tr>
<tr>
<td>NSG 719</td>
<td>Health Care Policy</td>
<td>3</td>
</tr>
<tr>
<td>NSG 741</td>
<td>Clinical Focus</td>
<td>2</td>
</tr>
<tr>
<td>NSG 742</td>
<td>*Clinical Application</td>
<td>1–8</td>
</tr>
<tr>
<td>NSG 761</td>
<td>Clinical Project 1</td>
<td>1</td>
</tr>
<tr>
<td>NSG 762</td>
<td>Clinical Project 2</td>
<td>1</td>
</tr>
<tr>
<td>NSG 763</td>
<td>Capstone 1</td>
<td>3</td>
</tr>
<tr>
<td>NSG 764</td>
<td>Capstone 2</td>
<td>3</td>
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<td>30–34</td>
</tr>
</tbody>
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*NSG 742 can be taken any semester after NSG 741 is completed and must total a minimum of four credit hours.
Doctor of Philosophy Summer Program

The purpose of the Ph.D. program is to prepare nurse scholars/educators for roles in research, teaching, and service. The program prepares graduates who will contribute their unique nursing expertise to the collaborative development of knowledge to improve health and quality of life.

The goals of the program are to prepare graduates who will:
1. Critically analyze phenomena using a variety of approaches to contribute to the development of nursing science.
2. Synthesize, reorganize, and expand knowledge from nursing and related disciplines to inform nursing science and practice.
3. Contribute to the development of the science of caring to improve quality of life.
4. Disseminate advances in scientific knowledge to diverse audiences.
5. Assume collaborative leadership roles in academia, healthcare organizations, research teams, and scholarly networks to promote and improve health.
6. Demonstrate integrity in the design, conduct, analysis, interpretation, and dissemination of research.

Admissions Criteria
1. Cumulative grade point average of 3.0 of 4 points in master’s degree work.
2. Competitive achievement of the Graduate Record Examination: at least 1,000 total in verbal and quantitative,
   • neither can be below 450, and
   • 3.0 analytic
3. A grade of B or higher in graduate statistics and research courses.
4. Congruence between the applicant’s career goals and program objectives; and between the applicant’s research interests and those of the faculty.

Note: Admission criteria are subject to change. Please see the School of Nursing website for the most up-to-date criteria at http://www.hsc.wvu.edu/son/.

Application Process

The application process should be completed by January 1. The beginning sequence of courses in the Ph.D. in nursing program starts in the summer semester only. Class size and progression plans may be limited based on available faculty resources and space. Applicants to the Ph.D. in nursing program need to complete the following steps in order to be considered for admission:
1. Complete two application forms as indicated below and return to the appropriate offices by the deadline.
   a. Application for Admission to Graduate Studies (available on the School of Nursing website at: http://www.hsc.wvu.edu/son).
   b. Supplemental Application for Admission to Ph.D. in the School of Nursing and Ph.D. application checklist (available on the School of Nursing website at: http://www.hsc.wvu.edu/son). Students should be certain that all materials are sent to WVU School of Nursing, Student Services Office, P.O. Box 9600, Morgantown, WV 26506-9600.
2. Request an official transcript of records from each college or university attended. Transcripts and records should be sent directly to: WVU Health Science Center Office of Admissions, P.O. Box 9815, Morgantown, WV 26506-9815.
3. Send three letters of recommendation directly to the WVU School of Nursing, Student Services Office, P.O. Box 9600, Morgantown, WV 26506-9600. Letters should address the applicant’s expertise in the advanced practice of nursing, skill in research and scholarly writing, and likelihood for success in doctoral work. One letter should be from a former professor of the applicant.
4. Submit a current curriculum vitae.
5. Submit two two-page scholarly essays, one describing the applicant’s research interests and one describing the applicant’s career goals.
Degree Requirements

The nursing component of the Ph.D. program is offered during six-week summer sessions. Students attend class two days a week, taking six credits of nursing courses for four summers and then move on to the dissertation. Three curricular components comprise the 55 credits of post-master's coursework. These are core, cognate/electives, and dissertation.

Core Courses

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>NSG 729</td>
<td>Quantitative Research Methods</td>
<td>3</td>
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<tr>
<td>NSG 727</td>
<td>Contemporary Nursing Science</td>
<td>3</td>
</tr>
<tr>
<td>NSG 728</td>
<td>Theoretical Basis of Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NSG 731</td>
<td>Qualitative Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>NSG 734</td>
<td>Use of Data</td>
<td>3</td>
</tr>
<tr>
<td>NSG 735</td>
<td>Principles of Nursing Education</td>
<td>3</td>
</tr>
<tr>
<td>NSG 737</td>
<td>Leadership</td>
<td>3</td>
</tr>
<tr>
<td>NSG 730</td>
<td>Principles of Measurement</td>
<td>3</td>
</tr>
<tr>
<td>NSG 738</td>
<td>Issues in Nursing Scholarship and Role Development</td>
<td>3</td>
</tr>
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Cognate/Electives

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<th>Course Title</th>
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<tbody>
<tr>
<td>NSG 793 SPTP:</td>
<td>Univariate Statistics</td>
<td>3</td>
</tr>
<tr>
<td>NSG 793 SPTP:</td>
<td>Multivariate Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Additional Cognates</td>
<td></td>
<td>9</td>
</tr>
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Dissertation

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>NSG 781</td>
<td>Research Mentorship</td>
<td>2</td>
</tr>
<tr>
<td>NSG 783</td>
<td>Dissertation Seminar</td>
<td>2</td>
</tr>
<tr>
<td>NSG 797</td>
<td>Dissertation</td>
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<tr>
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</table>
School of Pharmacy
Patricia A. Chase, Ph.D., Dean
W. Clarke Ridgway, B.S., Assistant Dean for Student Services
Rae R. Matsumoto, Ph.D., Associate Dean for Research and Graduate Programs
Mary K. Stamatakis, Associate Dean for Academic Affairs and Educational Innovation

http://www.hsc.wvu.edu/sop

Degrees Offered

Doctor of Pharmacy (entry-level) (See Health Sciences Catalog.)
M.S., Ph.D. in Pharmaceutical and Pharmacological Sciences

Introduction
The WVU School of Pharmacy offers graduate programs in the pharmaceutical and pharmacological sciences for both the M.S. and Ph.D. degrees. The school is advantageously located in the Health Sciences Center complex which also houses all departments of the Schools of Medicine, Nursing, and Dentistry, as well as a comprehensive medical library, audio-visual and computer-based learning center, research core facilities, and laboratory animal quarters. The School of Pharmacy maintains its own research laboratories and equipment on three floors within a section of the Health Sciences Center complex. The scientific community, which is especially well developed, draws on area scientists at WVU, NIOSH, NASA, FBI, and a variety of research centers supported by NSF and the Department of Energy. A NIOSH research facility is two blocks away and Mylan Pharmaceuticals, a leading generic drug producer in the country, is located across the street from the Health Sciences Center campus. Also, the school has long-standing collaborations with several state agencies and multinational pharmaceutical companies.

Applicants for the Ph.D. may choose among several specialty areas, which include pharmacology, medicinal chemistry, pharmaceutics, drug metabolism, nanoscale science, and health outcomes and policy research. The pharmaceutical and pharmacological sciences uniquely encompass a wide variety of interrelated areas of science and technology. For example, students in medicinal chemistry are trained to combine knowledge in analytic/synthetic chemistry, biochemistry, pharmacology, pharmacokinetics, and toxicology and molecular modeling in the design and synthesis of new drugs; those who specialize in pharmaceutics, biopharmaceutics, and pharmacokinetics are trained to combine physicochemical methods, cellular and molecular biology, and drug metabolism in the design and evaluation of novel drug delivery systems and their impact on pharmacodynamic and therapeutic effects; and those who specialize in health outcomes and policy research may integrate health economics, epidemiology, behavior research, and health policy research methods to improve health care and pharmaceutical access, quality, and affordability and reduce health disparities.

This program does not result in a degree that will qualify the recipient to take the professional practice licensing exam. For those interested in becoming a licensed pharmacist, please consult the doctor of pharmacy program in the WVU Health Sciences Catalog.

Master of Science and Doctor of Philosophy
Students must possess a baccalaureate degree from a suitable academic discipline with an overall grade-point average of at least 3.0 and an aptitude and interest for graduate work in the pharmaceutical sciences. Furthermore, GRE scores in the verbal, quantitative, and analytical sections are required. TOEFL scores may be required of international students.

To obtain specific information related to the school’s graduate programs, graduate faculty research interests, and availability of graduate assistantships or fellowships, applicants may write directly to: Assistant Dean for Research and Graduate Programs, WVU School of Pharmacy, Health Sciences Center North, P.O. Box 9500 Morgantown, WV 26506. Telephone: (304) 293-1482. e-mail: pcallery@hsc.wvu.edu, Web site: www.hsc.wvu.edu/sop.

To obtain specific application and admission information about the Ph.D. program in health outcomes and policy research and availability of fellowships or graduate assistantships, please visit http://www.hsc.wvu.edu/sop/psp/programs/PhD_graduate.html or e-mail smadhavan@hsc.wvu.edu.
Faculty
* Indicates associate membership in the graduate faculty.

Professors
Patrick S. Callery, Ph.D. (UCSF). Drug design, Drug metabolism.
Vincent Castranova, Ph.D. (WVU).
Jeffrey Fedan, Ph.D.
Peter M. Gannett, Ph.D. (U. Wisc.). Carcinogenesis, Drug design and structural biology hydrazines.
Joseph H.K. Ma, Ph.D. (Duquesne U.). Pharmaceutics and pharmaceutical chemistry; Molecular and cellular approaches to targeted drug delivery.
Rae R. Matsumoto, Ph.D. (Brown) Neuropharmacology, Drug abuse research.
S. Suresh Madhavan, Ph.D. (Purdue U.). Health services and outcomes research, Pharmaceutical cost-containment.
S. Jamal Mustafa, Ph.D. Pharmacology.
James O'Donnell, Ph.D. Pharmacology.
Charles Ponte, Pharm.D. (U. Utah). Women's health, Diabetes mellitus.
Yongyut Rojanasakul, Ph.D. (U. Wisc.). Pharmaceutics, Drug delivery and transport phenomena in biological systems; Antisense oligonucleotides.
Ginger G. Scott, Ph.D. (U. Minnesota). Pharmacy practice and health services research.

Associate Professors
Fei Chen, Ph.D.
*Robert K. Griffith, Ph.D. (Ohio St. U.). Drug design, Medicinal chemistry.
Paul D. Siegel, Ph.D. (Tulane). Immunopharmacology and toxicology.

Assistant Professors
Maurice Moffett, Ph.D. (U. New Mexico). Health economics, Health care decision making and policy.
Michael Smith, Ph.D. (U. Tex.). Pharmacoepidemiology, Pharmaeconomics, Administrative claims data research.
Cindy Tworek, Ph.D. (SUNY). Tobacco control, Health behavior and health policy.

Pharmaceutical and Pharmacological Sciences
Rae R. Matsumoto, Associate Dean for Research and Graduate Programs
1136 Health Sciences North
http://www.hsc.wvu.edu/sop/graduate_programs/phd_specializations.html

Degrees Offered
Master of Science, Doctor of Philosophy

The School of Pharmacy offers graduate programs in the basic pharmaceutical and pharmacological sciences and in pharmaceutical systems and policy, leading to the degrees of master of science and doctor of philosophy. These research-oriented programs are sufficiently flexible to accommodate individual interests, capabilities, and potential of the student for maximum academic development in becoming an accomplished researcher, scholar, and teacher. For general admission, applicants must satisfy the requirements for all graduate students entering WVU. For admission with regular student status, the applicant must possess a baccalaureate degree in a suitable academic area, an overall GPA of at least 3.0, and an aptitude and interest for graduate work in the pharmaceutical sciences. Graduate Record Examination scores in the verbal, quantitative, and analytical essay of the examination are required of all students, and TOEFL or similar scores are additionally required of international applicants for whom English is a foreign language.

No course credits with a grade of less than C may be counted toward fulfilling credit-hour requirements for a graduate degree. Furthermore, a cumulative GPA of no less than 3.0 in all graduate courses must be obtained by the student to qualify for an advanced degree.
Master of Science

Students admitted for the master of science program may specialize in health care and pharmaceutical services outcomes and policy research, medicinal chemistry, pharmaceutics, biopharmaceutics, and pharmacokinetics.

To be eligible for the M.S. degree, students must complete a minimum of 30 hours of graduate credit, of which no more than six hours may be for research and thesis.

Upon completion of coursework and research requirements, and after submission of the thesis, an oral examination for the thesis defense will be administered by the student’s Advisory Committee.

Doctor of Philosophy

Students admitted for the doctor of philosophy (Ph.D.) degree program may choose among several specialty areas which include medicinal chemistry, pharmaceutics, biopharmaceutics/pharmacokinetics, and health care and pharmaceutical services outcomes and policy research.

Coursework

All graduate students in the biomedical sciences at the Health Sciences Center are admitted under the undifferentiated graduate program for their first year and may, at the end of the first year, select the pharmaceutical and pharmacological sciences program. During their first semester, all graduate students are enrolled the same set of core courses and begin a set of three rotations through selected laboratories of research mentors. During the second semester, students begin to specialize and may select modules corresponding to one of the seven thematic programs including the pharmaceutical and pharmacological sciences program. At the end of the first year, students select their M.S. or Ph.D. mentor, and committee members for their master’s thesis or doctoral dissertation are selected. Second year and thereafter, the student’s coursework is guided by the student’s thesis or dissertation committee. Students seeking a M.S. degree may opt to continue on and obtain a Ph.D. In this case, all requirements for their M.S. degree must be met except for the preparation and defense of a thesis.

Graduate students applying to the master of sciences and doctor of philosophy degrees in the health services/outcomes research track must apply directly to the School of Pharmacy. To obtain specific information about the application and the admissions process for the Ph.D. program in health outcomes and policy research and availability of fellowships or graduate assistantships please visit http://www.hsc.wvu.edu/sop/psp/programs/phd_graduate.html or e-mail smadhavan@hsc.wvu.edu.

Study Plan A formal plan of study must be submitted by the student upon completion of 30 credit hours (or 18 credit hours for the M.S.) of formal graduate coursework. With guidance from the Research Advisory Committee and by the end of the second year in the program, the student should have completed the research tool requirement.

Candidacy To be admitted for candidacy for the Ph.D. degree, the student must satisfy the above requirements and pass oral and written qualifying examinations. After admission to candidacy for the Ph.D., a student normally devotes substantial time to an original research project that culminates in a dissertation. The dissertation must be satisfactorily completed and defended at an oral examination before the recommendation to award the Ph.D.
Special Opportunities

International Center for Disability Information (ICDI)
http://www.icdi.wvu.edu

The International Center for Disability Information (ICDI) was established in 1965 as a rehabilitation research and training center. This organization houses information databases on vocational rehabilitation, job accommodations, and disability legislation. Faculty and staff are involved in research, training, and service activities. Students in assistantships and internships learn about rehabilitation research and practice. Special studies involving disability include projects on consumer needs assessment, program evaluation of vocational rehabilitation, and emergency-service research and development. The Job Accommodation Network is an information service about job accommodations and the employability of people with functional limitations. It has operated in the ICDI since 1983 and is funded through the Office of Disability Employment Policy of the U.S. Department of Labor.

National Research Center for Coal and Energy
http://www.nrcce.wvu.edu

The National Research Center for Coal and Energy at West Virginia University develops, coordinates, and conducts multidisciplinary research and service programs on energy and environmental issues. The center works with faculty and students from departments throughout the university and with collaborators from other universities, government laboratories, and private industry. NRCCE sponsors include the U.S. Environmental Protection Agency, the U.S. Department of Energy, the U.S. Geological Survey, and others. The center is located on the Evansdale campus in a building that includes offices, wet/dry laboratories, an analytical laboratory, a high bay laboratory for pilot scale research projects, and a multimedia meeting facility.

The center coordinates programs worth over $10 million annually, about half of which supports service programs conducted at the NRCCE and half of which supports research in colleges across the University. At the center, students will find a limited number of service-related graduate assistantships in areas such as LAN and database administration or technical assistance information in support of small communities’ wastewater and drinking water needs. For NRCCE-related research programs, funds are disbursed directly to the research faculty in the colleges across the University who then select their own graduate students. To learn more about the research and service programs of the NRCCE, students are encouraged to visit http://www.nrcce.wvu.edu.

Some of the many NRCCE programs are: the Appalachian Oil and Natural Gas Research Consortium, the Petroleum Technology Transfer Council Regional Lead Organization for the Appalachian region, Industries of the Future of West Virginia, the U.S. DOE/WV Experimental Program to Stimulate Competitive Research, the National Alternative Fuels Training Consortium, the National Environmental Services Center including the National Small Flows Clearinghouse, the National Onsite Demonstration Program, the National Drinking Water Clearinghouse, the National Environmental Training Center for Small Communities, the West Virginia Water Research Institute including the National Mine Land Reclamation Center, and the Emissions Control By-products Consortium.
Oak Ridge Associated Universities (ORAU)
http://www.nrcce.wvu.edu/ or http://www.orau.gov

Since 1957, students and faculty of West Virginia University have benefited from WVU's membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 85 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. The ORAU councilor at WVU is Dr. Richard Bajura, director of the WVU National Research Center for Coal and Energy, (304) 293-2867 ext. 5401. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education, (ORISE) the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the ORISE Catalog of Education and Training Programs, which is available at http://www.orau.gov or contact Dr. Bajura.

ORAU’s Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU’s members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, and various services to chief research officers.

Regional Research Institute
Randall W. Jackson, Director
http://www.rrri.wvu.edu

The Regional Research Institute is dedicated to multidisciplinary research on the economic and social development of lagging regions. Our area interests cover the globe, with a special focus on our own Appalachian region. Our research focuses on theories and history of regional development, methods for studying regions, and policies for stimulating their development. We seek to advance our understanding of socioeconomic processes and our ability to explain regional differences in rates of growth and levels of development. The Institute creates learning opportunities and provides research support for faculty members and students. It is an internationally prominent center for the advancement of regional science—an interdisciplinary field at the intersection of economics, geography, and planning. Throughout its distinguished 44-year history, the Institute has been a separate unit, independent of any college. Currently the Institute brings together 31 faculty associates drawn from 13 departments in five colleges, a core of regional science faculty, an extended network of scholars elsewhere in the United States and abroad, and an outstanding group of graduate students.

The Institute has a long-standing reputation for its many contributions to regional science. Regional scientists use quantitative methods and mathematical models to study economic and social phenomena in a regional setting. The Institute’s forte has been its pioneering research on methods for analyzing regions and its multidisciplinary approach to studying regional development. Visiting scholars and graduate students from abroad are an integral part of the Institute community. The Institute’s Web Book of Regional Science attracts thousands of hits per day from around the world.

The Institute provides research experience and training to students but offers no degree program. Its regional science faculty has long staffed doctoral courses in related departments, and its alumni are among the nation’s leading scholars.
Graduate research assistants are nominated by their departments or by faculty associates. The Institute prefers to hire doctoral candidates who have completed one year of graduate study, but master's candidates, undergraduates, and entering graduate students are considered. Most students are in economics, geography, or natural resource economics, but history, law, and sociology students are regularly represented, too. The students have an office at the Institute and state-of-the-art computing equipment. As their educations progress, so do their roles in research projects. They learn skills, conduct and publish research, and present papers at conferences. The Institute has a well-established student tradition of writing articles or prizewinning papers while serving as research assistants.

For further information about the Institute, contact the Regional Research Institute, West Virginia University, 886 Chestnut Ridge Road, P.O. Box 6825, Morgantown WV 26506-6825; Telephone (304) 293-2896, Fax (304)293-6699, or visit our website at http://www.rrt.wvu.edu/

WVU Extension Service
http://www.wvu.edu/~exten/

Real-world learning and outreach experiences abound for undergraduate and graduate students who intern with the WVU Extension Service (WVU-ES). Part of an educational network of 105 land-grant universities, WVU-ES takes the helping hand of West Virginia University directly to thousands of West Virginians in communities scattered across the state. Through its Extension Service, the University provides a “mini-campus” in each of the state’s 55 counties. The work at these locations addresses a wide variety of community issues via a nontraditional mix of learners, faculty, staff, and volunteers.

Drawing on the strengths of WVU’s many academic disciplines, Extension educators target social, economic, environmental, and technical problems of communities. Some Extension educators work on WVU’s traditional campuses located in Morgantown, but many of the faculty work in county settings, generally located in or near each county’s government seat. Working daily with local residents, Extension faculty find their lives often intertwine with the issues that confront their local communities. They are committed to helping people find answers that work. As they solve problems along with local citizens, individually and in groups, Extension faculty and staff translate WVU’s research into action.

When graduate and undergraduate students take part in this action, they find the WVU Extension Service to be a fertile, flexible provider of a variety of internship, work-study, and volunteer experiences. Extension educators may involve students in some or in all phases of their educational projects—research, design, delivery, and evaluation. Depending on the project, students may have hands-on experience with computer networks, distance education, publication design and production, curriculum design and development, evaluation and research, and classroom teaching.

Extension’s many programs are driven by just four major initiatives: 4-H youth development, families and health, agriculture and natural resources, and community, economic, and workforce development. Extension’s program delivery, however, has roots in many career fields, including agriculture, business administration, child development, computer science, communications, environmental science, engineering, counseling and guidance, curriculum design, health education, home economics, journalism, and safety. Regardless of their academic disciplines, today’s students may find rich learning experiences—and rewarding careers—among Extension’s diverse educational programs. Examples include:

- WVU Extension’s 4-H program builds leaders who have the confidence that comes from learning by doing. Using clubs, special interest programs, camping, school enrichment, and individual study, 4-H works with more than 7,900 adult volunteers to involve more than 80,000 youths in educational activities-reaching one in four West Virginia youths.
- Diabetes is a major problem in West Virginia. Extension’s Dining with Diabetes is helping families learn how to select, prepare, and enjoy food that supports healthful eating habits. Each year, more than a thousand diabetes cooking school students attend classes in their own communities and learn how to plan and prepare meals that are appealing, tasty, and healthful.
• Thousands of children in rural and low-income communities nourish their bodies and minds through the summertime Energy Express program. A partnership of WVU Extension and state and local organizations, the program helps children build critical reading skills while providing nutritious meals and valuable mentoring.

• The First Impressions program offers West Virginia communities frank, detailed assessments of what works and what doesn’t, as seen through the eyes of strangers. Communities in Brooke, Grant, Hampshire, and Mineral counties are among those using this Extension program to make immediate improvements and guide long-term development.

• Each year, more than 12,000 firefighters and emergency responders throughout West Virginia improve their skills through training offered by WVU’s Fire Service Extension. These programs help fire department personnel meet national certification standards and enhance their ability to protect people and property in their communities.

• Helping West Virginia workers stay well and injury-free is the goal of WVU’s Safety and Health Extension. Industrial safety specialists teach employers and their workers how to protect themselves and the public from potential hazards encountered on the job.

• Opening and improving farmers markets are just two approaches WVU Extension agents are using to help farm families improve their bottom line while they bring fresh, nutritious foods to local families via direct markets, grocery stores, and restaurants. WVU Extension is helping the state’s 22,000 farmers reach a wider consumer base through its Small Farm Center.

• WVU’s International Extension programs open a window to the world. Through international exchange programs, educational camps, and development projects and research studies abroad, West Virginians are learning how to cross culture and language barriers to form productive, rewarding partnerships in the global village.

Extension operates the University’s special-mission campus, which is WVU Jackson’s Mill State 4-H Camp. Located near Weston, WVU Jackson’s Mill annually draws more than 110,000 guests, who enjoy the 525-acre retreat facility’s meeting, camping, and heritage facilities.

WVU Extension programs are financed via a variety of funding combinations: federal appropriations and grants; state appropriations and grants; county commission, county school board, and other local governmental appropriations; and private grants.

Graduate and undergraduate internships, work-study appointments, and volunteer service positions may be available on the Morgantown campus and in any of the 55 counties. Program priorities and funding determine the duration of appointments during regular semester and summer sessions.

For more information, contact the WVU Extension Service at (304) 293-5691; or write to 808 Knapp Hall, P.O. Box 6031, Morgantown WV 26506-6031.
Courses

Accounting (ACCT)

ACCT 511. Financial Accounting Theory and Practice. 3 Hr. PR: Consent. Comprehensive examination of financial accounting theory as established by the opinions, statements, and interpretation of professional organizations with special emphasis on their application and problem solving.


ACCT 521. Information Technology Auditing. 3 Hr. PR: Consent Information technology auditing techniques, issues, and current topics, including risk assessment, general and application control testing, computer assisted audit tools and techniques and testing of databases and local area networks.

ACCT 522. Electronic Commerce and Internet Security. 3 Hr. PR: Consent. Electronic commerce business models. Real options evaluations, accounting distinctions, and case analysis of Web-based business models, with emphasis on the Internet security risks to the integrity of financial information.

ACCT 541. Income Taxes and Business Decisions. 3 Hr. PR: Consent. Advanced federal income tax problems with emphasis on tax planning for business decisions and tax research methodology.

ACCT 551. Assurance Services and Professional Standards. 3 Hr. PR: Consent. Professional objectives, principles, and standards for assurance services, including risk assessment, attestation reports, and related communications. Case studies covering sampling, professional ethics, legal liability and reporting.

ACCT 556. Fraud Detection and Deterrence. 3 Hr. PR: Restricted to MPA Students. The auditor’s responsibility with respect to fraud detection and investigation and management’s responsibility for fraud deterrence and implementation of effective prevention measures. Identification, analysis and examination of fraud using actual and simulated data.

ACCT 561. Governmental and Not-for-Profit Accounting. 3 Hr. PR: Consent. Theory and practice of accounting for governmental and not-for-profit entities with an emphasis on the conceptual foundation of fund accounting, budgetary control and accountability.

ACCT 571. Accounting/Business Consulting. 3 Hr. PR: Consent. Translating complex information into critical knowledge for engagements beyond basic financial/managerial accounting, assurance, and tax services. Consulting experience examined through exposure to consulting professionals, cases and/or a business simulation.

ACCT 581. Fraud Investigation. 3 Hr. PR: Restricted to FAFI students. Types of fraud, documents, sources of evidence, and analysis of internal and external fraud schemes with an emphasis on the skills needed to identify and investigate fraud.
ACCT 582. Fraud Data Analysis. 3 Hr. PR: Restricted to FAFI students. Computer-aided data analysis techniques for detecting and investigating fraud cases, issues related to the collection and use of digital evidence, and collection of data from electronic devices.

ACCT 583. Fraud: Criminology/Legal Issues. 3 Hr. PR: Consent. Theories of criminal behavior, laws, rules of evidence, rights of persons under interrogation and interviewing, report writing and ethics, as these topics relate to forensic accounting with a focus on the behavioral aspects of fraud.

ACCT 584. Advanced Fraud Investigation. 3 Hr. PR: ACCT 581 and ACCT 582. Major fraud case investigation with an emphasis on forensic and litigation support aspects, including presentation of cases in moot court setting.

ACCT 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ACCT 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

ACCT 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ACCT 594 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ACCT 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ACCT 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ACCT 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ACCT 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

ACCT 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ACCT 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)
ACCT 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit many not be counted against credit requirements for master’s programs.)

Advertising (ADV)
ADV 521. Mass Communication Research. 3 Hr. Introduction to use of marketing research as a campaign strategy, research methodologies, and the generation, understanding, and application of marketing and advertising research findings. Lecture, in-class exercises, outside projects, individual and team assignments.

ADV 559. Advertising Campaigns. 3 Hr. Course offers graduate students the opportunity to integrate all prior learning and apply it to an advertising campaign for a real-world client. Graduate readings and research will connect the abstract and theoretical realms of advertising.

ADV 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

Agriculture, Forestry, and Consumer Sciences (AFCS)
AFCS 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of agriculture, forestry, and consumer sciences. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

AFCS 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

AFCS 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

AFCS 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

AFCS 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

AFCS 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

AFCS 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of agriculture, forestry, and consumer sciences. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

AFCS 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

AFCS 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

AFCS 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
AFCS 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

AFCS 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

AFCS 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

AFCS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

AFCS 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations (Grading may be S/U.)

AFCS 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

AFCS 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of Agriculture, Forestry and Consumer Sciences. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. Grading will be S/U.

AFCS 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

AFCS 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

AFCS 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

AFCS 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

AFCS 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

AFCS 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

AFCS 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

AFCS 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)
AFCS 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

Agricultural Biochemistry (AGBI)

AGBI 512. Nutritional Biochemistry. 3 Hr. PR: AGBI 410 or Consent. Nutritional biochemistry of domestic animals.

AGBI 513. Nutritional Biochemistry Laboratory. 1 Hr. PR: AGBI 410 and AGBI 411 and CONC: AGBI 412. Experiments to determine the nutritional constituents in animal and plant tissues.

AGBI 514. Animal Biotechnology. 4 Hr. The course will introduce students to the concepts and techniques of molecular biology and the application of these technologies in animal research. It will give the students laboratory experience in many molecular biology techniques.

AGBI 610. General Biochemistry. 4 Hr. PR: 8 hr. Organic Chemistry. The first half of a general course of biochemistry designed for graduate students of biological sciences. The course emphasizes the chemical properties of cellular constituents.

AGBI 612. General Biochemistry. 4 Hr. PR: AGBI 610 or Consent. The second half of a general course of biochemistry designed for graduate students of biological sciences. The course emphasizes reactions and control of intermediary metabolism.

AGBI 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of agricultural biochemistry. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

AGBI 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

AGBI 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

AGBI 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

AGBI 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

AGBI 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

AGBI 696 A-Z. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

AGBI 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

AGBI 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their students' reports, thesis, or dissertations. (Grading may be S/U.)
AGBI 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Agricultural/Environmental Education (AGEE)
AGEE 631. Planning Agricultural Programs and Courses. 3 Hr. PR: AGEE 430 or Consent. Formulating programs and courses for schools and communities.
AGEE 642. Ag Ed Research Methods/Design. 3 Hr. Explores definition of the problem, identification of related literature, selection of an appropriate research design, interpretation of results from data analysis procedures, and the reporting of research findings with emphasis on agricultural education.
AGEE 644. Data Analysis/Interpretation. 3 Hr. Explores the selection of appropriate statistical methods, use of statistical software packages to analyze data, interpretation of results from data analysis procedures, and the report of research findings with emphasis on agricultural education.
AGEE 650. Program Development in Community Education. 3 Hr. Planning, implementation and evaluation of programs in non-formal rural and community educational settings.
AGEE 651. Program Evaluation in Comm Ed. 3 Hr. Evaluation principals, models, designs and procedures used in developing and analyzing agricultural and extension education programs. Evaluations role in needs assessments, implementation and marketing to stakeholders.
AGEE 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of Agricultural and Environmental Education. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)
AGEE 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.
AGEE 692 A-Z. Directed Study. 1-6 Hr. Directed study, reading and/or research.
AGEE 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
AGEE 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.
AGEE 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.
AGEE 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.
AGEE 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
AGEE 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their students’ reports, thesis, or dissertations. (Grading may be S/U.)

AGEE 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

AGEE 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g. education, community health, geology). The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

AGEE 930. Professional Development. 1-6 Hr. Professional Development courses provide skill renewal or enhancement in a professional field or content area. (e.g. education, community health, geology). These tuition- waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Agriculture and Resource Economics (ARE)
ARE 540. Rural and Regional Development. 3 Hr. PR: ARE 300 and ARE 321. Economic theories and quantitative techniques. Problems and goals for rural and regional planning; methods of policy analysis for community infrastructure development.

ARE 542. International Agricultural Economic Development. 3 Hr. Current problems, theories, policies, and strategies in planning for agricultural and rural development for increased food production and to improve the well being of rural people in the developing countries of the world.

ARE 580. Energy Industry Economics. 3 Hr. PR: Graduate standing. Technical production and consumption methodologies, environmental concerns, and national and global economics and politics in making energy decisions.

ARE 581. Resource Appraisal and Decision Making. 3 Hr. PR: ARE 500 or equivalent. Investment analysis, decision making under risk and uncertainty, and project analysis applied to resource exploration and utilization; mineral and energy reserve and resource estimation techniques.

ARE 600. Research Methods. 1 Hr. Research methods in agricultural, environmental, and resource economics. The application of scientific thinking in developing research proposals and critiquing published research.

ARE 601. Applied Microeconomics. 3 Hr. PR: ECON 301 and ECON 421 or equiv. Producer and consumer economics used in resource, environmental, and agricultural analysis.

ARE 602. Production Economics. 3 Hr. PR: ARE 601. Developments in producer economics applied to natural resources, environmental, and agricultural issues.

ARE 621. Quantitative Methods in Resource Economics. 3 Hr. PR: ARE 601 and ECON 421 or equivalents. Optimization techniques in economic analysis of natural resources; environmental and agricultural management problems; linear, nonlinear, and dynamic programming.
ARE 624. Econometric Methods in Resource Economics. 3 Hr. PR: ECON 425. Application methods to natural resource, environmental, and agricultural economic problems; single and simultaneous equation models, specification problems, topics in time series, and cross-sectional analysis.

ARE 632. Natural Resource and Environmental Economics. 3 Hr. PR: ARE 600 and ARE 621 or equivalent. Theory and institutions; market failure, externalities and property rights issues; renewable and nonrenewable resources, common property, environmental and resource management, and intergenerational decisions.

ARE 633. Natural Resource Policy Analysis. 3 Hr. PR: ARE 600 and ARE 621, or equiv. Welfare economics applied to the analysis and evaluation of natural resources, environmental, agricultural, and energy policy issues.

ARE 643. Project Analysis and Evaluation. 4 Hr. Analysis and evaluation of investment projects; economic and financial aspects of project analysis; risk analysis; preparation of feasibility reports.

ARE 644. International Markets and Trade. 3 Hr. PR: ARE 600 and ARE 621. Causes and consequences of international trade and investment; commodity market structures, commodity price instability and international agreements; trade barriers and protection, export promotion, and impacts on developing countries.

ARE 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of agriculture research economics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

ARE 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ARE 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

ARE 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ARE 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ARE 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ARE 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

ARE 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ARE 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their students' reports, thesis, or dissertations. (Grading may be S/U.)
ARE 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

ARE 703. Advanced Natural Resource Economic Theory. 3 Hr. PR: ECON 710 and ARE 632. Allocation and distribution of natural resources in static and dynamic contexts; welfare economics, cost-benefit analysis, and optimal control approaches; applications to resource valuation, exhaustion, taxation, and regulation in theory and practice.

ARE 710. Advanced Environmental Economics. 3 Hr. PR: ECON 701 and ARE 632 or Consent. Theory, efficient environmental design and analysis, modeling of economic and environmental systems, evaluation of non-market benefits and costs, and risk assessment.

ARE 735. Resources of Development Planning. 3 Hr.

Agriculture (AGRL)
AGRL 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of agriculture. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

AGRL 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

AGRL 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

AGRL 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

AGRL 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

AGRL 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

AGRL 660. Problem Report. 1-3 Hr.

AGRL 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of agriculture. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

AGRL 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

AGRL 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

AGRL 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

AGRL 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.
AGRL 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

AGRL 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

AGRL 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

AGRL 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

AGRL 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

AGRL 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of agriculture. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

AGRL 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

AGRL 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

AGRL 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

AGRL 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

AGRL 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

AGRL 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

AGRL 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

AGRL 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)
AGRL 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

Agronomy (AGRN)
AGRN 516. Soil Chemistry. 3 Hr. PR: AGRN 410. An analysis of the important reactions that occur in soils; thermodynamic and kinetic aspects of these reactions and application to modern problems in soil chemistry. (3 hr. lec.)

AGRN 525. Forage Harvesting and Storage. 3 Hr. PR: AGRN 454 or Consent. Advanced study of processes associated with harvesting and storage of forages. (3 hr. lec.)

AGRN 552. Pedology. 3 Hr. PR: AGRN 417 or Consent. Genesis and evolution of soils considered as natural bodies; including both macro- and micromorphological properties. Week-long field trip required at student's expense. (2 hr. lec., 1 hr. lab.)

AGRN 554. Pasture Management and Utilization. 3 Hr. PR: AGRN 454 and ANNU 260 or consent. Advanced study of pastures and their management and utilization with emphasis on temperate species. (3 hr. lec.)

AGRN 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

AGRN 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

AGRN 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

AGRN 710. Soil Testing and Plant Analysis. 3 Hr. PR: AGRN 210 and BIOL 350, or Consent. Influence of soil chemical and physical properties on availability of plant nutrients; intensive study of individual plant nutrients and interactions of nutrients in soils and crops; and intensive study of methods used to test soils and analyze plants for nutrients and other metals. (2 hr. lec., 1 hr. lab.)

AGRN 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of agronomy. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

AGRN 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

AGRN 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

AGRN 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

AGRN 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.
AGRN 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

AGRN 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

AGRN 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

AGRN 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

AGRN 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

**Anesthesiology (ANES)**

ANES 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ANES 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ANES 701. Basic Sciences Applied to Anesthesiology. 1-6 Hr. PR: Consent. (Not offered during summer.) Examination and evaluation of date, decision-making, discussion of special procedures. (Max. enrollment: 10.)

ANES 731. Clinical Clerkship in Anesthesiology and Acute Medicine. 0 Hr. (Third year.) CR. Preanesthetic evaluation, local and systemic anesthesia, airway management, cardiopulmonary resuscitation, respiratory care, clinical pharmacology, toxicology, fluid and blood therapy, and pain management. Seminars and practical exercises in emergency cardiac life support clinical experience in ICU or OR. (Duration: two weeks.)

ANES 780. Surgical Critical Care Medicine. 0 Hr. Clinical rotation course. (See Conjoined courses.)

ANES 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in the college teaching anesthesiology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. Grading will be S/U.

ANES 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ANES 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

ANES 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
ANES 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ANES 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ANES 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

ANES 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ANES 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

ANES 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U.; colloquium credit may not be counted against credit requirements for master's programs.)

Animal Nutrition (ANNU)
ANNU 601. Principles of Nutrition and Metabolism. 3 hr. PR: AGBI 410 or consent. A basic course in principles of nutrition with emphasis on the major classes of dietary nutrients and their digestion and utilization.

ANNU 602. Nutrition and Physiological Function. 3 Hr. PR: ANNU 601 or Consent. Sequence to ANNU 601. Techniques used in nutritional studies and the relationship of nutrient requirements to physiological function in species of laboratory and domestic animals and man.

ANNU 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of animal nutrition. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

ANNU 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ANNU 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

ANNU 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ANNU 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ANNU 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ANNU 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.
ANNU 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ANNU 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

ANNU 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

ANNU 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

Animal Physiology (ANPH)
ANPH 675. Reproduction Colloquium. 1 Hr. PR: Graduate standing. Weekly discussions by graduate students and faculty in reproductive physiology program of current literature in the field, particularly of mammalian species.

ANPH 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ANPH 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ANPH 726. Endocrinology of Reproduction. 4 Hr. (2 labs) PR: ANPH 424 or BIOL 413 or equivalent. Discussion of and laboratory experience in classical and current concepts of hormonal and neurohormonal regulations of reproductive phenomena with emphasis on species differences and similarities.

ANPH 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of animal physiology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

ANPH 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ANPH 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

ANPH 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ANPH 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ANPH 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ANPH 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.
ANPH 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ANPH 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

ANPH 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through their enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Animal Production (ANPR)
ANPR 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of Animal Production. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

ANPR 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ANPR 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

ANPR 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ANPR 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ANPR 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ANPR 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

ANPR 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ANPR 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

ANPR 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)
Animal and Veterinary Science (A&VS)


A&VS 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

A&VS 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of agriculture, Forestry, and consumer science. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)


A&VS 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

A&VS 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

A&VS 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

A&VS 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

A&VS 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

A&VS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

A&VS 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

A&VS 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)


A&VS 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

A&VS 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or dissertation. (Grading may be S/U.)
A&VS 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis or dissertations. (Grading may be S/U.)

A&VS 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Applied and Environmental Microbiology (AEM)
AEM 508. Applied Water Microbiology. 3 Hr. PR: AEM 341 or consent. Microbiology and health hazards associated with surface and ground water intended for consumption, recreation, waste disposal, and agriculture/industry applications.

AEM 545. Food Microbiology. 3 Hr. PR: AEM 341. The relationships of micro-organisms to food-borne illness and intoxications, microbial food quality, food spoilage, food preservation and bio-processing. The emerging food preservation technologies and predictive microbiology will be introduced.

AEM 549. Food Microbiology Lab. 1 Hr. PR: AEM 545. Laboratory training in methods used in microbiological examination of foods. This laboratory will provide hands-on experience for students who take or have taken AEM 545.

AEM 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

AEM 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

AEM 748. Sanitary Microbiology. 3 Hr. PR: AEM 341 or Consent. Microbiology and health hazards associated with food handling, water treatment, and sanitary waste disposal.

AEM 750. Current Concepts in Microbial Ecology. 1 Hr. Emphasis on reading, criticism, and discussion of recent journal articles from the primary literature in microbial ecology/environmental microbiology.

AEM 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of applied and environmental microbiology. NOTE: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

AEM 792. Directed Study. 1-6 Hr. Directed study, reading and/or research.

AEM 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Art (ART)
ART 513. Graduate Painting. 1-15 Hr. (May be repeated for credit) PR: Consent. Encompasses the significant issues and developments of contemporary painting, including visual resources, critical and pictorial structures, and technical proficiency to establish a coherent aesthetic vision in the medium.
ART 515. Arts Administration. 3 Hr. This course provides a practical approach to understanding arts management in not-for-profit organizations. Topics include facilities management, leadership, programming, audience development, board relations, and fundraising.

ART 523. Graduate Graphic Design. 1-15 Hr. (May be repeated for credit) PR: Consent. Integration of current and historic resources leading to the development of design projects while working within the independent and existing courses. Areas of special interest include the book arts and electronic multimedia.

ART 524. Graduate Graphic Design/Professional Practice. 1-6 Hr. (May be repeated for credit) PR: Consent. Students assist and work on projects in a model studio setting, helping to coordinate and manage communication with clients, printers, and undergraduate students in graphic design studio.

ART 526. Graduate Sculpture. 1-15 Hr. (May be repeated for credit) PR: Consent. Encompasses the significant issues and developments of contemporary three-dimensional form, including visual resources, critical theory, historic foundations and technical proficiency to establish a coherent comprehension of the media.

ART 530. Graduate Printmaking. 1-15 Hr. (May be repeated for credit) PR: Consent. Encompasses the germane aspects of contemporary printmaking including visual resources, theoretical and historic structures, and comprehension technical processes, designed to establish a rigorous comprehension of the medium. Areas of specialization include lithography, intaglio, relief, serigraphy, and electronic media.

ART 532. Graduate Photography. 1-15 Hr. (May be repeated for credit) PR: Consent. Engages the essential issues and developments of contemporary photography, from traditional to digital photo processes, theoretical and pictorial foundations, and technical proficiency designed to afford a coherent aesthetic vision in the medium.

ART 534. Alternative Media. 1-15 Hr. (May be repeated for credit.) PR: Consent. Engages the primary issues and developments of alternative and interdisciplinary media such as installation, video, performance art, or other media along with the critical foundation and technical proficiency to establish a comprehensive utilization of chosen forms.

ART 540. Graduate Ceramics. 1-15 Hr. (May be repeated for credit.) PR: Consent. Involves the essential concerns and developments of contemporary ceramics, including traditional and current practices. Emphasis is on technical processes designed to provide a rigorous comprehension and expression in clay. Areas of specialization include both functional and sculptural ceramics.

ART 545. Art History: Greek and Roman. 3 Hr. PR: Consent. The architecture, sculpture, and paintings of the Aegean world, c.2000 BCE, Greece and Rome to 400 CE. Critical and historical context of this time period will be considered.

ART 551. Art History: Modern. 3 Hr. PR: Consent. The revolutionary experience of visual art, from its foundation in 19th century European movements through the modern era. Critical theory and historical context will be stressed.

ART 565. Graduate Studies: Art Education. 1-12 Hr. (May be repeated for credit.) PR: Consent. Studies in art education and related areas. The development of a master's degree project in conjunction with a faculty committee.

ART 590. Teaching Practicum/Professional Practice. 3 Hr. PR: Consent. This course is designed to develop aspects of college teaching experience such as writing a syllabus, organizing a classroom, or improvising with materials or topical issues. Preparation for establishing professional practice as a studio artist will be addressed.
ART 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ART 593 A-Z. Special Topics. 1-6 Hr. Investigation of topics not covered in regularly scheduled courses.

ART 595. Independent Study: Graduate Studio. 1-15 Hr. PR: Consent. (May be repeated for credit.) Intensive, self-directed research involving special projects in studio production. Areas of study include, but are not limited to painting, drawing, intermedia, printmaking, sculpture, ceramics, and design.

ART 600. Graduate Exhibition and Thesis. 3-6 Hr. PR: Consent. (May be repeated for credit.) Research will be directed towards the production of a solo exhibition and a written thesis that documents the processes and philosophical principles of the artwork.

ART 602. Master’s in Art Education Project. 3-9 Hr. PR: Consent. This course is designed to develop the master’s project in art education. The in-depth project must be approved by the advising committee.

ART 692 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

ART 693 A-Z. Special Topics. 1-6 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field.

ART 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ART 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ART 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

ART 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper, or equivalent scholarly project, or dissertation. (Grading may be S/U.)

ART 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

ART 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Art History (ARHS)
ARHS 501. Independent Study. 1-15 Hr. (may be repeated for credit) PR: Consent. Independent research, closely supervised, on topics of student’s selection. Proposal must be well-defined and contain historical, critical, and theoretical issues. Contractual course.

ARHS 504. Asian Art. 3 Hr.
ARHS 507. Native American. 3 Hr. Advance investigation of the visual material culture of the First Peoples of North American north of the Rio Grande, pre-contract to present. Focus on formal analysis with careful contextual studies.

ARHS 510. Intro Curatorial Practice. 3 Hr. PR: ARHS 120 and ARHS 160. Specifically the role of the curator. The objective is to assess exhibition display and develop a critical perspective on curatorial practice.

ARHS 520. Greek and Roman. 3 Hr. PR: Consent. The architecture, sculpture, and paintings of the Aegean world, c.2000 BCE, Greece and Rome to 400 CE. Critical and historical context of this time period will be considered.

ARHS 531. Medieval. 3 Hr. PR: Consent. The arts of Europe from c. 312 to c. 1350. The theoretical, historical, and literary contexts will be established. Architecture, sculpture, painting, and portable arts will be included.

ARHS 533. Medieval Architecture. 3 Hr. Advanced investigation into the architecture of western Europe and its builders, from 313 through the sixteenth century: monumental buildings, architectural ornament, and the fusion of sacred and secular, in context of medieval world views.

ARHS 538. History of Stained Glass. 3 Hr.

ARHS 544. Art Theory. 3 Hr. PR: Consent. Examination of the development and tradition of the literature of Western art theory and its relationship to artistic practice.

ARHS 545. Modern Art Theory. 1-12 Hr. (May be repeated for credit.) PR: Consent. Studies in art education and related areas. The development of a master's degree project in conjunction with a faculty committee.

ARHS 546. Medieval Painting. 3 Hr.

ARHS 547. Romantic Painting. 3 Hr. Advanced investigation into artistic movements and the underlying cultural and intellectual factors that inspire painters use imagination and appeal to the emotions, reflecting the complexity of both the world and the self.

ARHS 548. Women in Art. 3 Hr. Graduate-level study and research on the art of female artist and of women as subjects in art. There will be an historical view along with a strong theoretical component.

ARHS 550. Northern Renaissance. 3 Hr. PR: Consent. The arts of Northern Europe from 1350 to 1560 will be studied in an historical and theoretical context. Painting and sculpture will be the focus of study.

ARHS 554. Italian Renaissance. 3 Hr. PR: Consent. Early Renaissance through Mannerism. The course will emphasize both the historical context and theoretical foundation of 15th- and 16th-century Italian art and architecture.

ARHS 560. Baroque. 3 Hr. PR: Consent. Art of the late 16th through the early 18th centuries, of both Northern and Southern Europe. Issues of historical context and theoretical interpretation will be emphasized.

ARHS 570. American. 3 Hr. PR: Consent. The arts in the United States from the Colonial to the Modern era placed upon factors that define American art and the critical foundations for the works.
ARHS 575. Nineteenth Century. 3 Hr. PR: ARHS 120 and ARHS 160. The course focuses upon European and American art from the late 18th century through 1900. Issues of theory, historical context, and literary foundation will be considered.

ARHS 580. Modern. 3 Hr. PR: Consent. The revolutionary experience of visual art, from its foundation in 19th century European movements through the modern era. Critical theory and historical context will be stressed.

ARHS 581. Modern Architecture. 3 Hr. Advanced investigation of architecture from the industrial revolution to the present. Theoretical consideration of style, form, technique, material, and meaning in the architecture of the modern and contemporary periods.

ARHS 582. Architect Frank Lloyd Wright. 3 Hr. Advanced investigation of the life and work of America’s most noted and controversial architect. Close examination of his work in the context of the development of modern architecture.

ARHS 585. Print, Propaganda and Art. 3 Hr. Advanced investigation of the history and theoretical implications of printing, printmaking, and other forms of imaging in the western world from the earliest printed materials to present.

ARHS 588. The Art of Andy Warhol. 3 Hr. Advanced investigation of the ground-breaking and controversial art of Andy Warhol. Examination of his work in the context of 1960’s Pop Art movement and recent contemporary art.

ARHS 589. Contemporary. 3 Hr. PR: Consent. Exploration of the various artistic movements from World War II to the present. Emphasis will be given to the change from modern to postmodern. Familiarity with images and critical texts will be expected.

ARHS 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ARHS 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ARHS 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ARHS 601. Thesis. 3 Hr. PR: Consent. Topic selected by student in consultation with art history faculty. Research must indicate familiarity with primary and secondary sources and regard for evidence of art historical research, methodology, and criticism.

ARHS 602. History of Chinese Ceramics. 3 Hr. Advanced investigation of pre-history to present with emphasis on historical development of ceramics and culture of important dynasties in Jingdenzhen, China. Students will visit historical archaeological sites, traditional production centers, and museums.

ARHS 605. Chinese Language and Cultural History. 3 Hr. Covers basic cultural and written Chinese, an introduction to China’s many cultures and customs, and a brief history of China. Field trips offer experiential learning at sites discussed in class.

ARHS 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ARHS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or dissertation. (Grading may be S/U.)
Astronomy (ASTR)
ASTR 700. Radio Astronomy. 3 Hr. Introduction to radio astronomy theory and techniques suitable for graduate students. Topics covered include radio-wave fundamentals, antenna theory, radiation mechanisms, extra galactic sources, pulsars and cosmology.

ASTR 701. Computational Astrophysics. 3 Hr. Introduction to C programming to solve astrophysical problems. Topics covered include hypothesis testing, Monte Carlo simulations and Fourier techniques for analysis of astronomical data.

ASTR 702. Stellar Structure & Evolution. 3 Hr. Comprehensive discussion of birth, life cycle and end-products of stars. Topics covered include main-sequence evolution, giant stars, white dwarfs, supernovae neutron stars and black holes.

ASTR 703. Galactic Astronomy. 3 Hr. Detailed study of galactic structures. Topics covered include galactic dynamics, rotation and spiral density waves, the interstellar medium and supernova remnants.

ASTR 704. General Relativity. 3 Hr. Innovative ‘physics- first’ introduction to Einstein’s relativistic theory of gravity. Topics covered include special relativity, curved space time, gravitational collapse and black holes.

Athletic Coaching Education (ACE)
ACE 630. Coaching Education Administration. 3 Hr. An administrative focus of leadership, finance, fundraising, planning, facility development, personnel supervision, public relations, rules and regulations, purchase and care of equipment and the conducting of athletic events.

ACE 645. Contemporary Issues in Sport. 3 Hr. Contemporary issues in sport; to make you a more successful coach, expose you to situations in today’s coaching profession, and prepare you to plan for situations that may arise.

ACE 650. Sport Movement Analysis. 3 Hr. This course applies the laws of physics to sport activities with the objective of finding the most efficient use of the human body to achieve the highest levels of performance.

ACE 660. Sports Safety. 3 Hr. To provide students with the knowledge and skills necessary to provide a safe environment for athletes while they are participating in sports and in an emergency to help sustain life until medical help arrives.

ACE 662. Sports and Drugs. 3 Hr. This course will examine accurate information about drugs and their effects on the health performance and daily lives of athletes and the concept of coaches as influential role models.

ACE 670. Coaching Special Olympics. 3 Hr. Students will learn to coach and work with mentally challenged athletics.

ACE 671. Women in Sport. 3 Hr. ACE Graduate: Study the history of women in sport, and investigate issues that are directly related to women in sport as participants, coaches, administration, parents and fans.

ACE 685. Coaching Internship. 1-6 Hr. Students will complete a contract detailing terms of the learning experience. The levels of coaching include but are not limited to elementary schools, little league, secondary schools, and collegiate levels.

ACE 688. Coaching Techniques. 1-6 Hr. Students will complete a contract detailing terms of coaching technique topics relevant to their individual coaching experience.
ACE 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ACE 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ACE 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ACE 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g. education, community health, geology.) The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

ACE 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g. education, community health, geology). These tuition-waived, continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Athletic Training (ATTR)

ATTR 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ATTR 618. Anatomy Laboratory. 3 Hr. Cadaver laboratory dissection involving an anatomical analysis of the trunk and extremities.

ATTR 620. Athletic Training Practicum 1. 1 Hr. PR: Admittance into graduate athletic training program. Understanding of the different members of the sports medicine community; incorporating viewpoints into the process of making decisions about the care of an injured athlete.

ATTR 621. Athletic Training Practicum 2. 1 Hr. PR: ATTR 620. Clinical experience in athletic training that allows students to broaden their exposure to administrative duties.

ATTR 622. Athletic Training Practicum 3. 1 Hr. PR: ATTR 621. Clinical experience in athletic training that allows students to broaden their experience and to develop advanced clinical and writing skills.

ATTR 623. Athletic Training Practicum 4. 1 Hr. PR: ATTR 622. Clinical experience in athletic training that allows students to broaden their clinical thinking and problem solving abilities.

ATTR 625. Science and Theory of Rehabilitation 3 Hr. This course will present the current theory of therapeutic exercise techniques as they relate to the rehabilitation of the physically active individual.

ATTR 626. Low Back and Overuse Pathology. 3 Hr. This course will present evidence based and best clinical practice for low back and overuse pathology related to the assessment, treatment, and rehabilitation of the physically active individual.

ATTR 627. Biomechanics. 3 Hr. To provide the athletic trainer with an understanding of applied clinical biomechanics and its relationship to specific joints, sports and pathologies.

ATTR 640. Critical Thinking in Injury Assessment. 3 Hr. A course designed to demonstrate knowledge in critical thinking skills and evidence-based clinical practice guidelines as they relate to the evaluation process.
ATTR 650. Medical and Surgical Aspects of Athletic Training. 3 Hr. Variety of current medical and surgical procedures commonly performed on athletic populations.

ATTR 655. Integrated Functional Human Performance. 3 Hr. A course designed to instruct the student in the theory of integrated functional human performance and design/application of the material to integrate knowledge learned with professional experience and prior learning in fitness and rehabilitation.

ATTR 685. Field Concentration 1. 2 Hr. A course designed to enhance knowledge and field experience in specialized areas of athletic training practice.
ATTR 686. Field Concentration 2. 2 Hr. PR: ATTR 685. A course designed to continue knowledge and field experience in specialized areas of athletic training practice gained in ATTR 685.

ATTR 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ATTR 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ATTR 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ATTR 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ATTR 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

Behavior Medicine and Psychiatry (BMP)

BMP 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BMP 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

BMP 741. Clinical Clerkship in Psychiatry. 3 Hr. This is a clinical rotation course required for all third-year medical students. Students will be assigned to work with both in- and out-patient psychiatric care. Focus will be on making psychiatric diagnoses and implementing appropriate treatments. Students will become familiar with various types of psychiatric disorders as well as their treatment. Students will learn about psychopharmacology, psychotherapy, and other biological treatments. Students will also be on call for and involved in the treatment of emergency department psychiatric patients.

BMP 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of behavior medicine and psychiatry. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

BMP 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BMP 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

BMP 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
BMP 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

BMP 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

BMP 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

BMP 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

BMP 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

BMP 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of dully enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

BMP 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

**Bibliography (BIBY)**

BIBY 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of bibliography. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. Grading will be S/U.

BIBY 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BIBY 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

BIBY 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

BIBY 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

BIBY 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

BIBY 615. Methods of Research. 3 Hr.
BIBY 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of bibliography. Note: This course is intending to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

BIBY 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BIBY 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

BIBY 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

BIBY 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

BIBY 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

BIBY 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

BIBY 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

BIBY 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

BIBY 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

BIBY 791. Advanced Study. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BIBY 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Biochemistry (BIOC)

BIOC 531. General Biochemistry. II. 4 Hr. PR: General chemistry, organic chemistry. (For pharmacy students; others by consent.) Consisting of the lecture portion of BIOC 705, this course is designed to be a general introduction to biochemical compounds, processes and concepts for students in the pharmacy program. Master’s program students and others by consent. Four lectures per week.

BIOC 552. Cell & Molecular Biochemistry 2. II. 4 Hr. PR: BIOC 351. Part II of a two-semester graduate-level course that instills comprehension of biochemistry, molecular biology and cell biology necessary for bio-medical research. This course covers metabolism, metabolic regulation, cell structure and cellular communication.

BIOC 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

BIOC 650. Supervised Teaching. 1-6 Hr. PR: Consent. Supervised college teaching of biochemistry.

BIOC 652. Journal Club. 1-6 Hr. Discussions of recent important topics in scientific literature.

BIOC 690. Teaching Practicum. 1-3 Hr. PR: Consent of chairperson. Supervised practice in college teaching of biochemistry. (Graded as S/U.)

BIOC 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

BIOC 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

BIOC 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

BIOC 705. General Biochemistry. II. 5 Hr. PR: General chemistry, organic chemistry. (For dental students.) General introduction to biochemical compounds, processes and concepts as part of the training for the practice of dentistry, including passage of the Dental Board Exam. Four lectures and one clinical correlation or small group discussion per week.

BIOC 750. Protein Chemistry/Enzymology. 4 Hr. PR: Consent. Advanced topics in protein structure function relationships and enzymology. Emphasis is placed on emerging topics in the literature.

BIOC 751. Advanced Molecular Biology. 4 Hr. PR: Consent. A study of contemporary topics in molecular biology. This is an advanced seminar-style class using material from the current literature.

BIOC 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of biochemistry. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

BIOC 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BIOC 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

BIOC 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

BIOC 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.
BIOC 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

BIOC 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

BIOC 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

BIOC 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her departments Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's program.)

Biology (BIOL)

BIOL 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

BIOL 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of biology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

BIOL 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BIOL 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

BIOL 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

BIOL 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

BIOL 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

BIOL 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

BIOL 711. Molecular Basis of Virology. I. 3 Hr. PR: BIOL 219 or equiv., or consent. Lectures on bacterial, animal, and plant viruses; their structure, replication, and interaction with host cells. Discussion of the contributions virology has made to the understanding of molecular mechanisms in biology

BIOL 714. Advances in Protein Science. 3 Hr. An examination of proteins from a structural, functional, and biological perspective. Discussions will include biochemical, genetic, phylogenetic, structural, computational, and proteomic approaches.
BIOL 715. ECM in Cell Signaling. 3 Hr. The course emphasizes the fundamental role that extra cellular matrix plays in the process of morphogenesis, differentiation, development and maintenance of the differentiated state.

BIOL 737. Developmental Biology. I. 3 Hr. PR: BIOL 336 or equiv., organic chemistry or biochemistry, or consent. The molecular and cellular basis of differentiation and morphogenesis. (Offered in fall of odd years.)

BIOL 738. Fundamentals of Gerontology. II. 3 Hr. PR: MDS 212 or consent. An advanced multidisciplinary examination of current research in biological, psychological, and sociological issues of human aging and the ways in which these impinge on the individual to create both problems and new opportunities. (Also listed as PSYC 524.)

BIOL 752. Physiological Plant Ecology. 3 Hr. PR: BIOL 350 and consent. Advanced studies on the interactions between plants and their environment focusing on whole-plant carbon exchange, water relations, and nutrient uptake, with reference to specific biomes.

BIOL 753. Water and Nutrient Relations of Plants. 3 Hr. PR: BIOL 350 and consent. Advanced studies on water and nutrient acquisition, use, and transformation in plants with focus on plant-soil interactions, symbiotic associations, and acclimation and adaptation mechanisms operating in plants.

BIOL 754. Plant Growth and Development. 3 Hr. PR: BIOL 350 and consent. Advanced studies of the mechanisms and patterns underlying growth and development, with emphasis on hormonal regulation and molecular processes in plants.

BIOL 761. Ecosystem Dynamics. I. 3 Hr. PR: Consent. A survey of our current understanding of the biogeochemistry that occurs at and near the surface of the Earth. Emphasis is placed on the biogeochemical cycles of carbon, nitrogen, phosphorus, and sulfur. The origin and dynamics of the atmosphere, lithosphere and hydrosphere are also considered. (Offered in even-numbered years)

BIOL 762. Plant Population Biology. 3 Hr. PR: Graduate status or undergraduate status with the completion of BIOL 221 and the instructor’s permit. Plant population biology examines the interaction of ecological theory and the real world of experimental ecology of natural populations using a case study approach. Each student will research a current topic in greater depth.

BIOL 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of biology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

BIOL 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BIOL 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

BIOL 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

BIOL 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

BIOL 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.
BIOL 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her department.

BIOL 797. Research. I, II, S. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

BIOL 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

BIOL 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

BIOL 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition waived continuing education courses, are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Biomedical Sciences (BMS)
BMS 700. Introduction to Biomedical Research. 1 Hr. A course in scientific ethics that is led by individual faculty and incorporates small and large group discussions of ethical and moral issues presented as scientific case studies.

BMS 705. Cell Structure and Metabolism. 1-4 Hr. This course emphasizes general principles of cell biology, membrane structure and transport, and signaling, proliferation, death and structure of cells and incorporates a literature-based journal club.

BMS 710. Fundamentals of Integrated Systems. 1-4 Hr. This course emphasizes four areas of integrated biology - endocrinology, neurobiology, immunology and microbial pathogenesis, with an overview of pharmacology and incorporates a literature-based journal club.

BMS 715. Molecular Genetics. 1-3 Hr. This course emphasizes general principles of molecular biology (DNA and RNA) of prokaryotes and eukaryotes and of molecular genetics and incorporates a literature-based journal club.

BMS 720. Scientific Writing. 2 Hr. This course introduces students to scientific writing and requires them to write a journal article and a pre-doctoral grant proposal, based on the format used by NIH.

BMS 730. Cancer Cell Biology. 2-3 Hr. This course emphasizes the cellular signals that direct tumor growth and invasive potential and explores how these same signals can be targeted for intervention to block tumor progression.

BMS 732. Cardiovascular and Respiratory Biology. 3 Hr. This course covers specific topics related to cardiovascular and respiratory biology with emphasis on endothelium-dependent control, permeability, and vascular remodeling of the microcirculation and pulmonary diseases and mechanics.
BMS 734. Cell Signaling Metabolism. 3 Hr. This course emphasizes the pathways involved in energy metabolism in living cells and introduces hormonal and nutritional signal transduction systems that control metabolic pathways.

BMS 736. Immunology. 3 Hr. This course focuses on concepts and mechanisms of immunology and microbial pathogenesis with emphasis on immune activation and response, host response to infection, Lyme disease and other pathogens, and biofilms.

BMS 738. Muscle Structure and Function. 2-3 Hr. This course exams in-depth the concepts in muscle structure and function with emphasis on normal physiology and applications to overload/exercise and disuse or aging.

BMS 740. Neuroscience 2. 2-3 Hr. This course provides a background in neuroscience, emphasizing cellular neurobiology, neurochemistry, learning and memory, sensory systems, neural development, autonomic nervous system, neuroendocrinology, and consciousness.

BMS 742. Microbial Pathogenesis. 1 Hr. This course emphasizes general principles of microbial pathogenesis and is taught in lecture and journal club format.

BMS 797. Research. 1-6 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Biometric Systems (BIOM)
BIOM 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

Business Administration (BADM)
BADM 511. Economic and Business Environment. 3 Hr. A survey of micro and macro economic markets in the U.S. economy. Includes a consideration of how the U.S. system interacts with the larger global economy.

BADM 512. Law, Ethics and Diversity. 3 Hr. An overview of the impact of legal, societal, and ethical considerations on business decision-making and strategic planning.

BADM 521. Global Environment. 2 Hr. Insight into the major current global economic and business issues, challenges, and opportunities facing the United States and the rest of the world; acquaints students with the dynamic forces that will shape the future.

BADM 522. Business Statistics. 2 Hr. Survey of major statistical methods used in business and economic research including descriptive statistics, probability, sampling distributions, hypothesis testing, estimation, linear regression, times series, and forecasting.

BADM 523. Management Science. 3 Hr. Quantitative course utilizing and building upon applied mathematical skills in solving managerial business problems and decision-making situations.

BADM 524. Financial and Managerial Accounting. 4 Hr. Accounting principles underlying financial statements and their evaluation for planning, decision making, and control.

BADM 525. Marketing Environment. 2 Hr. Introduction to the marketing environment with emphasis on the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives.

BADM 526. Marketing and Business Research. 2 Hr. Examination of primary research techniques including sampling theory, qualitative methodologies, data collection, and analysis. Emphasis placed on consumer research.
BADM 531. Operations Management. 2 Hr. Acquaints students with a variety of production methods, concepts, and mathematical techniques that are employed for the improvement of systems efficiency and effectiveness.

BADM 532. Business Finance. 4 Hr. Deals with the financial management of commercial firms. Topics include how assets should be managed, what assets should be purchased, and how these purchases should be financed.

BADM 533. Global Marketing Strategy. 4 Hr. Emphasizes the formulation of both global and domestic marketing strategies and the development of analytical and decision-making capabilities. Research projects and simulations will be used to illustrate specific business situations.

BADM 534. Information Systems. 3 Hr. Basic information systems and basic application tools are covered as well as their application to pertinent health science topics.

BADM 535. Organizational Behavior. 2 Hr. Provides students with an understanding of the behavior of individuals, groups, and formal organizations. Emphasis in employee performance satisfaction and in applying theories of human behavior to solving problems in organizational administration.

BADM 541. Management Strategy. 2 Hr. Considers the business organization as a whole from a general management perspective to strategy making. Provides analytical tools and frameworks used for identifying and analyzing key strategic issues facing firms today.

BADM 542. Seminar on Financial Planning. 2 Hr. Detailed review of the planning areas: budgeting, insurance, investment, credit management, retirement, and estate planning.

BADM 543. Seminar on Leadership. 2 Hr. The nature of leadership in complex organizations. Students discuss the purpose of leadership, examples of leadership skills, and the methods used by influential leaders in society.

BADM 551. Global Strategic Management. 2 Hr. Designed to give insight into the current economic, business and political issues, challenges, and opportunities facing the world—to acquaint students with strategies, trends, and forces that shape the 21st century.

BADM 552. Global Accounting and Finance. 2 Hr. Introduces fundamentals of global financial management for corporations. Currency risk is explored in the short and medium term framework and exposure management strategies are considered.

BADM 553. Service Learning. 2 Hr. Topics included in this course are federal employment law, job analysis, HR planning, recruitment/selection, performance appraisal and compensation.

BADM 561. Readings in Global Business. 3 Hr. Students examine current issues in international business pertaining to regions of their interest. The effect of the legal environment, regulatory issues, and cultural differences are examined.

BADM 561A. Readings in Global Business-Travel. 1 Hr. Travel portion of BADM 561. See 561 for complete description.

BADM 562. International Business. 3 Hr. Students learn German culture and business practices in a series of seminars at WVU followed by a week in Germany. The trip includes seminars by German business leaders and trips to businesses and historic sites.

BADM 562A. International Business-Travel. 1 Hr. Travel portion of BADM 562. See 562 for complete description.
BADM 563. Essentials of Business. 2-4 Hr. The course develops the leadership capacity of the individual by strengthening critical thinking skills, executive analysis ability, and decision-making processes.

BADM 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BADM 592. Directed Study. 1-6 Hr. Directed study, reading and/or research.

BADM 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

BADM 611. Information Technology. 2 Hr. Uses lectures, case analysis, and hands-on exercises to explore information technology in business. The course focuses on IT management and on software tools used in business decision-making.

BADM 612. Managerial and Team Skills. 3 Hr. Introduces, develops, and enhances managerial skills for complex organizations. Explores managerial philosophies, one’s own managerial style, and the dynamics of working groups and teams.


BADM 614. Health Services Management. 3 Hr. This course offers students an introduction to environmental issues, organizational structures, and financial control mechanisms that affect the healthcare management process.

BADM 615. Applied Business and Economics Statistics. 3 Hr. Survey of major statistical methods used in business, economic, and medical research including descriptive statistics, probability, sampling distributions, hypothesis testing, estimation, linear regression, time series, and forecasting.

BADM 621. Business Research. 3 Hr. Develops skills in data-driven, fact-based decision making; develops the ability to critically evaluate research proposals and studies which rely on business research; provides a basic understanding of reading and conducting empirical research.

BADM 622. Financial Statements Analysis. 3 Hr. Provides an overview of the current financial reporting process. Includes discussion of the respective reporting vehicles, financial statements, and the alternatives available that affect the reporting process.

BADM 623. Planning and Organization. 4 Hr. Integrating first year experience. Attention is placed on the relationship between the individual firm and the forces of the global economy; market research and strategy; and a simulated implementation of the business plan.

BADM 624. Economic Decision-Making. 2 Hr. A microeconomic survey of markets designed to prepare students for further work in the area of health economics.

BADM 625. Financial Statements 2 Hr. Examines financial management and accounting concepts and techniques applicable to health care organizations, including financial accounting and financial statement analysis.

BADM 626. Health Economics. 4 Hr. The context of health care; the use of economic methods to understand the organization of the industry and the behaviors of its participants (consumers, producers, and regulators.)
BADM 627. Organization Behavior in Health Services. 2 Hr. Examines behavioral issues confronted in health care organizations. Addresses both managerial and employee perspectives and explores such issues as power sharing, motivation, decision making, empowerment, change, and organizational renewal.

BADM 631. Managerial Economics. 3 Hr. Provides a solid foundation of economic understanding for use in managerial decision-making. Topics covered include supply, demand, markets, pricing practices, and firm strategies in contestable markets.

BADM 632. Corporate Finance and Regulation. 4 Hr. Examines the capital decisions of the firm and the regulatory environment of corporate entities. This includes a review of the major funding sources for the firm and for individual projects undertaken by the firm.

BADM 633. Leadership. 3 Hr. Topics include leadership concepts and practices designed to motivate and support an organization's workforce. Students discuss principles of leadership and explore how these principles affect traditional human resource management topics.

BADM 634. Health Services Marketing. 2 Hr. This course offers students an introduction to marketing concepts and tools and an understanding of how to use these tools in analyzing and addressing healthcare marketing issues.

BADM 635. Database Management 1. Hr. Covers basic database design concepts for relational databases in a personal computer environment. Students get hands-on experience designing and using tables, queries, reports, and forms.

BADM 636. Managerial Accounting. 3 Hr. Builds upon the financial management and accounting concepts with new topics in valuation, capital budgeting, performance measurement, working capital management, and capital structure in health services.

BADM 637. Organizational Processes and Medical Ethics. 4 Hr. Behavioral and ethical issues confronted in health service organizations. Explores the changing organizational landscapes, group and team processes, organizational and medical ethics, and organizational change.

BADM 641. Management Science and Operations. 4 Hr. Applied mathematical course in solving business problems and decision making issues from a general managerial perspective with particular emphasis on the operations management area of the organization.

BADM 642. Managerial Cost Accounting. 2 Hr. An introduction to internal accounting techniques used by an organization's managers when they are faced with planning, directing, controlling, or decision-making in their organizations.

BADM 643. Working Capital Management. 2 Hr. Relates the long-term strategy to the short-term requirements of the firm. Topics include cash management, inventory management, receivables management, leasing, and the distribution of gains to shareholders.

BADM 644. Legal Environment and Ethics. 2 Hr. An overview of the legal system and the legal and ethical issues relevant to business decision-making, planning, and the interface between business, government, and society.

BADM 645. Corporate Control. 4 Hr. Builds upon accounting and finance foundations by applying the methods and techniques to various health care related cases.

BADM 646. Management Science and Health Services. 3 Hr. A quantitative course utilizing and building upon applied mathematical skills in solving managerial business problems and decision making situations in a health service environment.
BADM 647. Market Strategies and Health Services. 3 Hr. The application of marketing concepts to problems in health services management. Uses a computer simulation requiring sound creation, analysis, and implementation of marketing plans with a strong emphasis on thinking and analytical skills.

BADM 651. Financial Planning. 2 Hr. Discussion of individual financial situations in the following areas: budgeting, insurance coverage, investment planning, credit management, retirement planning and estate planning.

BADM 652. Marketing Strategy. 2 Hr. Application of marketing concepts to a simulated business environment to understanding a market driven organization and to develop and implement marketing strategies and plans which integrate and employ sound marketing principles.

BADM 653. Global Planning and Strategy. 4 Hr. Explores the various strategic planning options available to companies in order to compete in the global marketplace.

BADM 654. Advanced Topics Seminar. 2 Hr. Focuses on topics of current interest in business and economics to meet student and programmatic needs.

BADM 655. Health Services Strategy. 3 Hr. Course on strategic management and planning with a focus on the formulation, implementation, and evaluation of strategic decisions in health care organizations.

BADM 656. Law and Medicine. 2 Hr. An overview of general principles of law applicable to the delivery of financing in health care and an analysis of specific applications to those principles.

BADM 657. Seminar: Not-for-Profit Issues. 3 Hr. Advanced topics seminar covering up-to-date issues in the not-for-profit sectors of health services.

BADM 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BADM 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

BADM 710. Philosophy of Research. 3 Hr. This course provides an overview of the philosophical principles that guide research in organizations, ethical dilemmas and practical relevance of research, and factors that guide the selection of a research design and method of analysis.

BADM 711. Qual/Quant Research Methods. 3 Hr. PR: BADM 710. Graduate-level introduction to critical issues in research methodology relevant to the social sciences. Emphasis on theory-driven, qualitative and quantitative approaches to research.

BADM 712. Linear Statistical Models. 3 Hr. PR: BADM 710. Students learn to analyze data in the performance of research on business problems using techniques based on linear models including multiple regression, analysis of variance, and the design of experiments.

BADM 713. Multivariate Analysis and Sem. 3 Hr. PR: BADM 712. This course discusses commonly used techniques (e.g., factor analysis, MANOVA, structural equation modeling) of analyzing multivariate data. The course will help students in choosing the appropriate methods for analyzing data in their own research.

BADM 720. Global Management Models in HR/OB. 3 Hr. PR: BADM 710. This doctoral seminar will present the issues facing global managers regarding strategic workforce management to facilitate organizational objectives as viewed through the perspectives of international theorists and researchers in the HRM and OB literatures.
BADM 730. Global Leadership and Change. 3 Hr. PR: BADM 710. Traditional leadership theory is reviewed and contrasted with more recent models of effective leadership in a global context with special emphasis on the leadership of organizational change.

BADM 740. Social Psych and Group Processes. 3 Hr. PR: BADM 720. Graduate-level introduction to social and industrial-organizational psychology. Emphasis on major theories, issues, and literature regarding social psychology and organizational behavior in domestic and international contexts.

BADM 750. International Marketing. 3 Hr. PR: BADM 710. Graduate-level introduction to international marketing. Emphasis on major theories, issues, and literature regarding all aspects of marketing in regional and international contexts.

BADM 760. Survey of Organizational Theory. 3 Hr. PR: BADM 710. A survey of modern developments in organizational theory and their connection to the field’s roots. Modern organizational theory has several different sub-fields, and this course will connect these diverse theories with special emphasis on application.

BADM 770. Global Strategy and Theory. 3 Hr. PR: BADM 710. Graduate-level introduction to international theory and strategy. Emphasis on major theories, issues, and literature regarding international theory and global strategy in regional and international contexts.

BADM 780. Current Leadership Topics. 3 Hr. PR: BADM 730. This course is designed to familiarize doctoral students with current research topics in global leadership with an emphasis on exploring emerging areas of leadership and making application in the context of leadership practice.

BADM 785. Current Global Strategy. 3 Hr. PR: BADM 770. Evaluation and analysis of current literature regarding important managerial and strategic issues in the international environment from different theoretical perspectives, including strategic management, organizational theory, economic sociology, and economics.

BADM 900. Professional Development. 1-6 Hr. Course provides skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

BADM 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

**Business Law (BLAW)**

BLAW 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BLAW 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

BLAW 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

BLAW 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of business law. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)
BLAW 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BLAW 692. Directed Study. 1-6 Hr. PR: Consent. Directed study, reading, and/or research.

BLAW 693. Special Topics. 1-6 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field.

BLAW 695. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.

BLAW 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

BLAW 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

BLAW 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

BLAW 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Cell Cancer Biology (CCB)

CCB 700. Basic and Clinical Aspects of Cancer. 3 Hr. PR: BMS 730 or consent. This course is designed to introduce students to the integrative aspects of basic and clinical cancer research.

CCB 701. Oncogenes and Signaling Networks. 3 Hr. PR: BMS 730 or consent. This course will focus on cellular transformation, mitogenesis, tumor survival, motility and kinase signaling.

CCB 702. Cancer Therapeutics. 3 Hr. PR: BMS 730 or consent. Course will focus on therapeutic strategies, drug resistance drug, design, and clinical cancer trials.

CCB 705. Journal Club. 1 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field of cancer research.

CCB 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CCB 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Chemical Engineering (CHE)

CHE 531. Mathematical Methods in Chemical Engineering. 3 Hr. PR: MATH 261 and consent. Classification and solution of mathematical problems important in chemical engineering. Treatment and interpretation of engineering data. Analytical methods for ordinary and partial differential equations, including orthogonal functions and integral transforms. Vector calculus. (3 hr. lec.)
CHE 565. Corrosion Engineering. 3 Hr. PR: CHE 320 or CHEM 341 or equivalent. Basic mechanisms of various types of corrosion such as galvanic corrosion, pitting corrosion and stress corrosion cracking; methods of corrosion prevention such as cathodic and anodic prevention, by using coatings and inhibitors, and by selecting proper alloys. (3 hr. lec.)

CHE 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CHE 593. Special Topics. 1-6 Hr. PR: Consent. A study if contemporary topics selected from recent developments in the field.

CHE 610. Fluidization Engineering. 3 Hr. PR: Consent. Fundamentals of fluidization, two-phase flow theory and powder characteristics, structure and property of the emulsion phase and bubbles, mass and heat-transfer in fluidized beds with and without chemical reaction. (3 hr. lec.)

CHE 611. Powder Technology. 3 Hr. PR: Consent. Characterization of powders, structure of powders, powders in two-phase flow, measurement techniques, static and dynamic behavior of powders, grinding and agglomeration, chemistry of powders. (3 hr. lec.)

CHE 615. Transport Phenomena. 3 Hr. PR: Consent. Introduction to equations of change (heat, mass, and momentum transfer) with a differential-balance approach. Use in Newtonian flow, turbulent flow, mass and energy transfer, radiation, convection. Estimation of transport coefficients. (3 hr. lec.)

CHE 620. Thermodynamics. 3 Hr. PR: Consent. Logical development of thermodynamic principles. These are applied to selected topics including development and application of the phase rule, physical and chemical equilibria in complex systems, and nonideal solutions. Introduction to nonequilibrium thermodynamics. (3 hr. lec.)

CHE 625. Chemical Reaction Engineering. 3 Hr. PR: Consent. Homogeneous and heterogeneous reaction systems, batch and flow ideal reactors, macro- and micro-mixing, non-ideal reactors, diffusion and reaction in porous catalysts, reactor stability analysis, special topics. (3 hr. lec.)

CHE 687. Materials Engineering. 3 Hr. A study of materials engineering fundamentals emphasizing semiconductor, polymer, metal, and ceramic/cementitious material systems. Mechanical and physical properties, theoretical aspects, testing, design criteria, manufacturing, and economics of material systems. Laboratory testing and evaluation. (Equivalent to CE 687, EE 687, MINE 687, IMSE 687 and MAE 687.) (3 hr. lec.)

CHE 693. Special Topics. 1-6 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field.

CHE 694. Seminar. 1-6 Hr. Seminars on current research by visitors and graduate students.

CHE 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

CHE 716. Advanced Fluid Dynamics. 3 Hr. PR: Consent. Analysis of flow of fluids and transport of momentum and mechanical energy. Differential equations of fluid flow; potential flow, laminar boundary-layer theory, and non-Newtonian fluids. (3 hr. lec.)

CHE 717. Advanced Heat Transfer. 3 Hr. PR: Consent. Theory of transport of thermal energy in solids and fluids as well as radiative transfer. Steady-state and transient conduction; heat transfer to flowing fluids; evaporation; boiling and condensation; packed- and fluid-bed heat transfer. (3 hr. lec.)
CHE 718. Advanced Mass Transfer. 3 Hr. PR: Consent. Theory of diffusion, interphase mass-transfer theory, turbulent transport, simultaneous mass and heat transfer, mass transfer with chemical reaction, high mass-transfer rates, multicomponent macroscopic balances. (3 hr. lec.)

CHE 720. Applied Statistical and Molecular Thermodynamics. 3 Hr. PR: CHE 620 and consent. The connection between macroscopic phenomena (thermodynamics) and microscopic phenomena (statistical and quantum mechanics). Thermodynamics modeling for process analysis. Equations of state, perturbation theories, mixing rules, computer simulation, group-contribution models, physical-property prediction. (3 hr. lec.)

CHE 726. Catalysis. 3 Hr. PR: CHE 625 or consent. Physical and chemical properties of catalytic solids, nature and theories of absorption, thermodynamics of catalysis, theories of mass and energy transport, theoretical and experimental reaction rates, reactor design, and optimization. (3 hr. lec.)


CHE 731. Optimization of Chemical Engineering Systems. 3 Hr. PR: Consent. Optimization in engineering design, unconstrained optimization and differential calculus, equality constraints optimization, search technique, maximum principles, geometric and dynamic programming, linear and nonlinear programming, calculus of variations. (3 hr. lec.)

CHE 761. Polymer Rheology. 3 Hr. Qualitative behavior of polymeric liquids; Rheometry; stress, strain and rate of strain tensors; equations of motion; Hookean solids and Newtonian liquids, linear viscoelasticity; constitutive equations for solutions and melts. (3 hr. lec.)

CHE 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of chemical engineering. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

CHE 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CHE 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

CHE 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CHE 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

CHE 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CHE 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CHE 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
CHE 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

CHE 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Chemistry (CHEM)
CHEM 512. Environmental Chemistry. 3 Hr. PR: CHEM 215 and CHEM 234 and CHEM 348. Study of the nature, reactions, transport and fate of chemical species in the environment.


CHEM 516. Bioanalytical Chemistry. 3 Hr. PR: (CHEM 310 and AGBI 410) or equivalent. Analytical principles and instrumental methods as they are applied to biochemical questions. Students are taught to evaluate and formulate methods and approaches for biochemical analyses.

CHEM 521. Organometallic Chemistry. 3 Hr. PR: Graduate standing in chemistry or consent. Syntheses, structure, and reactivity of organometallic compounds. Applications of organometallic compounds to catalysis and organic synthesis. (3 hr. lec.)

CHEM 531. Advanced Organic Chemistry 1. 3 Hr. PR: CHEM 234. Structural concepts, bonding, tautomerism, static and dynamic stereochemistry, mechanistic classifications of reagents, and reactions including some applications. (3 hr. lec.)

CHEM 532. Advanced Organic Chemistry 2. 3 Hr. PR: CHEM 531. Continuation of CHEM 531 with emphasis upon synthetic methods and reaction mechanisms. (3 hr. lec.)

CHEM 541. Chemical Thermodynamics. 3 Hr. PR: CHEM 348. Principles of classical and statistical thermodynamics and their application to chemical problems. (3 hr. lec.)

CHEM 547. Chemical Crystallography. 3 Hr. PR or Conc: (CHEM 346 and CHEM 348) or CHEM 341 or consent. Applications of ex-ray diffraction of crystals to the study or crystal and molecular structure. Includes diffraction theory, space group symmetry, and crystallographic methods of analysis. (3 hr. lec.)

CHEM 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CHEM 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CHEM 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
CHEM 713. Electrochemistry & Instrumentation. 3 Hr. PR: CHEM 310. Electronic instrumentation applied to study of mass transfer kinetics of electrode reactions, voltammetry, and high-frequency methods. (3 hr. lec.)

CHEM 714. Analytical Atomic Spectrometry. 3 Hr. PR: CHEM 450. Theory of atomic spectroscopy relevant to elemental analysis. Considerations in the design and use of modern optical spectrometry systems. (3 hr. lec.)

CHEM 715. Chemical Separations. 3 Hr. PR: CHEM 215 and CHEM 233, and physical chemistry. Fundamentals of transport and flow processes underlying all separation techniques. Empirical coverage of chromatographic and electrophoretic methods for analytical separations. (3 hr. lec.)

CHEM 723. Physical Methods in Inorganic Chemistry. 3 Hr. PR: CHEM 422. Symmetry, vibrational spectroscopy, theory and applications of NMR and EPR methods, magnetism, optical activity, dynamic processes and fluxional behavior. (3 hr. lec.)

CHEM 724. Coordination Chemistry. 3 Hr. PR: CHEM 422. Symmetry, hybridization, ligand field theory, molecular orbital theory, metal-ligand bonding in coordination complexes and organometallics. (3 hr. lec.)

CHEM 725. Inorganic Reactions and Mechanisms. 3 Hr. PR: CHEM 422. Inorganic reactions (ligand substitution aquation, organometallic reactions, electron transfer;) kinetics and mechanistic studies. (3 hr. lec.)

CHEM 727. Bioinorganic Chemistry. 3 Hr. PR: CHEM 422 or consent. Metal ions in biological systems; proteins, nucleic acids, and cofactors as ligands; metal uptake, storage, and regulation; structural and cabalistic roles; substance activation, electron transfer, and group transfer reactions; metals in medicine.

CHEM 733. Physical Organic Chemistry. 3 Hr. PR: CHEM 531. Theoretical considerations of organic molecules, kinetics, and other methods used in the study of organic structure and reaction mechanisms; linear free energy relationship and other related topics. (3 hr. lec.)

CHEM 743. Chemical Kinetics. 3 Hr. PR: CHEM 348. Theories and applications of kinetics in gaseous state and in solution. (3 hr. lec.)

CHEM 744. Statistical Mechanics. 3 Hr. PR: CHEM 746. Theory and application of statistical mechanics to chemical systems. (3 hr. lec.)

CHEM 745. Theoretical Chemistry 1. 3 Hr. PR: Differential equations. Theoretical background for quantum mechanics. (3 hr. lec.)

CHEM 746. Theoretical Chemistry 2. 3 Hr. PR: CHEM 745. Theories and applications of quantum mechanics in chemistry. (3 hr. lec.)

CHEM 747. Molecular Spectroscopy and Structure. 3 Hr. PR: CHEM 450 or graduate standing in chemistry, or consent. Advanced applications of spectral methods to the study of molecular structure. (3 hr. lec.)

CHEM 750. Introduction to Proteomics. 3 Hr. PR: CHEM 233 and CHEM 234. Introduction to protein separations and sequencing by modern mass spectrometry, and the application of these methods to the study of biological systems in health and environmental sciences.

CHEM 789. Research Seminar. 1 Hr. PR: Graduate student in chemistry. Research seminars by visiting lecturers.
CHEM 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of chemistry. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

CHEM 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CHEM 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

CHEM 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CHEM 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

CHEM 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CHEM 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CHEM 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, program report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

CHEM 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

CHEM 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

Child Development/Family Studies (CDFS)

CDFS 540. Survey of Family Studies. 3 Hr. A comprehensive overview of the theoretical and empirical literature focusing on the family. (Offered in fall of odd years.)

CDFS 541. Cognitive Development of the Child. 3 Hr. Piaget’s basic theory, including his view of perceptual, symbolic, motor and logico-mathematical development, across the life span.

CDFS 545. Socio-Emotional Development of the Child. 3 Hr. A study and examination of contemporary theory and research into various facets of the socialization process in infancy and childhood. (Offered in fall of odd years.)

CDFS 547. Comparative Study of the Family. 3 Hr. The comparative method as a framework for family analysis. An examination of family diversity and multiculturalism in an ever-changing U.S. society. (Offered in fall of even years.)

CDFS 548. Theories of Child Development. 3 Hr. Examination of major theoretical conceptions of child development. Work of Werner, Piaget, Freud, Erikson, and the American learning theorists compared and contrasted. (Offered in fall of even years.)
CDFS 549. Socialization Processes. 3 Hr. This course is an examination of the contexts that affect infant, child, and adolescent development, including family, peers, schools, neighborhood, media, and larger societal influences.

CDFS 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CDFS 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CDFS 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CDFS 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of child development and family studies. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

CDFS 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CDFS 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CDFS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

CDFS 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their students’ reports, thesis, or dissertations. (Grading may be S/U.)

CDFS 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

**Civil Engineering (CE)**

CE 511. Pavement Design. 3 Hr. PR: CE 451 or consent. Effects of traffic, soil, environment, and loads on the design and behavior of pavement systems. Design of pavement systems. Consideration of drainage and climate. Pavement performance and performance surveys. (3 hr. rec.)

CE 515. Flexible Pavements. 3 Hr. Design, construction and mathematics of flexible pavements, including material characterization, mix design, construction methods, pavement design and evaluation, and maintenance procedures.

CE 520. Groundwater Dynamics. 3 Hr. PR: Consent. Introduction to groundwater, formulation of equations for saturated and unsaturated flow, analytical solutions for steady and transient cases, transport of pollutants, and numerical techniques. (3 hr. lec.)

CE 522. Free Surface Hydrodynamics. 3 Hr. PR: CE 322 or consent. The dynamics of liquid flow with a free surface under the influence of gravity; open channel hydraulics, wave motion, and buoyancy effects. (3 hr. lec.)
CE 524. Groundwater Engineering. 3 Hr. PR: CE 322 or consent. Introduction to the nature, hydrology, mechanics, technology, and quality of groundwater. Well solutions in confined, leaky, and unconfined aquifers. Modeling concepts and public-domain computer programs.

CE 531. Pedestrian/Bike Transportation. 3 Hr. Planning, design, operation and maintenance of pedestrian and bicycle facilities, including multi-use trail; in-depth examination of policies, programs and design principles to encourage non-motorized travel.

CE 533. Geometric Design of Highways. 3 Hr. PR: Consent. The theory and practice of geometric design of modern highways, horizontal and vertical alignment, cross-slope, design speed, sight distances, interchanges, and intersections. Critical analysis of design specifications. (2 hr. lec., 3 hr. lab.)

CE 534. Introduction to Traffic Engineering. 3 Hr. PR: CE 332 or consent. The purpose, scope, and methods of traffic engineering. Laboratory devoted to conducting simple traffic studies, solving practical problems, and designing traffic facilities. (2 hr. lec., 3 hr. lab.)

CE 538. Highway Safety Engineering. 3 Hr. PR: CE 431 or consent. Relationship between human, vehicular, and roadway factors which impact safety; functional requirements of highway safety features; legal aspects; accident analysis; evaluation of highway safety projects. (3 hr. lec.)

CE 539. Traffic Engineering Operations. 3 Hr. PR: CE 534. Theory and practice of application of traffic engineering regulations; traffic control concepts for urban street systems and freeways; freeway surveillance and incident management; driver information systems; traffic control system technology and management. 3 Hr. rec.

CE 540. Environmental Chemistry and Biology. 3 Hr. PR: CE 322 or consent. Study of physical and chemical properties of water. Theory and methods of chemical analysis of water, sewage, and industrial wastes. Biological aspects of stream pollution problems. (2 hr. lec., 3 hr. lab.)

CE 546. Principles of Biological Waste Treatment. 3 Hr. PR: CE 540 or consent. Examination of biological treatment systems related to microbiology and function. Models used to describe system behavior and kinetics are developed. Laboratory and field experiments are performed to understand the relation between operation and design. (2 hr. lec, 3 hr. lab.)

CE 547. Applied Wetlands Ecology and Management. 3 Hr. The management and ecology of wetland vegetation, soils, hydrology, and wildlife. (Offered in fall of odd years. Also listed as WMAN 547 and PLSC 547.)

CE 549. Solid and Hazardous Waste Management. 3 Hr. PR: consent. Patterns and problems of solid waste storage, transport, and disposal. Examinations of various engineering alternatives with appropriate consideration for air and water pollution control and land reclamation. Analytical approaches to recovery and reuse of materials. (2 hr. lec., 3 hr. lab.)

CE 550. Soil Properties and Behavior. 3 Hr. PR: CE 451 or consent. Soil mineralogy and the physicochemical properties of soils and their application to an understanding of permeability, consolidation, shear strength, and compaction. Prediction of engineering behavior of soils in light of physicochemical concepts. (3 hr. lec.)

CE 551. Soil Testing. 3 Hr. PR: CE 351 or consent. Experimental evaluation of soil properties and behavior. Emphasis is placed on the proper interpretation of experimental results and application of such results to practical problems. (1 hr. lec., 6 hr. lab.)

CE 552. The Finite Element Method. 3 Hr. PR: Graduate standing in CE or MAE or consent. Introductory treatment of theoretical basis of finite element method, mathematical formulation, different types of elements, stress analysis in solids, applications, and computer implementation.
CE 553. Advanced Finite Element Methods. 3 Hr. PR: Consent. Formulation procedures and applications of finite element methods to two- and three-dimensional problems, techniques for nonlinear analysis, computer implementation, applications in field problems, flow, and dynamics.

CE 561. Statically Indeterminate Structures. 3 Hr. PR: CE 461 or consent. Force and displacement methods of analysis; energy principles and their application to trusses, frames, and grids; effects of axial forces; influence lines for frames, arches, and trusses; secondary stress analysis. (3 hr. lec.)

CE 563. Introduction to Structural Dynamics. 3 Hr. PR: CE 561. General theory for dynamic response of systems having one or several degrees of freedom. Emphasis on the application of dynamic response theory to structural design. (3 hr. lec.)

CE 564. Nondestructive Material and Structural Evaluations. 3 Hr. PR: Consent. Nondestructive evaluation (NDE) using techniques based on mechanical and electromagnetic wave propagation; theory and applications of various NDE techniques including infrared thermography, dynamic characterization, seismic reflection and refraction, ultrasonics, acoustic emission, and radar. (3 hr. lec.)

CE 566. Advanced Materials for Infrastructure. 3 Hr. PR: CE 462 and CE 463. Introduction to principles of material science; material structure, characterization at coupon and component level, practical information on fiber-reinforced shapes; establishment of failure analysis and standardization. (3 hr. lec.)

CE 567. Prestressed Concrete. 3 Hr. PR: CE 461 and CE 462 or Consent. Behavior and design of prestressed concrete members. Materials, bending, shear, torsion, methods of prestressing, prestress losses, deflections, compression members, composite members, indeterminate structures. (3 hr. lec.)

CE 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CE 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CE 594 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

CE 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

CE 721. Environmental Fluid Mechanics. 3 Hr. PR: Consent. Equations of motion including buoyancy and Coriolis force; mechanics of jets and plumes; diffusion, dispersion, and mixing in rivers, lakes, reservoirs, and estuaries. (3 hr. lec.)

CE 722. Deterministic Hydrology. 3 Hr. PR: Consent. An in-depth treatment of the dynamics of the accumulation of runoff, including the formulation of the unsteady surface flow equations and the unsteady saturated-unsaturated subsurface flow equations. Both analytical and numerical solutions are presented with applications. (3 hr. lec.)

CE 732. Transportation Systems Analysis. 3 Hr. PR: Consent. Systematic examination of the interaction between transport technology, activity systems, and traffic flows. Quantitative analysis of the relationship among vehicle cycles, networks, congestion, choice behavior, cost functions, and resulting travel-market equilibration. (3 hr. lec.)

West Virginia University Graduate Catalog
CE 744. Industrial and Advanced Waste Treatment. 3 Hr. PR or Conc: CE 540 or consent. Basic physical and chemical unit operations used in industrial and advanced waste treatment; applications for waste water reclamation and reuse; study of industrial wastes from standpoint of process, source, and treatment. (2 hr. lec., 3 hr. lab.)

CE 751. Advanced Mechanics of Soils. 3 Hr. PR: CE 351 and CE 551 and MAE 640 or consent. Stress invariants, stress history and stress path, elastic and quasi-elastic models for soils; soil plasticity, failure theories for soils; critical state soil mechanics, and determination of construction parameters. (3 hr. lec.)

CE 752. Advanced Foundation Analysis. 3 Hr. PR: CE 451 or Consent. Study of soil-structure interaction. Applications of principles of soil mechanics and numerical methods for analysis and design of geotechnical structures: strip footings, axially and laterally loaded piles, braced excavations, sheet pile walls, tunnel lining, and buried pipes and culverts. (3 hr. lec.)

CE 753. Advanced Earthwork Design. 3 Hr. PR: CE 453 or Consent. Application of the principles of theoretical soil mechanics to the design of embankments of earth and rock. In-depth study of compaction theory, stability of natural and man-made slopes by limit equilibrium and deformation considerations. (3 hr. lec.)

CE 754. Groundwater and Seepage. 3 Hr. PR: Consent. Flow of groundwater through soils and its application to the design of highways and dams and to construction operations. Emphasis is placed on both the analytical and classical flow net techniques for solving seepage problems. (3 hr. lec.)

CE 755. Soil Dynamics. 3 Hr. PR: CE 550 and Consent. Consideration of the simple damped oscillator, wave propagation in elastic media, dynamic field and laboratory tests, dynamic soil properties, and foundation vibrations. Introduction to geotechnical aspects of earthquake engineering. (3 hr. lec.)

CE 760. Finite Element Methods in Structural Analysis. 3 Hr. PR: CE 561 or consent. Relationships of elasticity theory; definitions and basic element operations; direct and variational methods of triangular and rectangular elements related to plane stress, plane strain, and flat plates in bending; variational principles in global analysis. (3 hr. lec.)

CE 761. Bridge Engineering. 3 Hr. PR: CE 561 or Consent. Statically indeterminate trusses, continuous trusses; steel and concrete arches; long-span and suspension bridges; secondary stresses. (3 hr. lec.)

CE 763. Behavior of Steel Members. 3 Hr. PR: CE 463 or Consent. Elastic behavior of steel members subjected to axial load, bending, and torsion. Elastic and inelastic response of beams, columns, and beam-columns to load and the resulting design implications. Comparison with standard steel codes and specifications. (3 hr. lec.)

CE 765. Structural Design for Dynamic Loads. 3 Hr. PR: CE 563 or Consent. Nature of dynamic loading caused by earthquakes and nuclear weapons blasts; nature of dynamic resistance of structural elements and structural systems; criteria for design of blast-resistance and earthquake-resistant structures; simplified and approximate design methods. (3 hr. lec.)

CE 767. Behavior of Reinforced Concrete Members. 3 Hr. PR: CE 462 or consent. Studies of actual member behavior; members in flexure, combined flexure, shear, and torsion; bond and anchorage; combined axial load and flexure; slender columns; deep beams; derivation of current code provisions. (3 hr. lec.)

CE 768. Behavior/Design of FRP Members. 3 Hr. PR: Consent. Studies of fiber reinforced polymer (FRP) composite member behavior including rebars and wraps for concrete, under flexure, axial, shear forces, and combined effects; design, durability, and rehabilitation of FRP members and systems including field applications.
CE 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of civil engineering. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

CE 791 A-Z. Advanced Study. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CE 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

CE 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CE 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

CE 795: Independent study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CE 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CE 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project or a dissertation. (Grading may be S/U.)

CE 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

CE 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

CE 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graded credit toward a degree program.

Classics (CLAS)

CLAS 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of classics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

CLAS 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CLAS 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.
CLAS 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CLAS 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

CLAS 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CLAS 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of classics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

CLAS 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CLAS 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

CLAS 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CLAS 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

CLAS 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CLAS 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CLAS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

CLAS 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

CLAS 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

CLAS 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

Communication Studies (COMM)
COMM 509. Health Comm Dissemination. 1-3 Hr. PR: COMM 409. Focus on effective dissemination of health messages. Students communicate outcomes of health communication campaigns conducted in previous classes to diverse external publics; could include presentations to conferences, community groups, schools, workshops.
COMM 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of topics not covered in regularly scheduled courses.

COMM 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

COMM 600. Communication in the Classroom. 3 Hr. PR: Teaching experience or consent. Role of interpersonal communication in classroom environment with particular emphasis on communication between students and teachers. Recommended for elementary, secondary, and college teachers in all fields.

COMM 602. Interpersonal Communication: Theory and Research. 3 Hr. Survey of the theory and research in interpersonal communication. Emphasis upon relational communication and intimate communication in interpersonal relationships.

COMM 603. Communication Training and Development. 3 Hr. This applied graduate course provides the student, who has a background in human communication theory and research, an introduction to communication training and development issues, procedures, assessment, and presentational skills.

COMM 604. Theory and Research in Persuasion. 3 Hr. Various theories and principles of persuasion with emphasis on contemporary research literature.

COMM 605. Theory and Research in Mass Communication. 3 Hr. Mass communication from a consumer's viewpoint. Use of consumer-oriented mass media research also stressed.

COMM 606. Theory and Research in Organizational Communication. 3 Hr. Contemporary research linking communication variables and networks to organizational change, effectiveness, leadership, power, and management practices. Analysis of communication problems within a variety of organizations.

COMM 607. Theory and Research in Language. 3 Hr. Study of verbal interactions and language from source and perceived perspectives.

COMM 608. Nonverbal Communication. 3 Hr. Examines the impact of nonverbal communication on the communication process. Attention is given to research on non-language aspects of communication and their application to various contexts.

COMM 609. Communication Apprehension and Avoidance. 3 Hr. Theory and research related to individuals' predispositional and situational tendencies to approach or avoid communication. Emphasis on work in the areas of willingness to communicate, communication apprehension, reticence, and shyness.

COMM 612. Small Group Theory and Practice. 3 Hr. Specific research areas in interpersonal communication with emphasis on small groups.

COMM 615. Media in Communication and Education. 3 Hr. Use of the media in educational and other communication environments with emphasis on communication processes and principles relevant to television and film.

COMM 616. Communication in the Educational Organization. 3 Hr. Problems of communication within educational organizations with emphasis on elements that impact educational change, conflict management, and interpersonal influence. Recommended for elementary, secondary, and college teachers in all fields.
COMM 617. Communication Problems of Children. 3 Hr. (Primarily for elementary and secondary school teachers and language arts supervisors.) Normal maturational development of listening and speaking skills, their relationships to language acquisition, and influence upon achievement.

COMM 619. Communication and Affect in Instruction. 3 Hr. PR: Graduate status. This advanced graduate course examines the influence of teachers’ communicative behaviors on student learning, student communication, and the classroom climate.

COMM 622. Gender and Communication. 3 Hr. This graduate course will review contemporary and historical communication issues about sex, gender, and communication. Nonverbal communication, friendship, romantic family, educational, organizational, and media impacts will be reviewed.

COMM 623. Leadership. 3 Hr. Leadership styles, models and theories in classical and contemporary settings are covered. Emphasis is given to leadership in groups and organizations.

COMM 624. Communication Ethics. 3 Hr. This course focuses on communication ethics with a particular emphasis on communication ethics in the organizational context. Communication issues and situations are explored from various ethical perspectives.

COMM 625. Computer Mediated Communication. 3 Hr. This course explored the relationships between CMC and various aspects of human activity. This course investigates established and emerging CMC-based social, cultural, organizational, and instructional activities.

COMM 626. Intercultural Communication: Theory and Research. 3 Hr. Advanced seminar in communication of various cultures. Special emphasis on research in diffusion of innovations.

COMM 627. Teachers In Film. 3 Hr. This course focuses on how teachers and schools are portrayed in film. Students will use course readings and personal experiences to offer critical analysis of these films.

COMM 629. Health Communication. 3 Hr. Overview of essential concepts and theories needed to understand and evaluate health-related messages in patient-provider relationships, between workers in health care organizations, and in medial related applications.

COMM 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

COMM 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

COMM 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

COMM 695. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.

COMM 697. Research. 1-15 Hr. PR: Consent. Research activities leading to a thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

COMM 700. Survey of Human Communication Theory. 3 Hr. Broad overview of contemporary theories in human communication. Should be taken the first semester of graduate study.
COMM 701. Graduate Research Methods. 3 Hr. Major emphasis on designing and conducting experimental and laboratory research in human communication. Computer applications to social science research also given consideration. Should be taken the first semester of graduate study.

COMM 702. Advanced Interpersonal Communications. 3 Hr. PR: COMM 602. This course examines how interpersonal communication patterns are linked to relational processes, both as influences and outcomes. Emphasis is on in-depth analysis of social science interpersonal research.

COMM 706. Advanced Organizational Communications. 3 Hr. PR: COMM 606. This course provides an overview of the history and development of organizational communication. Additionally, current organizational theories and perspectives are investigated.

COMM 711. Advanced Seminar in Research Methods. II. 3 Hr. PR: COMM 701. Research techniques necessary to conduct original communication research. Emphasis on advanced statistical techniques.

COMM 712. Communication Measurement. 3 Hr. PR: COMM 701. This course investigates measures and instruments used in the field of communication studies. Focus is placed on the creation and validation of communication measures.

COMM 713. Qualitative Research Methods. 3 Hr. Qualitative research methods in human communication and related professional areas with major emphasis on conducting and evaluation qualitative research procedures. Special focus on practical application.

COMM 719. Advanced Instructional Communications. 3 Hr. Examination of issues surrounding instructional communication. Topics include study of history, paradigms, and programmatic areas of research of instructional communication.

COMM 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of communication Studies. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students on assistantships to gain teaching experience. (Grading will be S/U.)

COMM 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

COMM 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

COMM 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

COMM 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

COMM 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

COMM 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

COMM 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
COMM 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

COMM 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

COMM 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition- waived, continuing education courses are graded on satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Community Health Promotion (CHPR)
CHPR 507. Community Health: Human Sexuality. 3 Hr. PR: Consent. Analysis of sex-related issues including parenting, sex education, sexual sanctions, pornography, sexual dysfunction, and sexual variance. Designed for teachers, health professionals, and interested lay people.

CHPR 509. Community Health: Drug Education. 3 Hr. PR: Consent. Designed to help students learn appropriate components of a drug education program, gain an understanding of drug taking in this society, and acquire insights into dependent behaviors.

CHPR 604. Advanced School Health. 3 Hr. PR: Admission to the school health master's program. Courses addresses the teacher’s role in organizing and implementing comprehensive school health programs at the elementary and secondary levels. Additional attention is paid to providing instruction specific to the health educator skills and standards.

CHPR 612. Social and Behavioral Theory. 3 Hr. The focus of this course is on the role of individual behavior in attaining health. Integration of the concepts of health education and behavioral science to facilitate changes in health behavior is addressed.

CHPR 613. Certified Health Education Specialist. 1 Hr. This course addresses competencies of a certified health education specialist (CHES), and prepares students for the national credentialing exam.

CHPR 614. Injury Prevention and Control. 3 Hr. The injury control problem is examined as a public health concern. Strategies and programs for injury prevention are studied for implementation with target groups who are over represented within the injury problem.

CHPR 633. Foundations of Wellness. 3 Hr. Wellness is examined as a component of health promotion. A wellness lifestyle is fundamental to promoting a holistic wellness concept. Quality-of-life issues and programs are explored for a variety of audiences.

CHPR 634. Health Promotion Research Methods. 3 Hr. PR: CHPR 612. This course is designed to introduce students to the basic elements of conducting effective evaluation of health promotion programs.

CHPR 635. Management for Community/Public Health. 3 Hr. PR: CHPR 612 and PUBH 601. The course provides students with the essential skills to be effective managers in the community and public health environment.
CHPR 638. Community Health Assessment/Evaluation. 3 Hr. PR: CHPR 612 and PUBH 601. This course is designed to convey theory and practice for developing health promotion programs. The course addresses assessment and evaluation principles appropriate to a wide range of health promotion programs.

CHPR 640. School Health Program Design. 3 Hr. PR: Admission to school health master’s program. Course provides a practical application experience for students to design a health education course curriculum, demonstrate classroom teaching, and self-evaluate their own teaching.

CHPR 642. Grant Writing for Public Health Research. 3 Hr. PR: CHPR 612. This course addresses various components of the grant writing process, including collaboration, funding sources, proposal preparation, and grants management for the health professional.

CHPR 648. Intervention Design. 3 Hr. PR: CHPR 638. Students will apply information learned in CHPR 638 and other foundation courses in designing a health promotion intervention for a health agency or enterprise. Students will defend their intervention before their faculty committee.

CHPR 650. Practicum. 1-12 Hr. PR: Consent. Students are assigned to a field placement based on prior health promotion work experience. Under the supervision of faculty, students assume major responsibility for a program with a community health promotion organization. (Grading may be S/U.)

CHPR 655. Intro to Health Promotion. 3 Hr. The course provides an overview of the health promotion/health education profession. Course material will assist health education/health promotion professionals-in-training to identify and pursue career goals.

CHPR 671. Community Health. 3 Hr. This course provides health educators with an introduction to community health focusing on organization, resources, programming, and special populations.

CHPR 680. School Health Concepts. 3 Hr. Addresses content areas for health education, the national health education standards, the CDC adolescent risk factors, and healthy people 2010 objectives as applicable to: emotional health, injury prevention, disease and nutrition and physical activity.

CHPR 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of community health promotion. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

CHPR 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CHPR 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CHPR 695. Independent Study. 1-6 Hr. Faculty supervised topics not available through regular course offerings.

CHPR 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or dissertation. (Grading may be S/U.)

CHPR 782. Supervised Applied Health Education Project. 1 Hr. PR: Advanced graduate standing or consent. Doctoral students only. Plan and conduct a health education intervention in other than a classroom setting, i.e., a defined community.
CHPR 783. Supervised Health Education Research Report. 1 Hr. PR: Advanced graduate standing and consent. Doctoral students only. A written report of empirical research of either a survey or an experiment.

CHPR 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of health-related learning experiences. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

CHPR 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses. Study may be independent or through specially scheduled lectures.

CHPR 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

CHPR 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CHPR 794. Seminars. 1-6 Hr. Seminars arranged for advanced graduate students.

CHPR 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CHPR 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CHPR 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis (697), problem report (697), research paper or equivalent scholarly project (697), or a dissertation (797). (Grading may be S/U.)

CHPR 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

CHPR 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in the department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

CHPR 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) These continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

CHPR 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.
Community Medicine (CMED)
CMED 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CMED 695. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.

CMED 697. Research. 1-15 Hr. PR: Consent. Research activities leading to a thesis, problem report, research paper, or equivalent scholarly project.

CMED 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

CMED 712. Medical Aspects of Environmental Health. 1 Hr. PR: MD degree or consent. A review of issues illustrating the responsibilities and professional interaction of physicians in identifying, managing, and preventing casualties from environmental causes in air, water, soil, food, pesticides, and related subjects. (1 hr. lec.)

CMED 750. Statistics Biomedical Sciences. 1 Hr. This introductory biostatistics course for biomedical graduate students covers variables and descriptive statistics as well as parametric and non-parametric statistics.

CMED 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of anatomy. (Grading may be S/U.)

CMED 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CMED 792. Directed Study. 1-6 Hr. PR: Consent. Directed study, reading, and/or research.

CMED 793. Special Topics. 1-6 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field.

CMED 794. Seminar. 1-6 Hr. PR: Consent. Seminars arranged for advanced graduate students.

CMED 795. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.

CMED 796. Graduate Seminar. 1 Hr. PR: Consent. A one credit hour seminar is designed to assist students in identifying their career objectives and exploring opportunities to achieve their career objectives.

CMED 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project or a dissertation. (Grading may be S/U.)

CMED 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

CMED 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework but who wish to meet residence requirements, use University facilities, and participate in academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)
Computer Engineering (CPE)
CPE 520. Application of Neural Networks. 3 Hr. PR: Consent. Theories, principles, techniques, and procedures used in design implementation of supervised and unsupervised neural networks. Algorithms and computer programming for software realization with engineering applications.


CPE 536. Computer Data Forensics. 3 Hr. PR: CPE 310 and CPE 435 or Consent. Provides students with a comprehensive overview of collecting, investigating, preserving, and presenting evidence of cybercrime; introduces topics of forensic data examination of computers and other digital storage devices.

CPE 538. Intro Computer Security Management. 3 Hr. Develops management tools to build and maintain a secure enterprise. Includes policies, procedures, and the various management and auditing processes that are needed in a networked enterprise.

CPE 568. Computer Network Forensics. 3 Hr. PR: CS 450 and CS 453 or consent. Introduction to threat assessment in modern networked computer systems. Techniques, methodologies and technologies for preventing, detecting, recovering from and collecting evidence of intrusions, with the intent of prosecuting the offending parties.

CPE 585. Concurrent Programming in Java. 3 Hr. PR: CS 110 and CS 111 and CS 415 or Consent. This is a project-based laboratory-oriented course aimed at learning the fundamentals of componet-based software development (CBD) and object-oriented concurrent programming. (OOCP) in Java.

CPE 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CPE 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.


CPE 670. Switching Circuit Theory 1. 3 Hr. PR: CPE 271 or equivalent. Course presumes an understanding of the elements of Boolean or switching algebra. Study of both combinational and sequential switching circuits with emphasis on sequential networks. Advanced manual design and computer-aided design techniques for single and multiple output combinational circuits. Analysis and design of sequential circuits. Detection and prevention of undesired transient outputs. (3 hr. rec.)

CPE 684. Advanced Real-Time Systems. 3 Hr. PR: CS 415 and CPE 484 or consent. Project-based course focused on analysis and design of real-time systems using the Unified Modeling Language. Object-oriented development process based on design patterns and frameworks is described.

CPE 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CPE 695. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.
CPE 697. Research. I, II, S. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

CPE 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

CPE 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of computer engineering. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

CPE 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CPE 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

CPE 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CPE 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

CPE 795. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.

CPE 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CPE 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

CPE 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

CPE 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

**Computer Science (CS)**

CS 510. Formal Specification of Language. 3 Hr. PR: CS 410 Specifications of language syntax and semantics by grammars and automata and by attribute grammars, denotational semantics, and action equations; algebraic, denotational, and operational semantics; application of formal specifications to construction of software tools.
CS 520. Advanced Analysis of Algorithms. 3 Hr. PR: CS 320. Analysis and design techniques for efficient sequential and parallel algorithm design; NP-completeness, advanced analysis techniques, advanced algorithms, and parallel algorithms.

CS 525. Computational Complexity. 3 Hr. PR: CS 422. Introduction to the theory of computational complexity. Topics include: Turning machines, computability, complexity classes P, NP, and co-NP, the theory of NP_completeness, randomized complexity classes, inapproximability, complexity classes beyond NP.

CS 530. Formal Methods in Software Engineering. 3 Hr. PR: CS 430. Principles of rigorous specification, designing, implementation, and validation of sequential, concurrent, and real time software; emphasis on reading current papers on these topics.

CS 533. Developing Portable Software. 3 Hr. PR: CS 330 and CS 450 or Consent. Issues, problems, and techniques in the practical development of portable software and in the adaptation of programs to new environments; development of a simple interactive application; porting to several diverse computing platforms.

CS 539. Computer Forensics & the Law. 3 Hr. PR: CPE 435. Surveys the emerging field of computer law and how it applies to businesses and law enforcement, both to aid and to circumscribe the policies and procedures to tackle computer crime.

CS 540. Theory of Database Systems. 3 Hr. PR: CS 440. Abstract and newer database models; introduction to database design techniques in the context of semantic data modeling; equivalence of different relational models; object-oriented databases.

CS 550. Theory of Operating Systems. 3 Hr. PR: CS 450. Theoretical analysis of selected aspects of operating system design; topics include interaction of concurrent processes; scheduling and resource allocation; virtual memory management; access control; and distributed and real time system issues.

CS 554. Network Computing. 3 Hr. PR: CS 540 or Consent. An in-depth study of the Internet, networking fundamentals, protocols, algorithms, and principles of distributed computing, introduction to network security and management.

CS 555. Advanced Computer Systems Architecture. 3 Hr. PR: CS 455 or CPE 442. High performance techniques, pipelined and parallel systems, and high-level architectures; comparative evaluation of architectures for specific applications; emphasis on software implications of hardware specifications.

CS 556. Distributed & Pervasive Compt. 3 Hr. PR: CS 350 or Consent. An in-depth study of distributed computing paradigms, standards, and applications that can exploit this paradigm and the emerging pervasive computing infrastructure.

CS 558. Multimedia Systems. 3 Hr. PR: CS 350 or EE 465 or consent, requirements and QOS; multimedia data acquisition, object decomposition, multimedia storage servers; multimedia communications-networking, traffic characterizations, traffic scheduling, multi-casting; compression of images, video and audio; multimedia information systems-indexing and retrieval of multimedia data.

CS 568. Computer Network Forensics. 3 Hr. PR: CS 450 and CS 453 or consent. Introduction to threat assessment in modern networked computer systems. Techniques, methodologies and technologies for preventing, detecting, recovering from, and collecting evidence of intrusions, with the intent of prosecuting the offending parties.

CS 570. Interactive Computer Graphics. 3 Hr. PR: CS 320. Viewing in three dimensions, projections, rendering of surfaces and solids, illumination and shading, interaction handling, display processors and programming systems, and graphics system organization.
CS 572. Advanced Artificial Intelligence Techniques. 3 Hr. PR: CS 472. Reasoning under uncertainty; nonmonotonic reasoning, statistical reasoning, fuzzy logic; planning, parallel, and distributed AI, natural language processing, learning, connectionist models, temporal logic, common sense knowledge and qualitative reasoning, AI techniques and robotics.

CS 573. Advanced Data Mining. 3 Hr. PR: CS 230 and CS 350 or equivalent. We present the theory practice of industrial data mining. Combining pragmatics with theory, students will learn to select appropriate data mining methods for individual applications. Graduate students will learn to conduct data mining experiments.

CS 578. Medical Image Analysis. 3 Hr. PR: EE 465 or equivalent. Advanced topics in medical image analysis, with focus on image restoration, segmentation, registration and visualization.

CS 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CS 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CS 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CS 601. Foundations of Software Engineering. 3 Hr. For CS provisional graduate students only. Object-oriented programming concepts applied to data structures such as queues, lists, trees, techniques, and methods of developing software.

CS 602. Foundations of Algorithms. 3 Hr. For CS provisional graduate students only. Topics from discrete mathematics including sets, relations, functions, counting principles, graphs and trees, topics from analysis of algorithms including recurrences, sorting, graph and greedy algorithms, and advanced data structures.

CS 604. Semantics of Programming Languages. 3 Hr. For CS provisional graduate students only. Operating systems, machine organization, number systems and the theoretical and practical aspects of assembler and other programming languages.

CS 665. Computer System Security. 3 Hr. PR: CS 465 or Consent. Course describes modern approaches to information and system security including encryption techniques, secure communication protocols, operating system security principles, and network intrusion detection techniques.

CS 689. Graduate Internship. 1-3 Hr. PR: Completion with 3.0 GPA or better of at least 18 credits of graduate study applicable toward degree requirements. Employments in industry related to degree program. (Graded S/U. May be repeated twice. Cannot be counted toward graduating requirements.)

CS 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practices in college teaching of computer science. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

CS 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CS 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
CS 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CS 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

CS 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

CS 726. Algorithmic Graph Theory. 3 Hr. PR: CS 520 or Consent. Introduction to algorithmic graph theory with emphasis on special classes of graphs, graph structure, efficient combinatorial algorithms, graph compositions/decompositions, and graph representations, current research development trends and open questions on structured families and graphs.

CS 727. Information Dissemination. 3 Hr. PR: CS 520. Research issues in information dissemination in graphs; emphasis on broadcasting and gossiping algorithms, including identification and solution of open research questions.

CS 736. Software Performance Engineering. 3 Hr. PR: CS 330 or Consent. A systematic, quantitative approach to cost-effectively constructing software systems that meet performance models, and effective data gathering and performance measurement techniques.

CS 740. Advanced Databases Theory. 3 Hr. PR: CS 540. Design theory for relational databases; functional dependencies; multivalued dependencies and normal forms; projection mappings, tableaux and the chase; representation theory.

CS 750. Secure and Survivable Systems. 3 Hr. PR: CS 680 or Consent. An in-depth study of principles, standards, practices, and architectures in the area of secure and survivable systems. Case studies, simulations, and games will be used to gain deep understanding of the issues.

CS 751. Digital Enterprises. 3 Hr. PR: CS 680 or Consent. An in-depth study of principles, standards, practices, and architectures in the area of digital enterprise. Case studies, and simulations will be used to gain deep understandings of the issues.

CS 757. Distributed Systems and Algorithms. 3 Hr. PR: CS 320 and CS 550. Distributed and networked operating systems and the algorithms necessary to achieve such goals as transparency, sharing, fault tolerance, and efficient process and task scheduling.

CS 772. Global Knowledge Networks. 3 Hr. PR: CS 572. Representational formalisms and effective retrieval techniques to obtain information from international knowledge repositories connected via high-speed networks.

CS 778. Medical Image Analysis. 3 Hr. Advanced topics in medical image analysis, with focus on image restoration, segmentation, registration and visualization.
CS 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of computer science. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

CS 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses. Study may be independent or through specially scheduled lectures.

CS 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

CS 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CS 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

CS 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CS 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CS 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

CS 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

CS 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

CS 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education community health, geology). The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

CS 930. Professional Development. 1-6 Hr. Professional development courses provides skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived, continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.
Conjoined Courses (CCMD)

CCMD 712. Public Health. 4 Hr. PR: Medical students or with permission of instructor. Introduction to causal inference, study design, common statistical tests, interpretation of epidemiological studies (chance, bias, confounding), occupational health, health care systems, administrative aspects of health care, preventive medicine, social influences on health, and international health.

CCMD 713. Health of the Public. 2 Hr. PR: Medical student or consent. An introduction to public health with an emphasis on West Virginia. Topics include occupational and environmental health, preventive medicine, social and behavioral aspects of health, and health services administration and management.

CCMD 721. Physical Diagnosis/Clinical Integration 2. 6 Hr. PR: Medical students only. This course will introduce clinical medicine topics, organized by organ system, as well as emphasize history and physical exam skills. Students will begin to use clinical reasoning techniques, integrating basic science and clinical knowledge. (Grading will be S/U.)

CCMD 722. Physical Diagnosis/Clinical Integration 2. 4 Hr. PR: CCMD 721. Continuation of CCMD 721. Students will build on skills and techniques learned in CCMD 721.

CCMD 725. Health Care Ethics. 2 Hr. For medical students only. Integrated approach to medical-ethical, legal, and spiritual aspects of health care. Includes lectures about basic principles and concepts, small-group discussion of cases, and large-group interactive case discussions.

CCMD 730. Human Function. 16 Hr. PR: For medical students and selected graduate students with instructor consent. Integrated approach combining biochemistry, genetics and physiology of the human body. Includes molecular, subcellular, and cellular components of the body, organ systems and whole body functions. Application of basic sciences to human health and disease. (Lec. 14 hr., other 2 hr., contact 16 hr.)

CCMD 740. Behavioral Science and Psychopathology 1. 5 Hr. This course will introduce students to the biological, psychological, social, and spiritual dimensions of health care will be explored in the context of health care decision making.

CCMD 741. Behavioral Science and Psychopathology. 5 Hr. PR: CCMD 741. Continuation of CCMD 740. Students will build on skills and techniques learned in CCMD 740.

CCMD 745. Physical Diagnosis/Clinical Integration 1. 3 Hr. This course will introduce the student to persons with health concerns. Students will begin development of skills of medical communication, data gathering, and physical examination techniques. (Lec. 5 hr., other 2 hr., contact 7 hr.)

CCMD 746. Physical Diagnosis/Clinical Integration 1. 3 Hr. PR: CCMD 745. Continuation of CCMD 745. Students will build on skills and techniques learned in CCMD 745.

CCMD 750. Radiation Safety and Radionuclide Usage. 1-2 Hr. PR: PHYS 101 and PHYS 102, CHEM 115 and CHEM 116, or consent. Chemical, physical, and biological aspects of radiation; safety; handling and storage of radioactive materials; NRC and WVU regulations and licensing; detection and instrumentation, research, and clinical use of radioisotopes.

CCMD 770. Medical Genetics. 2-4 Hr. PR: Second-year medical student standing; graduate student in genetics and developmental biology; others by consent. Introduction to clinical genetics including molecular, biochemical, and cytogenetic aspects of human biology. Application of genetic principles to human health and disease. (Also listed as GEN 570.)
CCMD 775. Neurobiology. 6 Hr. PR: CCMD 730 and NBAN 703 or consent. Introduction to structure and function of the human nervous system with a focus on clinical application of basic science. Emphasis is on normal neurobiology (at cells/ systems levels) essential to understanding human manifestations of neural pathology.

CCMD 776. Step-1 Board Prep. 2 Hr. Student prepares for USMLE Step 1, requirement for medical licensure, advancement to third year, and graduation. Passing course requires USMLE Step 1 passing score. National Board of Medical Examiners requires students to be enrolled to take USMLE.

CCMD 777. Step-2 Board Prep. 2 Hr. Student prepares for USMLE Step 3, requirement for medical licensure and graduation. Passing course requires USMLE Step 2 passing score. National Board of Medical Examiners requires to be enrolled to take USMLE.

CCMD 778. Professional Development. 2 Hr. Medical students explore clinical and research applications in variety of disciplines to enhance knowledge and skills related to future medical career paths. Assessment based on satisfactory completion of project as determined by supervising faculty member.

CCMD 779. Clinical Performance Exam. 1 Hr. The Clinical Performance Examination (CPX) assesses the clinical competency of fourth-year medical students based on the first three years of the curriculum. Successful completion of the CPX is a graduation requirement of the MD degree.

CCMD 788. Selective Experiences in Medicine. 6 Hr. PR: satisfactory completion of the first three years of medical curriculum. The fourth year offers a wide range of opportunities. A one-month rotation in critical care, surgical subspecialty either a medicine, family medicine, or a pediatric subinternship and two months of a rural primary care rotation are all required in the fourth year. The student works with an advisor to select the remainder of the individual program. This program must also be approved by the associate dean in the Office of Student and Curricular Affairs. The year is composed of ten one-month blocks, four months of which must be spent in programs in West Virginia. Selections are available in all departments within the School of Medicine. A catalog is available that list the specific guidelines for the fourth-year curriculum.

CCMD 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of conjoined courses. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

CCMD 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CCMD 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

CCMD 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CCMD 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

CCMD 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CCMD 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.
CCMD 796. Graduate Seminar. S. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CCMD 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

CCMD 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

CCMD 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Counseling (COUN)
COUN 501. Counseling Theory and Techniques 1. I, 3 Hr. PR: Consent. Development and application of basic counseling skills including interviewing, clinical observations, and a general orientation to counseling theory and settings. Evaluation will be based on strengths and deficits in intra- and interpersonal skills and on demonstration of counseling skills in checkout situations. In-setting laboratory experience required.

COUN 505. Theory and Practice of Human Appraisal. 3 Hr. An overview of standardized evaluation methods commonly utilized in educational and rehabilitation settings. Experience is provided in selection, administration, ethical standards, and interpretation of selected instruments.

COUN 536. Theories of Human Development. 3 Hr. Theory and research on emotional, social, and intellectual development over the life span. Emphasis on application of developmental theories within educational and therapeutic settings.


COUN 608. School Counseling Services. 3 Hr. PR: Consent. Applications of counseling theories and techniques appropriate to the school counseling setting will be explored. Students will develop needs assessments, review legal and ethical issues related to schools, and develop a professional school counseling portfolio.

COUN 609. Group Counseling Theory and Techniques. 3 Hr. PR: COUN 606 and consent. Theories of group counseling and demonstrations of specific group techniques. Ethical standards. Evaluation will be based on expertise in group facilitation.

COUN 620. Lifespan Career Counseling. 3 Hr. PR: COUN 505. Principles and methods involved in career counseling with diverse populations. Emphasis on theories of career development and life-style planning, career choices, and lifelong work adjustment.

COUN 622. Community Counseling. 3 Hr. PR or CONC: COUN 501 or Consent. Role and function of the community agency counselor; DMS categories and ethical standards, cognitive skills and practical experience necessary to understand client populations served by community agencies.
COUN 630. Counseling Children and Adolescents. 3 Hr. PR: COUN 501 and PR or CONC: COUN 606 and Consent. Practical application of the principles of counseling to the elementary and high school age population. Emphasis on developmental stages, diversity, and ethics.

COUN 632. Counseling Adolescents and Adults. 3 Hr. PR: COUN 501 and PR or CONC: COUN 606 or Consent. Techniques and models that apply to the counseling of adolescents and adults. Emphasis will be given to stages of adolescents and adult development, ethical standards, diversity, and implications for behavior. Demonstration of counseling with adolescents and adults is required.

COUN 634. Cultural Issues. I, S. 3 Hr. PR: Program major or Consent. The impact of cultural differences on the counseling process; including gender, race, ethnicity, socioeconomic status, and counseling styles will be discussed. Racial identity development models will be discussed. Group and experiential activities are required.

COUN 640. Addictions Counseling. 3 Hr. PR: COUN 501 and PR or CONC: COUN: 606 or Consent. Specific techniques and models that apply to counseling the addicted client will be explored. Chemical addictions, food addictions, relationship addictions, sexual addictions, and ethics will be addressed. Demonstration of counseling clients with various addictions is required.

COUN 645. Couples and Family Counseling. 3 Hr. PR: COUN 501, COUN 606 or Consent. Techniques and methods of couples and family counseling. Emphasis on ethics, diversity, theory and practice of couples and family counseling. Demonstration of counseling skills for couples and families is required.

COUN 660. Field Experience in School Counseling. 3 Hr. PR: COUN 606 and COUN 630 and COUN 632 and PR or CONC: COUN 685 and Consent and course enrollment in the Alternate School Counseling Program. Classroom-based field experience for school counseling majors enrolled in alternative certification programs. A review of classroom curriculum for elementary and secondary grades. Course will be graded on a satisfactory/unsatisfactory basis.

COUN 662. Grief Counseling. 1 Hr. PR: Graduate standing. An overview of grief counseling. Stages and kinds of grief will be discussed. Techniques for counseling with adults and kids will be shown, practiced, and discussed. Videos of actual grief counseling sessions will be presented. Course will be graded on a satisfactory/unsatisfactory basis.

COUN 663. Counseling with Sexual Orientation. 1 Hr. PR: Graduate standing. An overview of psychological, sociological and political aspects of sexual orientation as they impact counseling. Particular attention will be given to awareness and sensitivity toward gay and lesbian clients and effective intervention and education. Course will be graded on a satisfactory/unsatisfactory basis.

COUN 664. Ethical Issues in Counseling. 3 Hr. PR: COUN 501 and COUN 606. Surveys the legal and ethical issues and professional ethics codes in the counseling profession. Ethical principles applied to schools, agencies, and private practice. Meets ethics content requirement for the LPC.

COUN 665. Abnormal Behavior. 3 Hr. PR: COUN 536 and COUN 606. Framework for exploring the range of personality and behavioral disorders as described in the DSM-IV-TR. Focus on: Descriptive criteria, etiology, assessment, diagnosis, multicultural considerations, psychotropic treatments of, and understanding of the major diagnostic categories.

COUN 667. Crisis Counseling. 1 Hr. An overview of crisis counseling. Models and types of crisis counseling will be discussed. Techniques for counseling children and adults in crisis will be shown, discussed and practiced.
COUN 685. Practicum. 1-12 Hr. PR: Pre-registration; liability insurance; cleared for internship at close of semester, or a M.A. degree, and consent of department practicum evaluation committee. An intensive supervised practical experience in public schools or agencies, in counseling with individual critique and appropriate small-group experiences. Demonstration of high professional standards, counseling skills, and personal characteristics appropriate to the counseling relationship are essential. (Due to the limited number of summer sites, there can be no guarantee of summer practicum placement.) [Practicum is a prerequisite for internship placement. Internship is a one-semester, minimum four-day per week field experience following practicum. This two-semester sequence replaces the previous one-semester practicum.]

COUN 686. Counseling Internship. 1-12 Hr. PR: Pre-registration, completion of COUN 585 Practicum and consent of department field work coordinator. A full-time supervised field experience. Demonstration of counseling program management skills and ethical conduct is required. ACA Ethical Behavior Standards will be used to determine appropriate professional conduct.

COUN 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

COUN 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

COUN 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

COUN 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

COUN 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Counseling Psychology (CPSY)
CPSY 701. Advanced Counseling Psychology Interventions. 3 Hr. PR: Advanced standing and COUN 501 and COUN 606 and COUN 685 or equiv and Consent. Comprehensive development of counseling psychology techniques related to generic and specific theoretical models. In-setting laboratory experience and demonstration of therapy techniques required.

CPSY 709. Advanced Group Counseling / Therapeutic Interventions. 3 Hr. PR: COUN 609 or equiv and Consent. An overview of the formation, leadership techniques, research and ethical issues associated with group counseling and psycho-therapy in general and for specific populations. (Lec.)

CPSY 734. Multicultural Psychology. 3 Hr. PR: CPSY advanced standing and CPSY 701. Interactive effects of cultural factors (race, ethnicity, gender, sexual orientation, social status, religious affiliation) as they relate to counseling psychology practice, competencies and roles. (Alternate years.)

CPSY 735. Social Psychology. 3 Hr. Classic and contemporary readings/research in social psychology emphasizing the interface of social and counseling psychology and integrating social psychology and counseling psychology practice. Uses a student-centered model with emphasis on student-led discussion and demonstrations.
CPSY 738. Life Span Psychology. 3 Hr. PR: CPSY 763. Overview of developmental psychology focusing on the physical, cognitive, emotional and social domains applied to the professional practice of psychology across the lifespan.

CPSY 740. Assessment of Psychopathology. 3 Hr. PR: CPSY 701 and CPSY 769. Assessment and diagnosis of psychopathology, integration of case data, treatment planning from a developmental, multicultural perspective with emphasis on ethical and socially responsible interventions, collaboration of counseling psychology with other health care providers.

CPSY 745. History and Systems of Psychology. 3 Hr. PR: CPSY 701 and CPSY 760. History of modern psychological thought and methodology including the social, political, philosophical, and cultural factors influencing the major schools and systems of psychology, particularly in relationship to counseling psychology.

CPSY 750. Physiological Psychology. 3 Hr. PR: CPSY 701 and CPSY 760. Survey of neuroanatomical, neuroendocrinological mechanisms underlying psychological and behavioral processes. Motor, sensory, perceptual, behavioral, cognitive, and affective functional systems will be studied. Relevance to normal and pathological development will be reviewed.


CPSY 760. Introduction to Counseling Psychology. 3 Hr. PR: Consent. Overview of history, current status, and future trends associated with counseling psychology as a specialty area. Includes an introduction to counseling psychology research topics and practices.

CPSY 763. Advanced Theories of Counseling Psychology. 3 Hr. PR: COUN 606 and COUN 685, or equivalent, admission to post-master’s graduate study; and consent. A comprehensive study of the theoretical issues in contemporary counseling.

CPSY 764. Intellectual Assessment. 4 Hr. PR: Advanced standing, COUN 505 and pre-registration with instructor. Administering, scoring, and interpreting individual intelligence tests.

CPSY 766. Vocational Theory and Assessment. 3 Hr. PR: COUN 620 or equivalent, advanced standing, or Consent. Advanced study of theory development and research in vocational psychology and counseling; emphasis on counseling psychology, women’s issues, and cross-cultural counseling.

CPSY 769. Personality Testing and Interpretation. 3 Hr. PR: COUN 505 and Consent. Advanced study in the application of personality assessment procedures and consideration of alternative methods for measuring human behavior.

CPSY 770. Doctoral Practicum in Counseling Psychology. 1-9 Hr. PR: CPSY 701 and CPSY 769 and CPSY 780 or equivalent and completed doctoral practicum application (due by March 1 of semester year preceding initial semester), and consent. Intensive clinical experience in which students, under supervision, see clients for individual and group counseling and psychotherapy. Offered at a variety of approved field-based sites. (Practicum.)

CPSY 772. Internship. 1-12 Hr. PR: Written approval from the Department Internship Committee, satisfactory completion of written doctoral comprehensive exams and approval of research prospectus. Full-time supervised practice in an approved counseling psychology internship training program; minimum duration one academic year.
CPSY 780. Professional and Ethical Issues in Counseling Psychology. 3 Hr. PR: Advanced standing and Consent. Overview of current ethical, legal, and professional issues in counseling psychology. Readings, discussion, and a written literature review of a topic related to the practice of counseling psychology.

CPSY 782. Research Practicum in Counseling Psychology. 1-6 Hr. PR: Consent. The conduct of a descriptive or an experimental study. An overview of research design, statistical procedures, potential violations of ethical principles in the conduct of research. (1-6 hr. practicum.)

CPSY 783. Counseling Psychology Supervision Models. 3 Hr. PR: CPSY 701 and CPSY 780 and at least one semester of CPSY 770 or equiv, and Consent. Overview of major assumptions and techniques of major counseling supervision models. Training activities include simulated and actual demonstrations of each of the supervision models and critique of their assumptions, advantages, and constraints.

CPSY 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of counseling psychology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

CPSY 791 A-Z. Advanced Study. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CPSY 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

CPSY 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

CPSY 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

CPSY 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

CPSY 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

CPSY 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

CPSY 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

CPSY 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. NOTE: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)
Curriculum and Instruction (C&I)

C&I 524. Middle School Number/Algebra Teaching 1. 1 Hr. PR or CONC: MATH 524. Issues involved with sets of numbers as examples of algebraic systems, properties of groups, rings and fields. Properties of polynomials and polynomial rings. Mathematical modeling with finite differences and least squares. Applications in model curricula.

C&I 525. Middle School Number/Algebra Teaching 2. 1 Hr. PR or CONC: MATH 525. Continuation of C&I 524. Issues involved with sets of numbers as examples of algebraic systems, properties of groups, rings, and fields. Properties of polynomials and polynomial rings. Mathematical modeling with finite differences and least squares.

C&I 528. Middle School Function/Change Teaching 1. 1 Hr. PR or CONC: MATH 528. Teaching and Learning function concept operations on functions, limits, continuity, Intermediate Value Theorem, families of curves, optimization, area. Classroom applications, current research in learning. Applications in model curricula.

C&I 529. Middle School Functions/Change Teaching 2. 1 Hr. PR or CONC: MATH 529. Continuation of C&I 528. Teaching and learning function concept, operations on functions, limits, continuity, Intermediate Value Theorem, families of curves, optimization, area. Classroom applications, current research in learning. Applications in model curricula.


C&I 533. Corrective Techniques in Mathematics Education. 3 Hr. PR: Consent. Materials and methods used in diagnosis and remediation of learning difficulties in mathematics.

C&I 581. Independent Research in Curriculum Studies. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.

C&I 584. Student Teaching: Elementary-Early Childhood. 2-12 Hr. PR: For elementary and early childhood undergraduates who meet eligibility requirements and other guidelines. (Applicable to preschool, nursery, day care, child care, kindergarten, primary grade, or elementary school.)

C&I 585. Student Teaching: Secondary Education. 2-12 Hr. PR: Students enrolled in secondary education undergraduate programs who meet eligibility requirements and other guidelines.


C&I 588. Professional Field Experience. 2 Hr. Students are placed in classroom settings where they are required to observe classroom teachers and engage in instructional and non-instructional programming.

C&I 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

C&I 592 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

C&I 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

C&I 594 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.
C&I 600. U.S. Education for International Students. 1. 3 Hr. PR: International students with graduate status and developing oral and written English skills. To assist international students in understanding the U.S. system of education. Included: dominant U.S. values related to education; structure of U.S. education at all levels; models and strategies; field trips; international comparisons.

C&I 601. The Elementary-School Curriculum. 3 Hr. PR: 20 hours of undergraduate credit in elementary education, or consent. Analysis of curriculum designs in elementary education with emphasis on methods and techniques of development.

C&I 602. Curriculum & Teaching Principles. 3 Hr. This course will give the student a basic foundation in the principles, development, and design of curriculum and teaching models.

C&I 604. School Curriculum. 3 Hr. PR: Teaching experience or consent. Emphasizes socioeconomic and cultural influences on curriculum; principles of curriculum development; curriculum building in various teaching fields; techniques of experimentation and evaluation.

C&I 605. 21st Century Teaching/Learning. 3 Hr. Interdisciplinary content if a 3 credit hour course. This course examines new and emerging technologies as they relate to classroom integration and pedagogy.

C&I 606. Curriculum for Middle Childhood. 3 Hr. Survey course which includes: historical, social, and cultural influences on the curriculum; the learner characteristics; curriculum and instructional organization and their relationship to facilities available; evaluation and implementation of middle childhood curriculum.

C&I 608. Introduction to Alternative Learning Environments. 1. 3 Hr. This course will provide opportunities for educators to explore and analyze the trends and issues in alternative learning environments in public education.

C&I 609. Experiences in Alternative Learning Environments. 1. 6 Hr. PR: C&I 608 and SCFD 620 and consent. This course helps teachers to learn and practice skills that are needed to be an effective teacher in an alternative teaching environment. (Alternate years.)

C&I 612. Early Childhood Curriculum. 1. 3 Hr. PR: C&I 410 and C&I 411 or consent. Curriculum development for early childhood education Pre-K to 4th grade, including social, creative, cognitive, physical, and academic goals. Societal, historical, and theoretical influences on early childhood curriculum are examined.

C&I 614. Early Childhood Instruction. 3 Hr. PR: C&I 410 and C&I 411 or consent. Design of instruction for continuous improvement toward mastery of curriculum goals for early childhood education Pre-K to 4th grade.

C&I 616. Early Childhood Program Development and Evaluation. 1. 3 Hr. PR: C&I 410 and C&I 411 or consent. Development, administration, and evaluation of facilities, programs, and support systems for early childhood education Pre-K to 4th grade. Includes a focus on family connections and support systems related to early childhood classrooms.

C&I 617. Language Arts in Early Childhood. 1, II. 3 Hr. Designing instruction for an integrated development of writing, reading, speaking and listening with an emphasis on literacy acquisition in early childhood education Pre-K to 4th grade.

C&I 618. Storytelling in Early Childhood. 1, II. 3 Hr. This course will assist students in telling, reading, and creating stories for children. Techniques, methods, and research effective in the art of storytelling will be examined and applied as they relate to total child development.
C&I 623. Contemporary Issues in English Education. I. 3 Hr. PR: Graduate standing. Provides the student with a knowledge of several contemporary issues in English teaching that have immediate and long-range ramifications for secondary-school English instruction. (1 hr. lec., 2 hr. sem.)

C&I 624. Advanced Methods in English Education. II. 3 Hr. PR: Graduate standing. (For classroom teachers of English) Will involve an analysis of recent trends and innovations in methodology. Readings and discussions will lead to the development of instructional strategies and units for secondary English classrooms. (1 hr. lec., 1 hr. lab., 1 hr. sem.)

C&I 630. Problem Solving in Math. 3 Hr. A capstone course designed to further develop student’s conceptual understanding of mathematics.


C&I 633. Mathematics in the Junior High School and Middle School. 3 Hr. A methods course designed to teach selected topics including lesson planning, developing appropriate teaching/learning methods and evaluations from middle school mathematics.


C&I 640. Science in the Elementary School. 3 Hr. PR: 20 hr. of undergraduate credit in elementary education, or Consent. Analysis of methods, curriculum patterns, and trends in elementary school science. Understanding and development of scientific attitudes appropriate at the elementary-school level.

C&I 644. Science in the Secondary School. 3 Hr. PR: C&I 444 or appropriate professional experience. Nature and function of science in secondary schools supported by current research and development; includes analysis of structure and practice of science curriculum and instruction issues.

C&I 645. Global Climate Change. 3 Hr. A graduate-level, Web-based course that presents the scientific evidence related to global climate change and the implications for science, technology and society.

C&I 646. Science: Native American Views. 3 Hr. This course examines the science and non-scientific views in areas of health and healing, environment, and technological applications in traditional Native American and Western cultures.

C&I 647. Science & Mathematics Applications for Nutrition & Energy Content. 3 Hr. This course is designed for teachers (4-12) of science or math. The course integrates nutrition and physical activity content applicable to student’s lives.

C&I 648. Science/Technology: Society Perspectives. 3 Hr. Course provides students with an understanding of the characteristic relationships between science, technology, and society. Course examines impacts of these relationships on social and natural communities.

C&I 649. History/Philosophy of Science. 3 Hr. Examines the nature of science and how social forces have interacted with the process of science to promote the dynamic development of the current body of scientific knowledge.
C&I 650. Social Studies in the Elementary School. 3 Hr. PR: 20 hr. of undergraduate credit in elementary education, or Consent. Comprehensive consideration of objectives, content, methods, including unit procedures; materials including objects, models, exhibits, and museum items, as well as textbooks, collateral reading, maps, and graphs; means of evaluating social growth and development.

C&I 654. Social Studies in the Secondary School. S. 3 Hr. PR: Consent. Nature and function of social studies in the secondary school; utilization of community, state, national, and world resources in teaching; selection of content for teaching purposes; curriculum construction with emphasis on resource and teaching units.

C&I 657. Principles of Economic Education. S. 3 Hr. Workshop for principals, teachers, and supervisors with emphasis on the economic structure of our society and methods of integrating economics into the school program. (Sponsored jointly by College of Human Resources and Education and College of Business and Economics.)

C&I 660. Classroom Simulation Techniques. 3 Hr. To provide experience in the use of learning games and simulations as an instructional technique and simulated activities and games to be used in a variety of learning environments. (Alternate years.)

C&I 661. Computers in the Content Areas. I. 3 Hr. Development of extensive curriculum units on the use of computers and other technologies in teaching and learning. Students will inform one another of various uses of computers in learning.

C&I 662. Hypermedia in Learning. 3 Hr. Survey of theory, research, and application of hypermedia and the authoring language—Authorware.

C&I 663. Software Development. II. 3 Hr. Principles and models of software design and the authoring language-HyperCard.

C&I 671. Assessing the Impact of Computer-Based Learning. I. 3 Hr. Survey of the current findings in computer-based learning; couples statistical features and design scenarios.

C&I 677. Children’s Television: Problems and Potentials. S. 4 Hr. PR: Consent. Provides parents and teachers with strategies for monitoring, evaluating, and directing television viewing habits of youth; pertinent research studies, school and community action programs, and home and school education programs are discussed and practiced.

C&I 680. Technology Integration Through Capstone Experience 3 Hr. Capstone for elementary and secondary education programs.

C&I 681. Independent Research in C&I. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

C&I 685. Supervision of Student Teachers. 3 Hr. PR: Consent. For persons working or intending to work with education students in field experiences. Course focuses on the development and application of supervisory skills in effective guidance of student teachers and education students.

C&I 686. Teaching Strategies for Middle Childhood. II, S. 3 Hr. Surveys instructional strategies appropriate for facilitating preadolescent learning. Includes the role of the teacher; how the teacher uses resources within and outside the classroom as they relate to instruction of the learner, age 10-14 years.

C&I 687. Advanced Teaching Strategies. 3 Hr. PR: Graduate standing. Deals with methods as one critical variable in teaching. Examines ways and means to describe, plan the use of, implement, and evaluate teaching methods. Analysis and implementation of teaching methods and component skills of teaching.
C&I 688. Classroom Organization and Management. I, S. 3 Hr. Discusses research identifying components of classroom organization and environment which influence learning; reviews teacher behaviors and learning activities which research indicates lead to more effective teaching. Stresses implementation strategies relevant to classroom settings.

C&I 689. Cultural Diversity in the Classroom. I, S. 3 Hr. PR: Graduate standing or Consent. Provides opportunities for educators to increase awareness of their own ethnic backgrounds, foster understandings of the interactive effects of gender, race, ethnicity and socioeconomic status, and develop appropriate teaching materials and methods.

C&I 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

C&I 692 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

C&I 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

C&I 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

C&I 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

C&I 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

C&I 701. Curriculum Development. 3 Hr. PR: Consent. The study of the concepts underlying school curriculum.

C&I 707. Theories, Models and Research of Teaching. II. 3 Hr. PR: SCFD 620 or consent. The theories behind selected models of teaching as well as research in teaching and best practices.


C&I 709. Curriculum Theories. 3 Hr. PR: C&I 708 or consent. Theories underlying curriculum from the past to the present and projected to the future.

C&I 710. Advanced Supervision. 3 Hr. PR: Consent. Exploring theories, research, and practices of pre-service and in-service instructional supervision in the classrooms of novice and mature teachers. (Also listed as EDLS 701)

C&I 719. Behavior Modification in Early Childhood Education. 3 Hr. Application of behavior modification principles to classroom management in early childhood education Pre-K to 4th grade.

C&I 738. Survey of Major Issues in Mathematics Education. II, S. 3 Hr. PR: Consent. Individual and group research on selected topics in mathematics education.

C&I 757. Social Studies Curriculum Development, K-12. I. 3 Hr. PR: C&I 601 or C&I 604 and C&I 650 or C&I 654. Stresses the application of principles and procedures pertinent to the development of social studies programs in elementary and secondary schools. Strong emphasis will be placed on the analysis of current social studies curriculum materials.

C&I 786. Curriculum Evaluation. 3 Hr. This course enables students to develop skills and strategies necessary for curriculum evaluation and improvement of programs. Included will be a historical review of evaluation and analysis of approaches to curriculum evaluation.
C&I 787. Professional Development for Teaching Effectiveness 3 Hr. PR: Advanced graduate standing or consent. Explores professional learning tools that lead to effective teaching; investigates the conditions that facilitate professional learning and effective teaching by examining the teacher, learner, content and environment; examines how educators study and resolve problems.

C&I 788. Higher Education Curriculum. II. 3 Hr. Analysis and evaluation of post-secondary curriculum with emphasis on organizing, translating, and applying findings. Topics include curriculum shaping forces; institutional patterns; policy, components and change; and principles and techniques of development, experimentation, and evaluation.

C&I 789. Teaching in Higher Education. I. 3 Hr. PR: Graduate standing. A general methods course involving instructional concepts and strategies for present/prospective faculty in higher education. Comprehensive consideration of objectives, planning criteria and methods, teaching strategies, and evaluation in meeting the needs of adult learners.

C&I 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of curriculum and instruction. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

C&I 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

C&I 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

C&I 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

C&I 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

C&I 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

C&I 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

C&I 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

C&I 798. Dissertation. 2-4 Hr. Pr: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

C&I 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s 799 or 899 Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)
C&I 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

C&I 931. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

C&I 932. Profession Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Dance (DANC)
DANC 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

DANC 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project or dissertation. (Grading may be S/U.)

Dental Hygiene (DTHY)


DTHY 680. Dental Hygiene Seminar and Practice 1. 3 Hr. PR: Graduate standing and consent. Examination of the critical environmental issues affecting the future of health care; particular impact on oral health care trends will form major focus. Dental hygiene clinical practice is also included.

DTHY 681. Dental Hygiene Seminar and Practice 2. 3 Hr. Expanded services for the dental hygienist with emphasis on restorative and periodontal functions.

DTHY 685. Research Methods for the Dental Hygienist. 3 Hr. PR: EDP 613. Methods and techniques of research in dental hygiene. Major emphasis on planning and evaluating health programs, conducting oral health surveys, designing experiments and critically analyzing research results.

DTHY 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of dental hygiene. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

DTHY 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.
DTHY 695: Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

DTHY 697. Research. 1-15 Hr. PR: Consent. Research activities leading to a thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

DTHY 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during that writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

**Dentistry (DENT)**

DENT 600. Advanced Oral Surgery. 1-12 Hr. PR: Consent. Advanced study of therapeutics, hospital protocol, and surgical aspects of oral surgery involving lectures, seminars, demonstrations, and clinical applications. (Grading may be S/U.)

DENT 687. Research Methods. 1 Hr. PR: Consent. Methods and techniques of research in dentistry. Major emphasis on conducting oral health surveys, designed experiments, and critically analyzing results and development of a thesis.

DENT 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of dentistry. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

DENT 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

DENT 697. Master’s Degree Research or Thesis. 1-15 Hr. PR: Consent. Research activities leading to a thesis, problem report, research paper, or equivalent scholarly project.

DENT 700. Anesthesiology. 1 Hr. Lectures on local anesthesia, including types, modes of action, indications, and contraindications for use. Premedication, toxic effects, and technics of administration are discussed.

DENT 701. Arts and Sciences of Preventive Dentistry. 2 Hr. Lectures dealing with the philosophy and techniques of preventive dentistry.

DENT 703. Introduction to Patient Care. 3 Hr. Lectures, laboratory, and clinical experiences designed to develop skill in performing thorough clinical assessments, defining ethical/legal issues in patient care, and performing procedures to prevent and control disease.


DENT 707. Introduction to Clinical Dentistry. 2 Hr. Observing, assisting and actively participating in the provision of limited care to patients assigned to the student clinics in the School of Dentistry.

DENT 710. Dental Anatomy and Occlusion. 4 Hr. Anatomy of individual teeth, both permanent and primary, in regard to form and function.

DENT 711. Periodontics. S. 2 Hr. Introduction to periodontal diseases, their diagnosis and treatment. Laboratory instruction is included.
DENT 712. Dental Materials. 3 Hr. Composition, physical, chemical, mechanical, and manipulative properties, and technical uses of dental restorative materials as related to dentistry.

DENT 715. Introduction to Community Dentistry. 2 Hr. PR: DENT 701. Preparation to conduct needs assessment of individuals and groups, and perform program planning, implementation and evaluation. Field experiences are included.


DENT 721. Endodontics. 2 Hr. Preclinical lectures and laboratory exercises on basic technical and biological requisites in the treatment of diseases of the dental pulp and the periapical tissues.

DENT 722. Tooth-Colored Restorations. 4 Hr. PR: DENT 710 and DENT 704. Preclinical course to include a variety of esthetic dental procedures. Teeth will be prepared for insertion of tooth colored restorations.

DENT 725. Practice Management. 1 Hr. A lecture course designed to prepare dental students in the concepts of four-handed dentistry.

DENT 726. Removable Partial Dentures. 7 Hr. A didactic and laboratory course that provides the fundamental knowledge and psychomotor skills necessary for the treatment of the partially edentulous patient with a removable partial denture by the general dentist.

DENT 727. Oral Radiology. 1 Hr. The physical and biological phenomena associated with x-radiation. Intraoral and extraoral techniques presented and instruction in interpretation of radiographs, with special emphasis relative to oral diagnosis.

DENT 729. Gold Direct and Indirect Restorations. 3 Hr. Lectures related to standard clinical procedures and laboratory instruction in direct and indirect cast gold restorations.

DENT 730. Community Dentistry. II. 2 Hr. Lectures provide the student with a basic knowledge of the principles of dental public health practice. Emphasis is placed on preparing students for their rural site rotation(s).

DENT 731. Occlusion. 2 Hr. PR: Consent. Didactic and clinic/laboratory instruction in the basic techniques and procedures associated with the treatment of conditions related to faulty occlusion.

DENT 732. Periodontics. 1 Hr. Lectures in the advanced theory and practice of preventive dentistry with emphasis on nutrition.

DENT 734. Complete Dentures. 6 Hr. Didactic and laboratory course which identifies, discusses and develops the fundamental knowledge and psychomotor skills necessary for the treatment of the edentulous patient by the general dentist.

DENT 735. Pediatric Dentistry. 1 Hr. PR: Consent. Didactic instruction foundational to the dental care to children presented in the following modules of instruction: oral diagnosis/treatment, planning/case presentation, prevention, restorative dentistry, pulpal therapy, management of the developing occlusion and trauma to the dentition and oral structures.

DENT 736. Fixed Prosthodontics. 8 Hr. PR: DENT 704 and DENT 722 and DENT 731. Lecture and laboratory course on principles and techniques of diagnosing, preparing, and restoring teeth with artificial crowns and fixed partial dentures by the general dentist.
DENT 737. Treatment Planning. 2 Hr. Introduction to the universal principles of professional treatment planning for adult patients.

DENT 739. Oral Surgery. 1 Hr. Didactic instruction in basic surgical principles as applied to the extraction of teeth and dento-alveolar surgery.

DENT 740. Periodontics. 1 Hr. Intermediate didactic instruction in periodontal therapy including basic surgery and post-operative care.

DENT 744. Diagnosis and Treatment Planning. 1 Hr. Analysis of orthodontic diagnostic records, diagnostic skills for various malocclusions, and formulation of a treatment plan for orthodontic cases.

DENT 745. Principles of Orthodontics. 1 Hr. Facial growth and development, the development of occlusion, and etiology and classification of malocclusions.

DENT 746 Orthodontic Techniques. 1 Hr. Technical instruction in taking diagnostic records and constructing basic orthodontic appliances.

DENT 747. Management of Medical and Dental Emergencies. 1 Hr. Assessment and treatment of the medical risk patient as related to the practice of dentistry. CPR instruction included.

DENT 751. Occlusion. 1 Hr. PR: Consent. Advanced study of the science of occlusion with particular attention to its impact on the clinical diagnosis and treatment of occlusal disorders.

DENT 752. Community Dentistry. 2 Hr. Seminars, proseminars, and field experience in selected topics of professional communication, health education, and the sociology and psychology of community health.

DENT 754. Introduction to Dental Implantology. 2 Hr. PR: Consent. Implant diagnosis, treatment planning, selection, placement, restoration, and maintenance are discussed utilizing a multidisciplinary team approach. Surgical and prosthetic experiences are gained during the laboratory sessions.

DENT 758. Senior Seminar. 2 Hr. More complex and advanced techniques for clinical practice in all disciplines in dentistry with emphasis on new developments in oral surgery and endodontics.


DENT 761. Pediatric Dentistry. 1 Hr. PR: Consent. Continued didactic instruction in dentistry for the child patient with the following learning packages programmed: abnormal dental development, oral habits, and adolescent dentistry.

DENT 763. Periodontics. 2 Hr. Advanced didactic instruction in periodontal therapy including special surgical procedures.

DENT 765. Orthodontics. 1 Hr. Introduction to clinical orthodontics; lectures on case analysis, treatment planning, and clinical procedures involved in interceptive, preventive, and adjunctive treatment of malocclusions.


DENT 770. Clinical Oral Radiology. 0-6 Hr. Clinical application of principles presented in DENT 703 and DENT 727 with additional instruction in techniques and interpretation of radiographs with special emphasis to role played in oral diagnosis.

DENT 771. Practice Management. 2 Hr. PR: DENT 725. A lecture series on the fundamentals of practice management, including the organization and development of the practice, personnel and financial management, and the introduction to TEAM dentistry.

DENT 772. Case Based Treatment Planning. 1 Hr. This course will involve the comprehensive analysis of complex cases in order to formulate an appropriate ideal treatment plan with suitable alternatives. The student must assimilate patient information into the S.O.A.P format and present the case before faculty and peers.

DENT 773. Composite Restorations. 1 Hr. This course will provide theory and preclinical instruction in the selection and fabrication of optimal composite restorations that satisfy biologic, mechanical and esthetic requirements.

DENT 774. Principles of Medicine. 2 Hr. General diseases about which the dental student should have intelligent working knowledge. Students are assigned to specific hospitalized patients to review their findings with the class.

DENT 775. Practice Management. 0-6 Hr. PR: Consent. Clinical practice using auxiliaries, including those trained in expanded functions.

DENT 776. Removable Prosthodontics. 0-6 Hr. Continued application of the theory and practice of removable prosthodontics.

DENT 777. Periodontics. 0-6 Hr. Clinical experience in the diagnosis and treatment of periodontal diseases.

DENT 778. Law and Ethics in Dentistry. 2 Hr. Select legal concepts and the process of ethical decision making as related to the practice of dentistry. Case analysis is the primary method of instruction.

DENT 780. Endodontics. 0-6 Hr. Clinical endodontic instruction in order to develop the skills and judgment necessary to treat diseases of the dental pulp and their sequelae.

DENT 781. Patient Management. 1 Hr. (Repeated four times.) This course develops professional responsibility and time management through monitoring of patient care activity, which includes treatment, case presentations, diagnostic reviews and clinic service assignments. (Grading will be S/U.)

DENT 783. Operative Dentistry. 0-6 Hr. Instruction in the clinic setting includes comprehensive diagnosis and treatment planning, computer assisted records, plaque control, caries control, and single tooth restorations. Sufficient variety and depth of experience occurs to obtain competence for independent practice of operative dentistry.

DENT 784. Oral Surgery. 0-6 Hr. Clinical instruction in outpatient and inpatient oral surgery necessary to provide comprehensive care for the dental patient.

DENT 785. Orthodontics. 0-6 Hr. Clinical management of selected malocclusion problems.
DENT 786. Pediatric Dentistry. 0-6 Hr. Instruction in the clinical setting with the goal of developing the psychomotor skills and judgment necessary to provide comprehensive care for the child patient.

DENT 787. Clinical Oral Diagnosis. 0-6 Hr. Clinical application of principles presented in DENT 303 and DENT 337, providing opportunities for observation and analysis of clinical problems.

DENT 788. Clinic Completion Practicum. 1-15 Hr. Supervised patient care in selected clinical areas specified for each individual student according to their clinical competency requirements. (Grading will be S/U.)


DENT 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of dentistry. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

DENT 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

DENT 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

DENT 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

DENT 793A. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

DENT 794. Special Seminars. 1-6 Hr. Seminars arranged for advanced graduate students.

DENT 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

Design and Merchandising (DSM)

DSM 673 A-Z. Professional Development. 1-6 Hr.

DSM 684. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of agriculture, forestry, and consumer sciences. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

DSM 689. Research Methods in Family Resources. 3 Hr. PR: Introductory statistics or written consent. Research methodology, experimental design, and statistical analysis as relevant to problems in family resources.

DSM 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of agriculture, forestry, and consumer sciences. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

DSM 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.
DSM 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

DSM 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

DSM 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

DSM 694A. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

DSM 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

DSM 696 A-Z. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

DSM 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

DSM 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her departments graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

DSM 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Disability Studies (DISB)

DISB 580. Disability and the Family. 3 Hr. This course is designed to familiarize students with developmental disabilities and their impact on families. Interdisciplinary, family-centered care is emphasized, along with how to access resources to meet the needs of children and families.

DISB 581. Lifespan Disability Policy. 3 Hr. Overview of health, education, financial and related policies impacting individuals with disabilities across the lifespan and at the federal, state, and local levels.

DISB 585. Disability and Society. 3 Hr. This course provides a global, interdisciplinary overview of issues and policies that are the concern of individuals with disabilities (e.g., public policy, health-related issues, employment, and social benefits).

DISB 682. Disability in the Community. 2 Hr. This course offers service learning experience in the community with persons who have a disability. (Course will be graded S/U.)

DISB 686. Graduate Capstone: Disability. 1 Hr. This capstone experience for the certificate in disability studies at the graduate level culminates with an essay, a presentation, and a portfolio. (Grading will be S/U.)

DISB 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
Economics (ECON)

ECON 501. Economic Decision Making. 3 Hr. PR: ECON 201 and ECON 202. Theory of demand and supply including cost determination, markets and pricing, regulatory economics, national income accounting, the assessment of economics impacts via the multiplier principle, monetary policy, and taxation policy.

ECON 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of economics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

ECON 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ECON 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ECON 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ECON 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ECON 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)


ECON 702. Advanced Macro-Economic Theory 1. 3 Hr. PR: Consent. Classical, Keynesian and modern macroeconomic theories.

ECON 706. History of Economic Doctrines and Analysis. 3 Hr. PR: ECON 701 and graduate standing or consent. Writings of the major figures in the development of economic doctrines and analysis.

ECON 709. Research Design and Methodology. 1-3 Hr. PR: Consent. Basic research approaches based on examples from the student's own work, papers presented at the departmental research seminar series, and economics literature in general.

ECON 711. Advanced Micro-Economic Theory 2. 4 Hr. PR: ECON 701. General equilibrium analysis, distribution economics.

ECON 712. Advanced Macro-Economic Theory 2. 3 Hr. PR: ECON 702. Models of economic growth and fluctuations, and other advanced topics in macroeconomic theory.

ECON 721. Mathematical Economics. 3 Hr. PR: Consent. Mathematics used in economics.

ECON 723. Dynamic Methods of Economics. 1 Hr. PR: ECON 721. This course covers the basic techniques of dynamic economic analysis that economics graduate students will be working with in advanced economic theory and field courses.

ECON 725. Econometrics 1. 3 Hr. PR: ECON 721. Mathematical statistics, including probability, mathematical expectation, distributions. Linear regression, ordinary least squares and simple extensions. Students will use a computer to analyze data.
ECON 726. Econometrics 2. 3 Hr. PR: ECON 726. Econometric methods used by practicing economist. Includes simultaneous equations, asymptotic properties of estimators, and generalizations of and alternatives to least squares estimation. Also may include qualitative response, panel data, nonlinear, spatial, and time series models.

ECON 727. Econometrics 3. 3 Hr. PR: ECON 326. Completes the graduate econometrics sequence. Topics may include computational methods and time series, spatial, nonlinear, qualitative response, and panel data models.

ECON 731. Monetary Economics 1. 3 Hr. PR: ECON 702. Sources and determinants of supply of money; demand for money for transactions and speculative purposes; general equilibrium of money, interest, prices, and output; role of money in policy.

ECON 732. Monetary Economics 2. 3 Hr. PR: ECON 731. Further topics in monetary economics.

ECON 735. Portfolio Theory. 3 Hr. PR: ECON 701 and ECON 702. Basics of decision making under risk. Portfolio choice under various utility and returns specifications. Asset allocation over time.

ECON 736. Asset Pricing. 3 Hr. PR: ECON 735. Theories of the determination of prices and returns in financial markets. Properties of general static and intertemporal asset pricing models and determinants of equilibrium returns in specific general equilibrium models.

ECON 739. Seminar in Financial Economics. 3 Hr. PR: ECON 735 and ECON 736 or Consent. Covers advanced topics in financial economics such as pricing of derivatives and issues in corporate finance.

ECON 741. Public Economics 1. 3 Hr. PR: ECON 701. Economic role of government in a mixed economy with regard to topics such as resource allocation and distribution of income; social choice mechanisms; fiscal federalism; and revenue.

ECON 742. Public Economics 2. 3 Hr. PR: ECON 741. Continuation of public economics.

ECON 743. State and Local Public Economics. 3 Hr. PR: ECON 741 and ECON 742 or consent. Economic roles of state and local governments emphasizing empirical research and policy implications. Particular attention to intergovernmental competition, government performance, service provision, and revenue sources.

ECON 751. International Trade. 3 Hr. PR: ECON 701. Contemporary theories of international trade; analysis of current problems in world trade.

ECON 752. International Macro-Economics. 3 Hr. PR: ECON 702. Current theories and policies concerning balance of payments, international capital movements, and foreign exchange, and their relation to the macro economy.

ECON 754. Comparative Economic Systems. 3 Hr. PR: ECON 701. Comparative study of economic systems, including planned and market socialism and capitalism and the experience of countries in transition from socialism to capitalism.

ECON 755. Development Economics. 3 Hr. PR: ECON 701. This course explores why some countries are rich and others are poor. Class examines the major phases of thinking in development economics and themes in the contemporary development literature.

ECON 761. Advanced Regional Economics. 3 Hr. PR: ECON 701 and graduate standing or consent. Regional income and flow of funds estimation, regional cyclical behavior and multiplier analysis, industrial location and analysis, techniques of regional input-output
measurement, impact of local government reorganization on regional public service and economic development.

ECON 762. Advanced Urban Economics. 3 Hr. PR: ECON 701. Theory, policy, and empirical research regarding growth and decline of cities, urban spatial structure and land-use patterns, intrametropolitan employment location, urban transportation, housing, housing market discrimination, local government structure, fiscal problems, and urban redevelopment.

ECON 764. Seminar in Regional Economics. 3 Hr. PR: Consent.

ECON 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ECON 792. Directed Study. 1-6 Hr. PR: Consent. Directed study, reading, and/or research.

ECON 793. Special Topics. 1-6 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field.

ECON 794. Seminar. 1-6 Hr. PR: Consent. Seminars arranged for advanced graduate students.

ECON 795. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.

ECON 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

ECON 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ECON 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

ECON 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

ECON 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Education (EDUC)
EDUC 600. Teacher as Researcher. 3 Hr. PR: Consent, EDUC 612. Preparation for action research; documentation of observations of researchable topics in school settings and completion of an extended classroom-based study.

EDUC 601. Context of Education. 3 Hr. PR: Grade of “C” or better in EDUC 612. Critical, analytical, and reflective thinking on schooling through the integration of social, cultural, historical, philosophical, and political perspectives; examination of the contexts of students' own educational practice.
EDUC 602. Professional Identity: Teacher as Leader. 3 Hr. PR: Grade of “C” or better in EDUC 612. Preparation for professional development as educational leaders. Examination, synthesis, and application of literature on teacher development, autonomy and school reform.

EDUC 603. Advanced Educational Planning. 3 Hr. PR: EDUC 612. A capstone course in which students participate in a seminar where they are required to integrate and synthesize content area and pedagogical knowledge gained from previous experiences in the teacher education program.

EDUC 605. IDT Professional Practice. 3 Hr. An introduction to the instructional design and technology program, providing curriculum and learning perspectives, addressing legal and ethical issues, describing hardware and software configurations, and presenting various occupational options for instructional technologists.

EDUC 612. Professional Internship/Tech App. 12 Hr. PR: EDUC 411 and EDUC 401. Full-time professional internship in public school teaching including the integration of instructional technologies in teaching: satisfactory completion is required for recommendation for professional licensure and graduation with an education degree.

EDUC 672. Instructional Design and Technology: Professional Internship. 4-6 Hr. PR: EDUC 674. This course provides students a supervised learning experience central to applied roles in instructional design and technology. Experience will focus on: communication technology, education and corporate training, distance education, and multimedia design/production.

EDUC 674. Instructional Design and Technology Research and Development Seminar 1. 2 Hr. PR: EDUC 605. The purpose of this seminar is to prepare effective instructional design consultants capable of identifying instructional problems, determining alternative solutions, and implementing appropriate changes within organizational systems.

EDUC 675. IDT R&D Seminar 2. 2 Hr. PR: EDUC 394. This course provides participants practice writing, presenting, and critiquing research. Students learn and practice professional skills including creating portfolios, constructing vitas or resumes, and interviewing.

EDUC 687. Instructional Practicum/Tech App. 3 Hr. PR: EDUC 612 and EDUC 600. Teaching and mentoring in public schools and university settings; collaborative design of individualized practicum contracts on topics of mutual interest and need including the exploration of instructional technologies.

EDUC 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

EDUC 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

EDUC 930. Professional Development. 1-6 Hr. Professional development course providing skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived, continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Education Leadership Studies (EDLS)

EDLS 601. Dynamics of Educational Organizations. 3 Hr. A foundation course which introduces students to school cultures, systems theory, hierarchy of school organizations, impact of global issues and forces, strategic planning, and the expanding role of technology as a learning and management tool.
EDLS 602. Human Resources Dynamics. 3 Hr. An overview of personnel functions with a focus on recruitment, selection, orientation, evaluation, and development; interpersonal skills; motivational theories; and the utilization of technology in the personnel process.

EDLS 603. Principles of Educational Leadership. 3 Hr. An exploration of the role of leadership in modern education. Topics and simulations include group processes, verbal and non-verbal communication, leadership styles, team building, interpersonal relations, conflict management, and ethical practices.

EDLS 610. School Business Administration. 3 Hr. Efficient and effective operational procedures at the school and district level relating to the fiscal, spatial, physical conditions, safety and security, and information management systems are explored, including the use of technology.

EDLS 611. Principles of Supervision. 3 Hr. Students develop instructional leadership skills in working with teachers to understand and improve classroom instruction. Topics include: developing a learning culture, supervisory theories and models, and integration of technology and best instructional practices.

EDLS 612. School: Policies, Politics and Laws. 3 Hr. An overview of statutes, common law and court decisions. Topics include the politics of education, due process, policy development, the role of federal, state, and local government in public education, and the issues of diversity and equity in a school setting.

EDLS 613. Research-Evaluation-Assessment. 3 Hr. PR: Consent. Research, evaluation, and assessment procedures related to administrative decision making and problem solving to increase the general effectiveness of educational institutions.

EDLS 614. Community and Media Relations. 3 Hr. This course will explore community attitudes, cultures, and communication strategies. It will provide students with resources to understand, evaluate and improve internal and external school-community relations.

EDLS 620. Site-Based Leadership. 3 Hr. PR: Consent. An overview course that focuses on the principal's active role of applying theory to practice with a special emphasis on emerging trends and issues, goal setting, testing, curricular alignment with goals, facilities management, and the change process.

EDLS 625. Topics in Supervision. 3 Hr. Special knowledge and skills for supervisors K-12 including media, computers, reading, multicultural education, testing, and special education.

EDLS 650. Higher Education Administration. 3 Hr. Key concepts of organization and administration within higher education institutions, concentrating primarily on the non-academic components of the institutions, from the president to first-level supervisor.

EDLS 651. College Student Development. 3 Hr. Review of research and literature on college student development form beginning freshmen through graduate school. Emphasis on different student subgroups.

EDLS 652. Assessment in Higher Education. 3 Hr. Critical analysis of contemporary assessment issues; develop sophisticated plans to evaluate the quality of student learning and growth in academic programs and student affairs.

EDLS 653. College Student and the Courts. 3 Hr. PR: Consent. A study of the major areas of higher education law from the perspective of the college student. A case study approach.

EDLS 654. College Student Affairs. 3 Hr. PR: Consent. A study of the organization, administrative functioning components, issues, and models of college student services using a historical and topical approach.
EDLS 655. Institutional Advancement. 3-6 Hr. PR: Consent. Studies in fund raising, alumni relations, and foundation management.

EDLS 656. College Business Management. 3 Hr. Covers knowledge of such areas as budgeting systems, budget preparation and administration, resource reduction and reallocation, and grants/contracts preparation and administration.

EDLS 657. Community College Leadership. 3 Hr. An analysis of the historical/philosophical development of community colleges in the U.S. A specific focus on developing a critical understanding of the administrative and leadership issues.

EDLS 691. Advanced Topics. 1-6 Hr. Investigation of advanced topics not covered in regularly scheduled courses.

EDLS 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

EDLS 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

EDLS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

EDLS 702. Superintendency: Role and Responsibilities. 3 Hr. PR: M.A. in education leadership or equivalent, or consent. This course is designed to examine the concepts of effective school district leadership. Students will examine the roles, relationship behaviors, and competencies that characterize an effective educational organization.

EDLS 703. Economics and Education Funding. 3 Hr. PR: M.A. in education leadership or equiv., or consent. This course will focus on the macro and micro economics concepts and their application to financing education and its infra-structure. The content will incorporate forces of economic change, development of new societal and educational infra-structures, and implications for social spending.

EDLS 704. Education Facilities: Planning & Evaluation. 3 Hr. PR: M.A. in education leadership or equiv., or consent. The planning, evaluation, and management of current and future school facilities.

EDLS 705. Public Education: Ethics/Laws/Policies. 3 Hr. PR: M.A. in education leadership or equivalent, or consent. This course will focus on ethics, educational responsibility, and the legal concepts relating to human resources management and student rights. The content is designed to develop an understanding of the judicial process and its effect on public school law and to understand the legal parameters within which the educational CEO operates.

EDLS 706. Learning Organizations: Culture, Technology and Change. 3 Hr. PR: M.A. in education leadership, or equivalent, or consent. This course will focus on the concepts of results-based strategic planning, critical inquiry, and new assessment paradigms. The content will emphasize beginning where we are, authentic assessment of learning and horizontal assessment of processes, and broadening the base of responsibility for processes and results (outcomes). New knowledge about and use of information systems, integrating technology and high performance learning expectations, and the CEO's role in the process will be addressed.

EDLS 707. Politics & Education. 3 Hr. PR: M.A. in Education Administration, or equiv., or Consent. The purpose of this course is to raise the student's awareness and comprehension of the role political processes play in shaping the fundamental governance and organizational structures of American education. A special emphasis will be placed on the role of the state and national government.
EDLS 708. Changing Organizations. 3 Hr. PR: M.A. in educational leadership or equivalent, or Consent. Interdisciplinary study of the major concepts of educational administration theory and its application to educational settings. Topics include organizational change, understanding of organizational dynamics and relationships, motivation, empowerment, and responding to human resource needs.

EDLS 751. Academic Affairs Roles. 3 Hr. PR: Consent. Management, leadership, and administrative roles of academic affairs offices in colleges and universities including academic personnel, program definition, research and teaching issues, and other functions of academic oversight.

EDLS 752. Governance of Higher Education. 3 Hr. PR: Consent. Formulation and implementation of state master plans and the roles of state governing bodies in public and private institutions.

EDLS 753. Adult and Continuing Education. 3 Hr. Principles, concepts, and processes involved in programming for adults in a community setting. Nature of adult learning, subject matter, and learning environment.

EDLS 754. History and Policy of Administration in American Higher Education. 3 Hr. The administrative development of American higher education from 1636 to the present, including internal trends and external forces.

EDLS 755. Higher Education Law. 3 Hr. Critical legal issues of higher education, public and private, using a case study approach.

EDLS 756. Higher Education Finance. 3 Hr. Financial concerns in higher education with emphasis on taxation and legislative actions, sources of income, budgeting, and cost analysis.

EDLS 759. Assessment Research In Higher Education. 3 Hr. Students review an array of instruments designed to assess college students’ perceptions, satisfaction, and learning. They will also critique these instruments to determine their quality.

EDLS 760. Curriculum Developments and Reform in Higher Education. 3 Hr. Analyze curriculum development and implementation issues. Critique different curriculum designs in general education and major academic programs also.

EDLS 761. Prospectus Development in Higher Education. 3 Hr. Students review an array of instruments designed to assess college students’ perceptions, satisfaction, and learning. They will also critique these instruments to determine their quality.

EDLS 762. College Student Research in Higher Education. 3 Hr. Students will critique research articles pertaining to college student development and conduct research investigating a subpopulation’s development.

EDLS 785. Education Administration Internship. 3-6 Hr. (May be repeated for credit.) PR: Consent. Practical experiences in the administration of an organizational unit under the supervision of an administrator within the unit.

EDLS 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of education leadership studies. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)
EDLS 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

EDLS 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

EDLS 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

EDLS 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

EDLS 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

EDLS 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

EDLS 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

EDLS 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

EDLS 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

EDLS 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) These tuition- waived, continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Educational Psychology (EDP)
EDP 600. Educational Psychology. 3 Hr. Designed for beginning graduate students. Psychological principles of learning and development as they relate to processes of instruction.

EDP 610. Measurement/Assessment for the Classroom Teacher. 3 Hr. An examination and application of classroom testing and measurement principles in the assessment and evaluation of student performance.

EDP 611. Measurement/Evaluation in Educational Psychology. 3 Hr. An introductory course in measurement and evaluation in educational psychology with an emphasis on the principles and procedures in conducting and analyzing educational measurement.

EDP 612. Introduction to Research. 3 Hr. Basic concepts, strategies, methodologies, designs, and procedures of research in education. Major emphasis on integrating research designs, measurements, and statistics for initiating research projects, collecting and analyzing data, and interpreting and reporting findings.
EDP 613. Statistical Methods 1. 3 Hr. PR: MATH 126. Basic concepts of statistical models, distributions, probability, random variables, tests of hypotheses, confidence intervals, regressions, correlation, transformation, F and chi-square distributions, analysis of variance and sample size.

EDP 614. Statistical Methods 2. 3 Hr. PR: STAT 511. Extension of basic concepts of statistical models, design of experiments, multiway classification models, factorials, split plot design, simple covariance, orthogonal comparisons, multiple linear and nonlinear regression and correlation analysis, chi-square and nonparametric statistics.

EDP 616. Non-parametric Statistics. 3 Hr.

EDP 617. Program Evaluation. 3 Hr. An awareness of the purposes, ethics, issues of design, methods, and models of program evaluation.

EDP 621. Applied Behavior Analysis. 3 Hr. PR: EDP 620 or equivalent. Application of reinforcement theory as an instructional technique in changing human behavior. Analysis of problems in terms of behavior and the design of instruction and treatment programs to produce desired change.

EDP 640. Instructional Design. 3 Hr. PR: Graduate Standing. Introduces the major components of the instructional design process, from needs analysis through evaluation and implementation. Students will demonstrate the elements of the process with a design plan for an instructional project.

EDP 685. Practicum. 1-12 Hr. PR: Consent.

EDP 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

EDP 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

EDP 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

EDP 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their students' reports, thesis or dissertations. (Grading may be S/U.)


EDP 701. Memory. 3 Hr. Short-term memory, long-term memory, memory networks, and memory problems as they relate to school learning, strategies for instruction, and lifelong adaptation in a dynamic society.

EDP 702. Human Development and Behavior. 3 Hr. Contemporary psychological literature on human development examined and analyzed. Research and theory are examined with emphasis on the implications for classroom behavior and the educational process. It is recommended that students complete EDP 600 prior to registering for this course.

EDP 703. The Adult Learner. 3 Hr. Analysis of significant characteristics of adult behavior to be considered in planning for adult learning. Contemporary theories are analyzed with emphasis on their implications for the educational process. It is recommended that students complete EDP 600 prior to registering for this course.
EDP 710. Seminar. Educational Research. 3 Hr. PR: EDP 613 and consent. Identification of research problems in education, consideration of alternative designs and methods of investigation, and development of a research proposal at the advanced graduate level.

EDP 711. Multivariate Methods 1. 3 Hr. PR: STAT 511 or equivalent. Basic matrix operations, multiple regression analysis, discriminate analysis for two groups, multivariate analysis if variance for one-and two-way designs, and analysis of covariance involving multiple covariates. Applying SPSS Procedure Matrix for data analyses. (Alternate years.)

EDP 712. Multivariate Methods 2. 3 Hr. PR: STAT 511 or equivalent. Matrix operations, multivariate multiple regression analysis, canonical correlation analysis, discriminate analysis for multiple groups, qualitative discriminate analysis applying Bayes’ theorem, principle component analysis, and fundamentals of common factor analysis. Data analyses with SAS Procedure Matrix. (Alternate years.)

EDP 713. Designing Single Case Research. 3 Hr. Measurement and design tactics for research with one or a small number of participants allowing the researcher to identify effective practices for individual students or clients.

EDP 721. Verbal Behavior 1. 3 Hr. PR: EDP 621. Behavioral analysis of complex verbal behavior in person-to-person contacts in text materials and in instructional systems. (Alternate years.)

EDP 730. Cognition and Learning. 3 Hr. Theories of knowledge representation including information processing models, learning strategies across content areas and transfer of learning strategies; additional focus on problem-solving, expertise, strategic reading, and strategy instruction.


EDP 740. Principles of Instruction. 3 Hr. Basic principles of teaching-learning process implied in major learning theories; study of factors in learning, variables in instructional programming, and principles of instructional design.

EDP 790. Teaching Practicum. 1-3 Hr. Supervised practice in college teaching of education psychology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

EDP 791 A-Z. Advanced Topics. 1-6 Hr. Investigation of advanced topics not covered in regularly scheduled courses.

EDP 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

EDP 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

EDP 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

EDP 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.
EDP 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her choice.

EDP 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

EDP 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

EDP 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her departments Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

**Electrical Engineering (EE)**


EE 515. Linear Control Systems. 3 Hr. PR: Consent. Basic concepts in the theory of linear control systems; state variable representation, solution of state equations, controllability, observability, stability, transfer function descriptions, design of controllers and observers. (3 hr. rec.)

EE 517. Optimal Control. 3 Hr. PR: Consent. Methods of direct synthesis and optimization of feedback systems; Wiener theory; Pontryagin’s maximum principle; dynamic programming; adaptive feedback systems. (3 hr. rec.)

EE 519. Digital Control. 3 Hr. PR: EE 411 or Consent. Sampling of continuous-time signals; transform analysis of discrete-time systems. Translation of analog design. Controllability and observability. State-space design methods; and introduction to optimal control for discrete systems. (3 hr. rec.)

EE 531. Advanced Electrical Machinery. 3 Hr. PR: Consent. Theory and modeling of synchronous, induction, and direct-current machines, and their steady-state and transient analysis. (3 hr. rec.)

EE 533. Computer Applications in Power System Analysis. 3 Hr. PR: EE 436 or Consent. Steady state analysis by digital computers of large integrated electrical power systems. Bus admittance and impedance matrices, load flow studies, economic dispatch and optimal power flow, steady state security analysis, fault studies. (3 hr. rec.)

EE 535. Power System Control and Stability. 3 Hr. PR: EE 515. Review of stability theory, classical transient analysis, dynamical models of synchronous machines, power system stability under small and large perturbations, dynamic, simulation of power systems. (3 hr. rec.)

EE 551. Linear Integrated Circuits. 3 Hr. PR: EE 355 and EE 356 and EE 450 or equivalent. Design and analysis of analog integrated circuits. Both linear and nonlinear transistor models are covered. Applications focus on linear analog circuits including simple amplifiers, operational amplifiers, and reference circuits. This course focuses on CMOS technology.

EE 561. Communication Theory. 3 Hr. PR: EE 461 or Consent. Detailed study of probability theory and its use in describing random variables and stochastic processes. Emphasis on applications to problems in communication system design. (3 hr. rec.)

EE 562. Wireless Communication System. 3 Hr. PR: EE 461 and EE 513. Architecture and design of cellular and wireless communication networks, electromagnetic effects of the wireless channel and corresponding statistical models, implementation and performance of diversity reception techniques, multiple-access.

EE 565. Advanced Image Processing. 3 Hr. PR: EE 465 or equivalent. Covers the theory of statistically modeling image source, algorithms for analysis and processing of image signals, new applications of image processing into computer vision and biomedical imaging, and MATLAB-based image processing.

EE 567. Coding Theory. 3 Hr. PR: MATH 375 or consent. Design, analysis, and implementation of codes for error detection and correction.

EE 568. Information Theory. 3 Hr. PR: STAT 215 or equivalent, or consent. Information measures and mutual information; noiseless coding theorem, construction of compact codes; and of universal codes; channel coding theorem and error correcting codes; cryptography and information theory, algorithmic information theory, and rate distortion theory.

EE 569. Digital Video Processing. 3 Hr. PR: EE 465. Covers basic theory and algorithmic aspects of digital video processing, along with latest video coding standards, multimedia streaming, security video, and biometrics. Hands-on experience in processing video signals under MATLAB in team-based projects.

EE 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

EE 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.


EE 625. Advanced Signal Processing. 3 Hr. PR: EE 513 or Consent. Statistical aspects of signal processing. Includes advanced techniques, such as auto correlation/cross correlation, auto regressive models, linear prediction, power spectral density, and other topics. Course will contain significant student-driven application component using biomedical, communication, and/or other signals. (3 hr. lec.)

EE 650. Optoeletronics. 3 Hr. PR: EE 450 or PHYS 471 or Consent. Semiconductor physics theory of light-emitting diodes, homojunction lasers, single and double heterojunction lasers, separate confinement quantum well lasers, p-i-n and photo detectors and avalanche photo detectors. Optical and electrical analysis of epitaxial and device designs.
EE 689. Graduate Internship. 1-3 Hr. PR: Completion with 3.0 GPA or better of at least 18 credits of graduate study applicable toward degree requirements. Employment in industry related to degree program. Graded S/U. May be repeated twice. Cannot be counted toward graduating requirements.

EE 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

EE 695. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.

EE 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

EE 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

EE 713. Large-Scale System Modeling. 3 Hr. PR: EE 515. Characterization of large-scale systems, model simplification through aggregation and perturbation methods, optimal and chained aggregation, balanced realization and cost component procedures; optimal model reduction; simplification effects; decentralized control; feasibility and design. (3 hr. lec.)

EE 731. Real Time Control of Power System. 3 Hr. PR: EE 515 and EE 517 and EE 533. Application of computers to modern control theory for reliable and economic real-time operation of integrated power systems. (3 hr. rec.)

EE 733. Protection of Power Systems. 3 Hr. PR: EE 436 or Consent. Principles of relay protection for faults on transmission lines and other devices. Use of over current, differential distance, and pilot relaying systems. Special relay applications. Determination of short-circuit currents and voltages from system studies. (3 hr. rec.)

EE 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of electrical engineering. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

EE 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

EE 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

EE 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field

EE 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

EE 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.
EE 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

EE 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

EE 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

EE 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Emergency Medicine Certification Program (EMCP)

EMCP 501. Cardio/Hematologic Emergencies. 2 Hr. PR: PA-C, NP, DO, MD degree or by permission of the instructor. Clinical presentation, diagnostic evaluation, and management of cardiovascular and hematologic emergencies are covered.

EMCP 502. Neuro/Psych, Eye/ENT Emerg. 2 Hr. PR: PA-C, NP, DO, MD degree, or by permission of instructor. Emergency management of neurologic, psychiatric, ophthalmologic, and otolaryngologic disorders are emphasized. Clinical presentation, diagnostic evaluation and treatment option are covered.

EMCP 503. OB/GYN, Peds, Inf. Dis. Emerg. 2 Hr. PR: PA-C, NP, DO, MD degree, or by permission of the instructor. Emergency management of obstetric, gynecologic, pediatric, and infectious disease disorders is emphasized. Clinical presentation, diagnostic evaluation and treatment options are covered.

EMCP 504. Trauma and Musculoskeletal Emergencies. 2 Hr. PR: PA-C, NP, DO, MD degree, or by permission of instructor. Emergency management of the trauma patient is emphasized. Non-traumatic musculoskeletal disorders are also covered.

EMCP 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

Endodontics (ENDO)

ENDO 688. Clinical Endodontics. 1-5 Hr. (May be repeated for credit.) PR: Graduate of an accredited dental school and admission to the advanced education program in endodontics or consent. Clinical endodontic practice in the areas of: ordinary endodontic cases, complex endodontic cases, hemisection, root amputation, replantation, transplantation, endodontic implantation, vital pulp therapy, apexification, and bleaching.

ENDO 689. Endodontic Theory. 2 Hr. (May be repeated for credit.) PR: Consent. Provides seminar discussions in the topics of: basic endodontic techniques, advanced endodontic techniques, endodontic literature review case presentation, and advanced endodontic theory.

ENDO 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of dentistry.
ENDO 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ENDO 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis (697), problem report (697), research paper or equivalent scholarly project (697), or a dissertation (797). (Grading may be S/U.)

Engineering (ENGR)
ENGR 588. Grad Co-Op Experience. 1 Hr. PR: Consent. Pre-arranged graduate co-op experience in student's major. Involves placement with a public or private employer. Includes employer supervision during employment and faculty evaluation after.

ENGR 590. Variable 1-3 Hr. PR: Consent. Supervised practice in college teaching of engineering. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

ENGR 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ENGR 691 A-Z: 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

English (ENGL)
ENGL 601. Studies in Composition and Rhetoric. 3 Hr. Historical developments in the field of composition and rhetoric as it relates to current issues and practices.

ENGL 602. Editing. 3 Hr. Introduces students to the theory and practice of editing.

ENGL 605. Professional Writing Theory. 3 Hr. Introduces students to the history of, development of, and current issues in professional writing theory and research.

ENGL 606. Topics in Humanities Computing. 3 Hr. Topics rotate by semester; check with instructor. Topics may include: literary studies (electronic editions, hypertext, computer games, virtual environments); critical theory (techno-theory, narrative theory); composition theory (rhetoric of online media, pedagogy); creative writing in digital media.

ENGL 607. Topics in Rhetoric. 3 Hr. Topics vary by year; check with instructor. Course may include textual, historical, critical, and/or theoretical study. Not restricted to any one period or century.

ENGL 608. Writing Project Summer Institute. 3-6 HR. Experienced teachers examine issues in the teaching of writing and study current and past research in the field

ENGL 609. College Composition Pedagogy. 3 Hr. Introduces students to theories, practices, and current issues in teaching college composition. Restricted to GTAs in the English department.

ENGL 610. Professional Writing Internship. 3 or 6 Hr. PR: ENGL 601 and ENGL 602 and ENGL 605. Student applies research and theory to writing tasks in a professional setting; (100 workplace hours for 3 credits; 200 hours for 6 credits.)

ENGL 611. Sturm Workshop. 1 Hr. PR: Consent. Creative writing workshop conducted by Sturm visiting writer in residence.
ENGL 618 A-Z. Graduate Writing Workshop. 3 Hr. PR: Consent. (With departmental consent, may be repeated for a maximum of 6 credit hours.) Advanced workshop in creative writing. Genre and focus vary from semester to semester.

ENGL 623. Old English 1. I, II. 3 Hr. Study of Anglo-Saxon with selected readings from the literature of the period.

ENGL 624. Old English 2. 3 Hr. PR: ENGL 623. Beowulf and other texts in Old English.

ENGL 631. Studies in Nonfiction Prose. 3 Hr. Advanced study in the genre of nonfiction, with emphasis varying from year to year. Course may include textual, historical, critical, formalist, and/or theoretical study. Not restricted to any one period or century.

ENGL 632. Studies in Poetry. 3 Hr. Advanced study in the genre of poetry, with emphasis varying from year to year. Course may include textual, historical, critical, formalist, and/or theoretical study. Not restricted to any one period or century.

ENGL 634. Studies in Drama. 3 Hr. Advanced study in the genre of drama, with emphasis varying from year to year. Course may include textual, historical, critical, formalist, and/or theoretical study. Not restricted to any one period or century.

ENGL 635. Studies in the Novel. 3 Hr. Advanced study in the genre of the novel, with emphasis varying from year to year. Course may include textual, historical, critical, formalist, and/or theoretical study. Not restricted to any one period or century.

ENGL 636 A-Z. Study of Selected Authors. 3 Hr. Advanced study of one or more major authors.

ENGL 646. American Literature to 1865. 3 Hr. Readings in the literature of America from its beginnings to 1865; attention to major writers and genres; focus on literary history.

ENGL 647. American Literature, 1865-1915. 3 Hr. Readings in the literature of America from 1865-1915; attention to major writers and genres; focus on literary history.

ENGL 648. American Literature, 1915-Present. 3 Hr. Readings in the literature of America from 1915 to the present; attention to major writers and genres; focus on literary history.

ENGL 661. Medieval Literature. 3 Hr. Readings in the literature of the Medieval period; attention to major writers and genres; focus on literary theory.

ENGL 663. Shakespeare. 3 Hr. Intensive study of selected plays. Special attention to textual problems and to language and poetic imagery, together with the history of Shakespearean criticism and scholarship.

ENGL 664. Renaissance Literature. 3 Hr. Readings in the literature of the English renaissance; attention to major writers and genres; focus on literary history.

ENGL 666. Restoration and Eighteenth-Century Literature. 3 Hr. Readings in the literature of England during the Restoration and the eighteenth century; attention to major writers and genres; focus on literary history.

ENGL 668. Romantic Literature. 3 Hr. Readings in the literature of England during the Romantic period; attention to major writers and genres; focus on literary history.

ENGL 669. Victorian Literature. 3 Hr. Readings in the literature of England during the Victorian period; attention to major writers and genres; focus on literary history.
ENGL 671. Twentieth-Century British Literature. 3 Hr. Readings on the literature of England during the twentieth century; attention to major writers and genres; focus on literary history.

ENGL 680. Introduction to Literary Research. 1-6 Hr. Bibliography; materials and tools of literary investigations; methods of research in various fields of literary history and interpretation; problem of editing. Practical guidance in the writing of theses.

ENGL 682. Recent Literary Criticism. 3 Hr. Brief survey of theories of major schools of recent criticism and an application of these theories to selected literary works.

ENGL 688. Creative Writing Mentoring. 3 Hr. Supervised practice in mentoring advanced undergraduate creative writers.

ENGL 689. Writing and Editing Practicum. 1-3 Hr. Supervised practice in writing and editing. (Grading will be S/U.)

ENGL 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ENGL 692 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

ENGL 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ENGL 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ENGL 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading will be S/U.)

ENGL 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.

ENGL 701. Seminar in Rhetoric. 3 Hr. PR: ENGL 601, or ENGL 605, or ENGL 609. Topics vary. Focus will be on a problem or issue in rhetorical studies that reflect the instructor’s current research (check with instructor).

ENGL 741. Seminar in American Studies. 3 Hr. Seminar in principal authors and movements in American literature.

ENGL 761. Seminar in Medieval Studies. 3 Hr. Topics in English literature, 900-1500.

ENGL 764. Seminar in Renaissance Studies, 1550-1660. 3 Hr. Studies in major authors and special topics in the Renaissance.

ENGL 766. Seminar in Restoration and Eighteenth-Century Studies. 3 Hr. Studies in major authors and special topics in the period.

ENGL 768. Seminar in British Romanticism. 3 Hr. Studies in major authors and special topics in the field of British Romanticism.
ENGL 769. Seminar in Victorian Studies. I, II. 3 Hr. Research and discussion in selected topics in the literature and history of the period.

ENGL 771. Seminar in Twentieth-Century British Studies. 3 Hr. Seminar in principal authors and movements in twentieth-century British literature.

ENGL 782. Current Directions in Literary Study. 3 Hr. PR: Advanced graduate standing (prior completion of ENGL 682 is recommended). Intensive study of one or more current approaches to literature and theories of criticism, with some emphasis on the interrelations of literary study with other disciplines.

ENGL 789. Folger Seminar. 1-6 Hr. PR: Graduate standing. (Enrollment is by special application only. Contact department chairperson for information.) Seminar conducted by distinguished scholars and held at the Folger Institute in Washington, D.C. Topics vary.

ENGL 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of English. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

ENGL 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ENGL 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ENGL 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ENGL 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

ENGL 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

ENGL 900. Professional Development. 1-6 Hr. Courses intended for professional development and require students to possess a bachelor's degree, but the course does not count toward graduation and is not applicable towards attaining a graduate degree. (Grading is S/U only.)

ENGL 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) These tuition- waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.
English as a Second Language (ESL)

ESL 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of English as a Second Language. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on Assistantships to gain teaching experience. (Grading will be S/U.)

ESL 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ESL 630. American Culture. 3 Hr. Advanced readings concerning the diversity of American culture with a focus on critical inquiry.

ESL 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ESL 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Entomology (ENTO)

ENTO 503. Medical Entomology. 3 Hr. Medically important arthropods affecting health of humans and domestic animals. Epidemiology of major arthropod-transmitted diseases of humans and animals. Identification, rearing, collecting, preparation and control of medically important arthropods.

ENTO 590: Teaching Practicum. 1-3Hr. PR: Consent. Supervised practice in college teaching of entomology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

ENTO 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ENTO 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ENTO 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ENTO 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ENTO 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of Entomology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

ENTO 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ENTO 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

ENTO 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
ENTO 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ENTO 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ENTO 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

ENTO 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ENTO 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

ENTO 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Environmental Protection (ENVP)
ENVP 515. Hazardous Waste Training. 3 Hr. PR: ENVP 155 or consent. A course covering important aspects of hazardous waste training. Includes health and safety plan development, protective equipment, air monitoring, incident command, site characterization, toxicology, full scale disaster exercises, risk assessment and safety plan writing.

ENVP 555. Environmental Sampling and Analysis. 3 Hr. PR: ENVP 155 or consent. Introduction to environmental sampling and analysis. Lecture and hands-on experience will include sampling plan development, sampling point selection, sampling equipment use, containers, preservatives sample analysis, chain-of-custody, protective equipment and technical report development.

Exercise Physiology (EXPH)
EXPH 567. Exercise Physiology 2. 3 Hr. PR: Consent. Thorough and workable knowledge of the functioning of body systems during exercise, the acute and chronic adaptations that occur, and the practical application of work physiology.

EXPH 668. Diabetes and Exercise. 3 Hr. PR: Graduate standing, consent. In-depth study of topics related to the comprehensive management of patients with diabetes mellitus, with special emphasis on the use of exercise in diabetes care.

EXPH 670. Lab Techniques and Methods 2. 3 Hr. PR: Graduate standing, consent. This course teaches the techniques and methods used to monitor physiologic systems in humans during rest and exercise. It includes methods used to assess the health status of individuals desirous of exercise testing or prescription.

EXPH 671. Stress Testing. 3 Hr. PR: EXPH 670, consent. In-depth study of graded exercise testing in laboratory or field situations. The course includes protocols for athletes, asymptomatic individuals, and special populations.
EXPH 672. Professional Field Placement. 1-18 Hr. PR: EXPH 370, and EXPH 371, consent. Prearranged program to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development. (Internship.)

EXPH 673. Exercise Prescription. 3 Hr. This course will provide graduate students an understanding of the exercise prescription process and the exercise management of patients with chronic diseases.

EXPH 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

EXPH 693 A-Z. Special Topics. 1-6 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field.

EXPH 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

EXPH 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or dissertation. (Grading may be S/U.)

EXPH 786. Musculoskeletal Biology. 3 Hr. Introduction to current research approaches in musculoskeletal biology of exercise physiology. This course will stress critical thinking, and refine skills related to research design and evaluation of research methods used in exercise physiology.

EXPH 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in teaching exercise physiology.

EXPH 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation in advanced subjects that are not covered in regularly scheduled courses. Study may be independent or through specially scheduled lectures.

EXPH 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

EXPH 794. Seminar. 1-6 Hr. Special seminars arranged for advanced graduate students.

EXPH 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

EXPH 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program. (Graded S/U).

EXPH 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

EXPH 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

EXPH 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework but who wish to meet residence requirements, use University facilities, and participate in academic and cultural programs.
Family Medicine (FMED)
FMED 731. Clerkship. 8 Hr. PR: Successful completion of first two years of medical school. An eight week rotation in the office setting; rotations of four weeks to clinics within the university system and four weeks to private practitioner offices throughout the state. Lecture, laboratory, conference, and patient care.

Finance (FIN)
FIN 500. Corporate Finance. 3 Hr. PR: BADM 511, BADM 522, and BADM 524. A practical consideration of the operation of financial markets, considerations for the inter-temporal comparisons of opportunities, and the elements of the decision-making criteria for the financial manager.

FIN 510. Investments and Portfolio Management. 3 Hr. PR: FIN 500. The course provides theoretical understanding of how financial decisions are made under uncertainty. The topics include the securities market environment, modern portfolio theory, risk analysis, bond and stock valuations, and derivative securities.

FIN 520. Quantitative Finance. 3 Hr. Examines statistical and probability concepts, statistical inference, regression analysis, time series analysis and financial modeling. Emphasizes financial applications, including portfolio optimization and analysis of financial time series.

FIN 521. Financial Reporting and Analysis. 3 Hr. PR: FIN 510. Fundamental security analysis requires that cash flows be evaluated primarily using external accounting data. This course provides students with the skills necessary to evaluate financial reports focusing on firm valuation.

FIN 522. Advanced Corporate Finance. 3 Hr. PR: FIN 500 and FIN 521. Case study approach focusing on complex problems in the corporate forecasting, capital budgeting, cost of capital analysis, the financing of capital investments, and financial decisions on strategic investment.

FIN 523. Equity Investment. 3 Hr. PR: FIN 510. This course provides students with professional knowledge of investment tools in equity markets, industry and company analysis, valuation models, and equity portfolio management.

FIN 525. Derivative Securities. 3 Hr. PR: FIN 510. This course will extend the student’s knowledge of derivatives markets for commodities and financial instruments. Particular attention will be given to the use of financial derivatives for risk management.

FIN 526. Portfolio Management. 3 Hr. PR: FIN 510. Examines the complete investment process from constructing investment objectives and policies to strategic asset allocation, security selection, trade execution, portfolio monitoring, and performance measurements.

FIN 527. Alternative Investments, 3 Hr. PR: FIN 305 and FIN 470 or equiv. Alternative investments are a growing presence in financial markets. These investments allow the investors to diversify their portfolios beyond rational debt and equity securities. This course provides students with the skills necessary to understand the risks and rewards in alternative investment markets.

FIN 528. Integrated Financial Analysis. 3 Hr. PR: FIN 526 and FIN 527. This is a capstone course that brings together all elements of financial planning including ethical standards, quantitative methods, economics, financial reporting, corporate finance, equity and fixed income investments, derivatives, portfolio management, and wealth planning.

FIN 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FIN 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.
FIN 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

FIN 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

FIN 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

FIN 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of finance. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

FIN 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FIN 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

FIN 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

FIN 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

FIN 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.

FIN 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

FIN 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

FIN 930. Professional Development. 1-6 Hr. Professional development course provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Food Science and Technology (FDST)
FDST 545. Food Microbiology. 3 Hr. PR: ENVM 341. The relationships of microorganisms to food-borne illness and intoxications, microbial food safety and food quality, food spoilage, food preservation and bio-processing. The emerging food preservation technologies and predictive microbiology will be introduced.
FDST 549. Food Microbiology Lab. 1 Hr. PR: FDST 545. Laboratory training in methods used in microbiological examination of foods. This laboratory will provide hands-on experience for students who take or have taken FDST 545.

FDST 670. Advanced Muscle Foods. 3 Hr. PR: FDST 365 and FDST 367. Theoretical and experimental aspects of muscle food science, muscle food production/process systems, and the quantitative biology of muscle systems used for food.

**Foreign Literature in Translation (FLIT)**

FLIT 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FLIT 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

FLIT 594 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

FLIT 685. Comparative Literature: Theory and Practice. 3 Hr. PR: Reading fluency in at least one foreign language. Conceptual bases of comparative literature and their application to literary interpretation.

FLIT 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FLIT 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

FLIT 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

FLIT 695. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.

FLIT 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

**Forensic and Investigative Science (FIS)**

FIS 501. Advanced Forensic Science. 3 Hr. This course develops a fundamental understanding of forensic evidence. The core theories and principles of forensic science will be discussed. Evidence interpretation will be discussed in detail. Students will be required to analyze current literature.

FIS 502. Forensic Laboratory Management. 3 Hr. This course provides an overview of management issues in forensic science laboratories, including personnel and human resources, project management, leadership, organization, communication, strategy and budgeting.

FIS 602. Forensic Informatics. 3 Hr. This course will cover data management in forensic laboratories (procedural and scientific). Topics such as quality, legal environment, laboratory information systems, and forensic intelligence will be developed. This course includes a laboratory component.

FIS 604. Forensic Fingerprint Examination. 3 Hr. This course presents the fundamental and advanced aspects of fingerprint comparisons using ACE-V methodology. Specific topics such as Daubert requirements, friction ridge identification; poroscopy, palm prints will be covered. This course includes a laboratory component.
FIS 610. Firearms Examination. 3 Hr. This course presents the fundamentals and advanced aspects of firearms related to evidence. Topics include the design, mechanism, and manufacture of firearms as well as interior, exterior and terminal ballistics. This course includes laboratory component.

FIS 614. Trace Evidence Examination. 3 Hr. PR: CHEM 314 or FIS 314. This course will develop the theories of transfer (such as hairs, fibers, paints, gunshot residues and glass). Topics such as microscopy, spectroscopy, and chromatography will be applied. This course includes a laboratory component.

FIS 615. Questioned Document Examination. 3 Hr. This course will focus on handwriting comparisons, signatures, typewriting, and typescripts. Topics include erasures, additions and alterations, printed and photocopied documents and ink analysis. This course includes a laboratory component.

FIS 620. Forensic Casework Practicum. 3 Hr. Students will manage mock cases involving multiple types of evidence. They will collect, analyze and interpret the evidence. Written reports on the case will be submitted to evaluation during a mock trial.

FIS 632. Advanced Forensic Biology. 3 Hr. This course will provide students with the knowledge and skills to perform forensic DNA analyses. Topics include analytical methods and procedures, result interpretation and evidence assessment. This course includes a laboratory component.

FIS 660. Advanced Forensic Chemistry. 3 Hr. This course covers the chemical analysis of a wide variety of forensic evidence types. Topics include statistics, sampling, data quality, calibration, sample preparation, instrumentation; drug analysis, toxicology and explosives. This course includes a laboratory component.

FIS 696. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

FIS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Forest Management (FMAN)
FMAN 512. Silvicultural Practices for Hardwood Forest Types. 3 Hr. PR: FMAN 311. Designing proper silvicultural systems for managing Appalachian hardwood stands; reconstructing stand histories, recognizing problems, and prescribing appropriate silvicultural treatment.

FMAN 540. Current Issues in Forest Management. 3 Hr. PR: Consent. Analysis of environmental issues in forest management and current controversies surrounding the management of forested lands. Emphasis on traditional and ecosystem-based forest management policy, philosophy, and practices.

FMAN 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FMAN 611. Advanced Forest Ecology. 3 Hr. PR: FMAN 212 or equivalent; FMAN 311. Ecological relationships in forests with emphasis on biogeochemical cycles.

FMAN 631. Forest Stand Dynamics. 3 Hr. PR: Undergraduate courses in ecology or silviculture, and statistics. Examination of the processes causing temporal and spatial changes in communities of trees including: stand establishment, growth, competition, disturbance and mortality. Labs focus on the quantification of stand development patterns.
FMAN 650. Forest Valuation and Investment. 3 Hr. Asset valuation concepts, with special emphasis on forests. Financial analyses of forest operations. Concepts and strategies in forestland investment and portfolio management.

FMAN 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

FMAN 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

FMAN 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of forest management. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

FMAN 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FMAN 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

FMAN 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

FMAN 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

FMAN 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

FMAN 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

FMAN 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

FMAN 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

FMAN 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Forestry (FOR)

FOR 525. Vegetation of West Virginia. 3 Hr. PR: FOR 205. Basics of plant taxonomy and community ecology, use of technical field keys, study of selected plant families, field trips to unusual and/or important plant communities and forest types in West Virginia.
FOR 575. Forest Soils: Ecology and Management. 3 Hr. PR: AGRN 410 or AGRN 425 or consent. Properties, nutrient cycling processes, and sustainable management of forest soils, with examples from the most important wood fiber-producing regions of the U.S.: the southeast, Pacific Northwest, and the central hardwood forest.

FOR 590. Teaching Practicum. 1-6 Hr. PR: Consent. Supervised practice in college teaching of forestry. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

FOR 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FOR 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

FOR 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

FOR 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

FOR 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

FOR 650. Economics, Environment and Education in W.Va. 3 Hr. This course is designed for K-12 classroom teachers with little previous background in economics. We introduce the principles of economics using the WV forest products industry to provide examples.

FOR 670. Human Dimensions of Natural Resource Management. 3 Hr. PR: Grad standing. This course applies social science theory and methods to solving natural resource management problems.

FOR 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FOR 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

FOR 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

FOR 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

FOR 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

FOR 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)
FOR 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FOR 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

FOR 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

**French (FRCH)**

FRCH 501. French Stylistics. 3 Hr. Development of written communication in French through intense study of French grammar, stylistics, and translation.

FRCH 532. Early French Literature. 3 Hr. PR: 18 hr. of French or consent.

FRCH 533. Seventeenth Century Literature. 3 Hr. PR: 12 hr. of French or equivalent.

FRCH 534. Eighteenth Century Literature. 3 Hr. PR: 18 hr. of French or consent. Survey of major literary works of eighteenth century France.

FRCH 535. Nineteenth Century Literature. 3 Hr. PR: 12 hr. of French or equivalent.

FRCH 536. Twentieth Century Literature. 3 Hr. Introduction to the major tendencies, authors, and works of twentieth century French Literature. Analysis of the most representative works of this period and of the cultural and artistic movements to which they belong.

FRCH 538. Francophone Literature. 3 Hr. PR: Consent. Readings in French literature from regions outside of metropolitan France, such as Africa, Quebec, and the Caribbean.

FRCH 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of French. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

FRCH 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FRCH 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

FRCH 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

FRCH 594 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

FRCH 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

FRCH 611. Literary Criticism. 3 Hr. PR: B.A. in French or Consent.

FRCH 635. The Romantic Movement. 3 Hr. PR: 18 hr. of French or Consent.

FRCH 636. French Realism. 3 Hr. PR: 18 hr. of French or Consent.

FRCH 639. French Women Writers. 3 Hr. PR: B.A. in French or Consent. Selected works of French women writers.
FRCH 647. The Modern Novel to 1930. 3 Hr. PR: B.A. in French or Consent.

FRCH 648. The Novel After 1930. 3 Hr. PR: B.A. in French or Consent.

FRCH 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of French. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

FRCH 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FRCH 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

FRCH 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

FRCH 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

FRCH 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

FRCH 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

FRCH 697. Research. 1-15 Hr. PR: Consent. Research activities leading to a thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

FRCH 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

FRCH 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

FRCH 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

FRCH 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g.; education, community health, geology). These tuition- waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Genetics (GEN)
GEN 525. Human Genetics. 3 Hr. PR: GEN 371 or GEN 521 or Consent. Study of genetic system responsible for development of phenotype in man.

GEN 535. Population Genetics. 3 Hr. PR: GEN 371 or GEN 521 or Consent. Relationship of gene and genotype frequencies in populations of diploid organisms, and the effects of mutation, selection, assertive mating, and inbreeding in relation to single gene pairs. Application of these concepts to multigenic inheritance of quantitative traits.

GEN 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

GEN 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

GEN 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

GEN 724. Cytogenetics. 4 Hr. PR: GEN 171 or GEN 321. Emphasis on macromolecules that carry information of the chromosomes, cell division, and the cytological and molecular basis of genetics. Special attention given to visible manifestation of genes, human cytogenetics, of genomes and chromosome morphology, and their evolution.


GEN 727. Genetic Mechanisms of Evolution. 3 Hr. PR: GEN 371 or equivalent. Molecular genetic mechanisms that result in evolutionary change. Origin of life, origin and organization of genetic variability, differentiation of populations, isolation and speciation, role of hybridization and polyploidy, and origin of man.

GEN 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of Genetics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

GEN 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

GEN 792. Directed Study. 1-6 Hr. Directed study, reading and/or research.

GEN 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

GEN 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

GEN 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

GEN 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.
GEN 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

GEN 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

GEN 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

Geography (GEOG)
GEOG 525. Problems in Geomorphology. 1-4 Hr. (Also listed as GEOL 525.)

GEOG 550. Geographic Information Science. 4 Hr. PR: Instructor’s permission. Principles and practice of geographical information science. Geospatial data handling for research, planning and decision-making. Spatial analysis, information production, and display.

GEOG 553. Environmental Impact Assessment. 3 Hr. Study of the process and methods, including GIS, by which the environmental consequences of development actions are assessed and evaluated in advance of their occurrence.

GEOG 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

GEOG 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

GEOG 600. Geography Research Colloquium. 1 Hr. PR: Consent. Lectures and presentation on recent and current research by resident and visiting scholars.

GEOG 601. Geographic Traditions. 3 Hr. PR: Consent. Review of the major approaches in geographic scholarship.

GEOG 602. Geographic Research-Design. 3 Hr. PR: GEOG 300 and GEOG 601. Choosing, preparing, and developing research problems of geographic interest. Emphasizes proposal writing and research design alternatives.

GEOG 603. Qualitative Research in Geography. 3 Hr. PR: GEOG 602 or consent. Analysis of qualitative research in geography and related fields. Examine methodological approaches and techniques that explore and interpret issues in the development of geographical research projects.

GEOG 607. Geography of Fire. 3 Hr. PR: Graduate standing. Course explores spatial science and human environment relations through a review of fire ecology literature. This is a seminar-style course with weekly readings, discussion, and a term project required by each student.

GEOG 612. Gender, Society and Space. 3 Hr. PR: GEOG 601 or Consent. Examines how gender and feminist perspectives are an integral part of how space is used, distributed, and perceived in society. Overviews of major developments in the field including diversity and difference, representation, identity, and nature.
GEOG 615. Development Geography. 3 Hr. PR: Consent. An analysis of the concept and practice of development. Alternative people-centered approaches to social change are investigated.

GEOG 621. Advanced Fluvial Geomorphology. 4 Hr. PR: GEOL 321 or GEOG 321 or Consent. Analysis of stream processes, landforms, deposits, including paleohydrology and Appalachian surficial geology. Required weekend field trips at student's expense. (Also listed as GEOL 621.)

GEOG 622. Surficial and Glacial Geology. 4 Hr. PR: GEOL 321 or GEOG 321 or Consent. Analysis of late Cenozoic landscapes, especially those caused by glaciers or otherwise influenced by global climate change. Required weekend field trips at student’s expense. (Also listed as GEOL 622.)

GEOG 630. Sem: Land Use and Cover Change. 3 Hr. Review, discussion, and critique of major scientific approaches to the study of land use and cover change. All world regions and biomes covered. Includes theoretical and technical discussions of change, human dimensions, and policy issues.

GEOG 651. Geographic Information Science: Technical Issues. 3 Hr. PR: GEOG 350. Current issues in GIS research. Technical aspects of GIS operations, algorithms, theory of geographical data structures, and error handling. Labs focus on tools, data structures, database languages and macros. (2 hr. lec., 1 hr. lab.)

GEOG 689. Geography Graduate Student Internship. 1-6 Hr. PR: Consent. Internship in the private or public sector designed for practical application of geographic training.

GEOG 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

GEOG 692 A-Z. Directed Study. 1-3 Hr. Directed study, reading, and/or research.

GEOG 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

GEOG 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

GEOG 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

GEOG 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

GEOG 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

GEOG 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

GEOG 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)
GEOG 701. Advanced Research Methods. 3 Hr. PR: GEOG 601. Review of quantitative and qualitative methods used in geographic research.

GEOG 711. Regional Development. 3 Hr. PR: Consent. Review of contemporary geographic theories of uneven spatial development of capitalism.

GEOG 752. Advanced Geographic and Information Science. I. 3 Hr. PR: GEOG 452 or GEOG 651 or Consent. Functional strengths and weaknesses of GIS. Related geographical information, science technologies, GPS, remote sensing, multimedia, spatial statistics, and expert systems. Multi-dimensionality (4-D GIS), temporality, social implications of GIS.

GEOG 753. Exploratory Spatial Data Analysis. 3 Hr. Develop expertise in spatial analytical techniques for use in geographical data analysis and GIS.

GEOG 755. Advanced Remote Sensing. 3 Hr. PR: GEOG 455 or GEOL 455 or Consent. Collection, processing, and classification of remotely sensed data, including optical, thermal, radar, and topographic information. (2 hr. lec., 1 hr. lab.) (Also listed as GEOL 755.)

GEOG 780. Non-Thesis Project. 3 Hr. Research activities leading to a non-thesis project report.

GEOG 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

GEOG 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

GEOG 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

GEOG 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

GEOG 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition- waived, continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Geology (GEOL)

GEOL 510. Computer Aided Subsurface Interpretations. 3 Hrs. PR: GEOL 311 and GEOL 341. Develop subsurface interpretations from integrated geological, geophysical and engineering databases in a computer workstation environment. Construct maps and 3D visualizations of subsurface structure, seismic horizons, layer properties, etc., for prospect location and subsurface assessment.

GEOL 511. Sedimentary Geology in Ireland. 2 Hr. PR: GEOL 311. PR: GEOL 311. Field course to study the sedimentary rock of Dingle, Ireland— their origin, classification, and economic importance. (Course is an extended field trip during spring break. Student is responsible for all expenses.)

GEOL 511A. Sedimentary Geology in Ireland - Travel. 1 Hr. Travel portion of GEOL 511. See GEOL 511 for description.

GEOL 525. Problems in Geomorphology. 1-4 Hr.
GEOL 543. Tectonics. 3 Hr. PR: GEOL 341 and GEOL 311; undergraduates need Consent. Investigation of patterns and processes of large-scale deformation mechanisms that shape the earth. Focuses on the structural evolution and modeling process of various plate boundaries.

GEOL 554. Environmental and Exploration Geophysics 2. 3 Hr. PR: PHYS 102 and (MATH 156 or GEOL 351) or Consent. Basic and applied studies of reflection and refraction seismology and ground penetrating radar methods will be covered with an emphasis on the use of computers in the modeling and interpretation of seismic data.

GEOL 562. Quantitative Hydrogeology. 3 Hr. PR: MATH 156 or GEOL 351 and GEOL 463 or Consent. Mathematical and computer analysis of groundwater flow, aquifer systems, radial-flow solutions; well/aquifer test methods; superposition, boundaries; dispersive/advective transport.

GEOL 564. Environmental Hydrogeology. 4 Hr. PR: GEOL 101 and GEOL 102 and GEOL 463 and (PR or CONC: GEOL 562). Seminar reviewing groundwater occurrence, flow, quality, and exploration in various geologic terrains; groundwater pollution and dewatering; and groundwater technology. Includes topical literature review.

GEOL 580. Organic Contaminant Geochemistry. 3 Hr. This course focuses on fundamental chemical properties and structures of organic contaminants that control their functionality, fate, and transport in the environment. Natural organic matter and inorganic phases are discussed relative to contaminant mobility.

GEOL 585. Optical Mineralogy and Petrology. 3 Hr. PR: GEOL 285. Introduction to the optical properties of minerals and the use of the petrographic microscope. Interpretation of sedimentary, igneous, and metamorphic rocks based on microscopic examination of thin sections. (Offered alternate years.)

GEOL 588. Aqueous Geochemistry. 3 Hr. PR: GEOL 101 and CHEM 112 or CHEM 116, or Consent. Review of basic chemical principles as they apply to aqueous geochemical environments. Properties of water and the types, sources, and controls of the common and environmentally significant chemical species dissolved in water.

GEOL 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

GEOL 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

GEOL 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

GEOL 610. Advanced Stratigraphy. 3 Hr.

GEOL 611. Carbonate Sedimentology. 4 Hr. PR: GEOL 331 and GEOL 311. Origin and distribution of modern marine carbonate sediments as models for interpretation of ancient limestone and dolomite facies.

GEOL 615. Stratigraphy of Porous Media. 3 Hr. PR: GEOL 311. Advanced discussion of the deposition of clastic sediments, chemistry of carbonates, sequence stratigraphy, porosity development in sandstones and limestones, flow of oil through rock.

GEOL 616. Advanced Sedimentation. 4 Hr. PR: GEOL 311 or Consent. (Required field trips at student’s expense.) Origin of sedimentary rocks; principles involved in interpretation of ancient geography, climates, animals, and plants. Emphasis on detrital sediments and rocks.
GEOL 619. Advanced Petroleum Geology. 3 Hr. Petroleum source rocks, thermal and biogenic maturity, primary and secondary migration of oil, porosity development in reservoirs, permeability. (Required weekend field trip.)

GEOL 621. Advanced Fluvial Geomorphology. 4 Hr. PR: GEOL 321 or GEOG 321 or Consent. Analysis of stream processes, landforms, deposits, including paleohydrology and Appalachian surficial geology. (Required weekend field trips at student's expense; also listed as GEOG 521.)

GEOL 622. Surficial and Glacial Geology. 4 Hr. PR: GEOL 321 or GEOG 321 or Consent. Analysis of late Cenozoic landscapes, especially those caused by glaciers or otherwise influenced by global climate change. (Required weekend field trips at student's expense; also listed as GEOG 522.)

GEOL 632. Paleoecology. 3 Hr. PR: GEOL 331 and GEOL 311 or Consent. Methods of paleoecologic analysis in sedimentary geology. Topics include trace fossil analysis, shell biogeochemistry, community paleoecology, biofacies analysis of basins, and Precambrian paleoecology.

GEOL 642. Advanced Structural Geology. 3 Hr. PR: GEOL 341. Theoretical and observational aspects of the development of geological structures. Problems ranging from the microstructural to the orogenic scale will be addressed.

GEOL 645. Basin Structures. 4 Hr. PR: GEOL 341 and GEOL 311 or equivalent. The origin, development, and distribution of basins and the structure found within basins throughout the world are studied. The distribution of energy-related minerals related to basins and structural accumulations is emphasized.

GEOL 659. Quantitative Methods in Geoscience. 3 Hr. PR: STAT 312 or STAT 511 or Consent. Brief review and introduction to multivariate quantitative techniques as applied to geology and geography.

GEOL 665. Groundwater Modeling. 4 Hr. PR: GEOL 562 or Consent. Theory and application of groundwater flow modeling, focusing on MODFLOW; numerical methods; discretization and boundaries; parameterization and calibration; problems and case histories.

GEOL 666. Karst Geology. 3 Hr. PR: Consent. Review of karst terrain hydrogeology and geomorphology, emphasizing origins and nature of caves, sinkholes and other karst landforms, environmental problems of karst, and its water and mineral/petroleum resources.

GEOL 687. Physical Geochemistry. 3 Hr. PR: GEOL 285 and CHEM 116. Introduction to thermodynamics and its application to geologic systems. Equilibrium calculations involving pure phases and solutions in gaseous, liquid, and solid states.

GEOL 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of geology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

GEOL 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

GEOL 692 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

GEOL 693. Special Topics. 1-6 Hr. PR: Consent. Investigation of topics not covered in regularly scheduled courses.
GEOL 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

GEOL 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

GEOL 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

GEOL 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of the student’s reports, thesis, or dissertations. (Grading may be S/U.)

GEOL 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

GEOL 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

GEOL 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of the student’s reports, thesis, or dissertations. (Grading may be S/U.)

GEOL 755. Advanced Remote Sensing. 3 Hr. PR: GEOG 455 or GEOL 455 or Consent. Collection, processing and classification of remotely sensed data, including optical, thermal, radar, and topographic information. (2 hr. lec., 1 hr. lab. Also listed as GEOG 755.)

GEOL 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of geology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

GEOL 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

GEOL 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

GEOL 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

GEOL 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

GEOL 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

GEOL 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

GEOL 930. Professional Development. 1-6 Hr. PR: Consent. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

German (GER)
GER 545. Enlightenment Through Romanticism. 3 Hr. PR: 18 Hr. of German or consent. Critical study of German literature from 1750 to 1830.
GER 546. The Liberal Age. 3 Hr. PR: 18 Hr. of German or Consent. Critical study of German literature from 1830 to 1870.

GER 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of German. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

GER 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

GER 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

GER 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

GER 594 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

GER 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

GER 611. Literary Criticism. 3 Hr. An introduction to the most important theories within modern literary criticism.

GER 649. The German Novel. 3 Hr. A study of representative novels from various periods.

GER 650. German Democratic Republic Literature. 3 Hr. A literary-historical study of representative works from the German Democratic Republic (1945-1990).

GER 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of German. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

GER 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

GER 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

GER 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

GER 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

GER 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

GER 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

GER 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
GER 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

GER 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

GER 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

Gerontology (GERO)
GERO 512. Public Policy of Aging. 3 Hr. Policy analysis of public programs for senior citizens - Older Americans Act, Medicare-Medicaid and Social Security. Discussion of future of these programs and societal response. Emphasis on senior programs in West Virginia. (Equivalent to GERO 412)

GERO 628. Aging Women & Cultural Issues. 3 Hr. This course will use a multi-disciplinary approach to examine the impact of gender, race/ethnicity, and culture on aging, and the aging population.

GERO 629. Survey Methods. 3 Hr. Students are provided the scientific knowledge and practical skills used in survey research. Focus is on question construction and development, questionnaire design, sampling and survey modes, interviewing techniques and survey data analysis.

GERO 645. Fundamentals of Gerontology. 3 Hr. This course introduces students to a broad spectrum of topics and issues related to aging by drawing upon several core disciplines and their contributions to the corpus of gerontological knowledge and research.

GERO 681. Rural Gerontology. 3 Hr. Overview of health, social, and policy issues that impact the quality of life of older adults living in rural environments, contrasted with those in urban areas.

GERO 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

GERO 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

GERO 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

GERO 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Graduate Academy (GRAD)
GRAD 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
GRAD 685. Teaching Capstone. 1 Hr. Students will be introduced to the Scholarship of Teaching and Learning and will learn how to create a teaching portfolio. Fulfills the capstone requirement for the Certificate in University Teaching.

History (HIST)
HIST 550. West Virginia History. 3 Hr. Elective course for public history graduate students and cultural resource management students.

HIST 575. Hollywood and History. 3 Hr. Examines twentieth century American culture, politics and society through film. It explores the relationship between film and history, using films as primary sources for understanding the past and it examines how film is used in teaching history.

HIST 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

HIST 600. Cultural Resource Management. 3 Hr. PR: Consent. Explores principles and practices of managing cultural and material historic resources, with an overview of best practices, federal requirements, and fundamental skills expected of the practitioner.

HIST 610. Historic Site Interpretation. 3 Hr. Introduction to the craft of historic site interpretation. Readings, lectures, and field trips will explore current issues, approaches to developing meaningful experiences for visitors, and the transmission of culture through historic places.

HIST 611. Archival Management. 3 Hr. PR: HIST 412. Principles and practices of archival work within a laboratory context. Includes lectures and selected readings illustrated by holdings and policies of West Virginia and Regional History Collection of the WVU Library.

HIST 613. Local History Research Methodology. 3 Hr. Emphasis on research methods applicable to any locality; includes legal records, oral records, secondary sources, photographs, maps, and government documents.

HIST 614. Internship in Public History. 1-6 Hr. PR: Consent. A professional internship at a historical agency. Supervision is exercised by history department faculty and the host agency. Written and oral research report required. (Graded S/U.)

HIST 615. Museum Studies. 3 Hr. Introduction to museum management and curation of collections of historic or archaeological significance. Students will learn the basic skills necessary to work with and use museum collections.

HIST 616. History of American Architecture. 3 Hr. Overview of American architecture and architectural styles to enable students to correctly identify building styles in the field.

HIST 619. Understanding Preservation Law. 3 Hr. Overview of legal issues and federal regulations and guidelines in the practice of historic preservation.

HIST 620. Practicum in Cultural Resource Management. 3 Hr. Professional placement or scholarly research project designed to be the capstone experience for students in the CRM graduate certificate program. Placement is tailored to the area of student interest.

HIST 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

HIST 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

HIST 697. Research. 1-15 Hr. PR: Consent. Research activities leading to a thesis, problem report, research paper, or equivalent scholarly project, or dissertation. (Grading may be S/U.)
HIST 700. Historiography. 3 Hr. Core course for entering graduate students: critical survey of important contemporary approaches to history writing, methodological practices, and current issues in the field.

HIST 701. Readings in Medieval History. 3 Hr. Examination of the literature, bibliography, sources, and research methods on selected problems in medieval history, using discussion and written reports on assigned readings. (May be repeated for a maximum of 6 hours.)

HIST 702. Seminar in Medieval History. 3 Hr. PR: HIST 701; (Reading knowledge of Latin and a modern European language strongly recommended.) Directed examination of bibliographic sources and historiographical issues on selected aspects of the Middle Ages, leading to preparation of a research paper based on primary sources.

HIST 705. Readings in Early Modern History 3 Hr. Directed readings on selected major historiographic themes in European history relating to the period from the Renaissance to the French Revolution.

HIST 706. Seminar in Early Modern History. 3 Hr. Research and writing of an article-length paper based on extensive and/or in-depth analysis of early modern primary sources. Class presentations and discussions of colleagues’ work.

HIST 708. Readings In Central European History. 3-6 Hr. All students will read and discuss selected works illustrating outstanding scholarship or interpretative problems related to modern Central European History. Opportunity will be also provided for individual reading projects. (May be repeated once)

HIST 709. Seminar in Central European History. 3 Hr. An intensive survey of the bibliographical aids and printed source materials available in the field. A research paper and a bibliographical essay will be presented by each student. Reading knowledge of German and French strongly recommended. (May be repeated once.)

HIST 714. Readings in Eastern European History. 3-6 Hr. Intensive readings on specific topics in Russian, Soviet or East European history. Students should normally have had History 217 and 218, or their equivalents. Primarily designed for graduate students and selected undergraduates.

HIST 715. Seminar In Eastern European History. 3 Hr. PR: HIST 117, 118 or equivalent. Research seminar on selected topics in Russian, Soviet, or Eastern European history. One major paper and extensive reading based on available source materials is required. (May be repeated once.)

HIST 717. Readings In Western European History. 3 Hr. This course, primarily for graduate students and selected undergraduates, is designed for an intensive reading program on special problems in western European history. (May be repeated once.)

HIST 718. Seminar in Western European History. 3 Hr. A research seminar in selected topics in western European history. One major paper and extensive reading based on available source material is required. A reading knowledge of the appropriate language is required, if applicable.

HIST 721. Readings in Asian History. 3 Hr. Intensive readings in the history of East Asia (especially China and Japan) since the nineteenth century; students should normally have had HIST 425 and 426, or their equivalents; reviews, as well as bibliographical and historiographical essays, required. (May be repeated once.)
HIST 722. Seminar in Asian History. 3 Hr. Advanced readings in East Asian history; specific emphasis on research tools and techniques; research paper based on English-language sources required; students should normally have had HIST 425 and 426 or their equivalents. (May be repeated once.)

HIST 725. Readings in African History. 3 Hr. This course will normally focus on readings and discussion on problems in the history of pre-colonial Africa, the major works in African history, and recent interpretations in the field. (May be repeated once.)

HIST 726. Seminar in African History. 3 Hr. The seminar will normally focus on eastern Africa in the colonial period. Location and use of source materials will be emphasized as well as economic and political developments. Students will spend considerable time in research and writing on selected aspects of eastern African history. (May be repeated once.)

HIST 729. Readings in Latin American History. 3 Hr. Critical examination of selected sources and topics for understanding and interpreting Latin American history. (May be repeated once.)

HIST 730. Seminar In Latin American History. 3 Hr. PR: Consent. Survey of Latin American historiography, location and use of primary source materials, discussion of research techniques, and the writing of a research paper. Reading knowledge of Spanish, Portuguese, or French will be helpful. (May be repeated once.)

HIST 731. Readings In American History: 1585-1763. 3 Hr. Supervised readings and reports designed to prepare students for intensive study in a seminar or for field examinations in colonial American history. (May be repeated once.)

HIST 732. Seminar in American History: 1585-1763. 3 Hr. PR: HIST 331 or consent. Directed research on colonial American history, using original and secondary materials. (May be repeated once.)

HIST 755. Readings in American History: 1763-1800. 3 Hr. Readings and reports designed to prepare students for an intensive study in a seminar or field examination. (May be repeated once.)

HIST 756. Seminar In American History:1763-1830. 3 Hr. PR: HIST 755 or consent. Advanced readings and research in revolutionary and early national American history. (May be repeated once.)

HIST 757. Readings In U.S. History: 1787-1850. I. 3 Hr. Critical examination of major works and themes on the political, economic, social, and legal formation of the nation. (May be repeated once.) (Alternate years.)

HIST 758. Seminar In U.S. History: 1787-1850. II. 3 Hr. Directed research in early United States history. Research will include primary and secondary sources. (May be repeated once.) (Alternate years.)

HIST 759. Readings In U.S. History: 1840-1898. 3 Hr. Survey of interpretative literature on Sectionalism, Civil War, Reconstruction and Gilded Age. Assignments are both oral and written reports on assigned readings and a critical essay on some aspect of American historiography for this period.

HIST 760. Seminar In U.S. History:1850-1898. 3 Hr. Directed research in mid-and late 19th century American history, including guidance in methods of research and manuscript preparation. (May be repeated once.)
HIST 763. Readings In U.S. History: 1898-Present. 3 Hr. Readings and class-led discussion of one paperback book per week, and preparation of a paper based on these books and the class discussion of them. (Course may be repeated for credit.)

HIST 764. Seminar In U.S. History: 1898-Present. 3 Hr. Directed research in recent American history including guidance in methods of research and manuscript preparation. May be repeated once.

HIST 765. Readings in U.S. Diplomatic History. 3 Hr. Readings in U.S. Diplomatic History with an emphasis on the 20th century.

HIST 766. Seminar in U.S. Diplomatic History. 3 Hr. Directed research in the history of U.S. foreign policy with emphasis on 20th century including guidance in methods of research and manuscript preparation.

HIST 773. Readings in Appalachian Regional History. 3 Hr. A course for graduate students and seniors in the history of West Virginia and neighboring states, which form what is known as the Trans-Allegheny or Upper Ohio region. (May be repeated once.)

HIST 774. Seminar in Appalachian Regional History. 3 Hr. A seminar for graduate students in the history of West Virginia and neighboring states, which form what is known as the Trans-Allegheny or Upper Ohio region. (May be repeated once.)

HIST 775. Readings in Science and Technology. 3 Hr. Examination of the literature, bibliography, and sources on selected topics in the history of science and technology. Class discussions and written reports on assigned topics. (Course may be repeated for credit.)

HIST 776. Seminar in Science and Technology. 3 Hr. PR: HIST 775 or consent. Research seminar in the history of science and technology. Discussion of methods and sources; presentation and critique of research papers based on primary sources. (Course may be repeated for credit.)

HIST 782. Readings in U.S. Social History. 3 Hr. The objective of the course is to establish for graduate students usable frames of reference for selected topics in social history by examining the ways in which historians have written about these topics. (Course may be repeated for credit.)

HIST 785. Readings in Environmental History. II. 3 Hr. Examines broad themes including settlement patterns, attitudes toward nature, the rise of ecological science, and agricultural and industrial practices. Explores historiographical and methodological issues. (May be repeated once.) (Alternate years.)

HIST 786. Seminar in Environmental History. II. 3 Hr. Directed research involving primary and secondary sources. Will focus on regional case studies and examination of broad intellectual and policy themes. (May be repeated once.) (Alternate years.)

HIST 787. Readings in World History. 3 Hr. Core course for teaching concentration in world history; review of selected exemplary and recent readings in world history; evaluation of textbooks and teaching materials; composition of syllabi, lectures, and assignments.

HIST 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practices in college teaching of history. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibilities. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

HIST 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.
HIST 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

HIST 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

HIST 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

HIST 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

HIST 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate students body of his/her program.

HIST 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or dissertation. (Grading may be S/U.)

HIST 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

HIST 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

HIST 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

HIST 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition- waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Horticulture (HORT)
HORT 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of Horticulture. Note: this course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

HORT 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

HORT 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.
HORT 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

**Human Nutrition and Foods (HN&F)**

HN&F 610. Nutrition and Fitness. 3 Hr. PR: HNF 171 or equivalent. Upon completion of this course the student will understand the physiological and metabolic changes that occur during physical activity and the ways in which those changes alter nutritional requirements.


HN&F 670. Human Nutrition Concepts and Application. 3 Hr. PR: HNF 460 or equivalent, and consent. Critical study of the nutrient evaluation methods and the nutrient requirements of the human in health and disease, and scope of its application.

HN&F 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

HN&F 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

HN&F 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

HN&F 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

HN&F 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

HN&F 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

**Humanities (HUM)**

HUM 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

**Industrial Engineering (IENG)**

IENG 502. Advanced Manufacturing Processes. 3 Hr. PR: IENG 302 and IENG 303. Metal cutting economic models, solidification processes, bulk deformation, sheet metal and drawing, joining design, and economics. Overall view of manufacturing systems. Introduction to numerical control programming and projects on numerical control equipment.

IENG 505. Computer Integrated Manufacturing. 3 Hr. PR: Graduate standing. Several aspects of computerized manufacturing systems will be covered. Emphasis will be placed on computer fundamentals, computer-aided design and manufacturing, numerically-controlled (NC) machine tools, part programming, system devices, and direct digital control. (2 hr. lec., 1 hr. lab.)
IENG 506. Computer Aided Process Planning. 3 Hr. PR: Consent. Computer aided process planning for manufacturing applications; selection of processes and parameters; machining, casting, and forming; development of process plans from design data; analysis of effect of changes in design on manufacturability in concurrent engineering.

IENG 507. Robotics and Flexible Automation. 3 Hr. PR: Graduate standing. This course will provide an understanding of the principles, capabilities, and limitations of industrial robots and other flexible automation tools. Emphasis will be placed on kinematic analysis, trajectory planning, machine vision, and manufacturing automation. (2 hr. lec., 1 hr. lab.)

IENG 508. Advanced Problems in Manufacturing Engineering. 1-3 Hr. PR: IENG 593 or IENG 502; Graduate standing. Special problems relating to one of the areas of manufacturing engineering, such as manufacturing processes, robotics, CAD/CAM, group technology, and manufacturing systems engineering.

IENG 514. Design of Industrial Experiments. 3 Hr. PR: IENG 314 or Consent. Continuation of IENG 314. More complex experimental design especially useful to engineering and industrial researchers, including factorials and optimum-seeking design. Emphasis on use of existing digital computer routines and interpretation of results.

IENG 518. Technology Forecasting. 3 Hr. PR: IENG 213 or Consent. Various procedures used in forecasting technical developments.

IENG 542. Advanced Production Control. 3 Hr. PR: IENG 350. Different mathematical models useful in the design of effective production control systems. The various models include: static production control models under risk and uncertainty; dynamic models under certainty and under risk.

IENG 551. Quality and Reliability Engineering. 3 Hr. PR: Graduate standing. Introduction to quality and reliability engineering. Special emphasis on Taguchi Design and Markov Models for determining system reliability and availability.

IENG 553. Applied Linear Programming. 3 Hr. PR: IENG 350 or Consent. Application of the assignment, transportation, and simplex algorithms to typical industrial problems. The methods and computational efficiencies of the revised simplex and other algorithms are also studied.

IENG 554. Applied Integer/Heuristic Programs. 3 Hr. PR: IENG 350 or IENG 553 and knowledge of a computer programming language. Applications of integer and heuristic programming techniques for solving combinatorial optimization problems. Topics include computational complexity, relaxations, branch and bound, cutting planes, simulated annealing, tabu search, and genetic algorithms.

IENG 555. Scheduling and Sequencing Methods. 3 Hr. PR: IENG 350. Theory and applications of analytical models used in the scheduling models; flow shop models; job shop models; and assembly line balancing methods.

IENG 556. Supply Chain Management. 3 Hr. PR: IENG 350 or IENG 553. Principles and methods for designing and managing supply chain systems. Topics include: forecasting demand, strategies, aggregate planning, inventory control, outsourcing, transportation networks, and locating facilities within the supply chain network.

IENG 561. Industrial Hygiene Engineering. 4 Hr. Introductory course in industrial hygiene with laboratory. Topics include: recognition, evaluation, and control of occupational and environmental contaminants and physical agents; basic IH quantitative analysis; PPE selection and evaluation.
IENG 564. Industrial Ergonomics. 3 Hr. PR: IENG 360 or Consent. Practical experience in the application of ergonomic principles to industrial problems. Safety and production implications of work physiology, industrial biomechanics, and circadian rhythms, as well as current interest topics.

IENG 577. Advanced Engineering Economy. 3 Hr. PR: IENG 377 or Consent. Special emphasis on depreciation, engineering and economic aspects of selection and replacement of equipment; relationship of technical economy to income taxation; effect of borrowed capital and project cost control.

IENG 578. Costing and Estimating. 3 Hr. PR: IENG 377 or Consent. Analysis of overhead, cost indexes, cost capacity factors; improvement curves; costing for materials with design considerations, conceptual cost estimating; costing for machining, joining, casting and forming; and facility cost estimation.

IENG 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

IENG 660. Human Factors System Design. 3 Hr. PR: IENG 360 or Consent. Theoretical aspects and practical applications of man/machine relationships as they influence future system design. The student will examine human limitations with respect to acceptance of information, decision making, and ability to transmit the result of such decisions to controlled equipment systems to obtain design optimization. (2 hr. lec., 3 hr. lab.)

IENG 662. Systems Safety Engineering. 3 Hr. PR: IENG 461 or Consent. Analysis of manufacturing methods, processes, and properties of materials from a system safety engineering viewpoint. Emphasis will be on hazard analysis techniques (fault tree, MORT, failure modes, and effects) and machine guarding methods.

IENG 668. Advanced Problems in Human Factors. 1-3 Hr. PR: IENG 360 or IENG 660 and graduate standing. Special problems relating to one of the areas of human factors, such as ventilation, ergonomics, controls, vigilance, safety, and occupational health.

IENG 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

IENG 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

IENG 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

IENG 697. Research. Variable 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

IENG 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

IENG 754. Inventory Theory. 3 Hr. PR: IENG 213 and IENG 350 or Consent. Techniques used in optimization of inventory systems. Elements of static, deterministic inventory models, and static, stochastic inventory models. Selected inventory models. Selected topics related to inventory analysis.

IENG 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of industrial and management systems engineering. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

IENG 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

IENG 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

IENG 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

IENG 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

IENG 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

IENG 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

IENG 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

IENG 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

IENG 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

**Industrial Hygiene and Safety (IH&S)**

IH&S 527. Noise Measurement and Control. 3 Hr. PR: Senior or graduate standing. Includes noise physics, effects of noise on hearing and well-being, noise exposure regulations, and engineering of noise control. Practical experience with noise dosimeters and sound level meters is provided by a field trip.

IH&S 528. Industrial Ventilation Design. 3 Hr. PR: Senior or graduate standing. Design of industrial exhaust ventilation for contaminant control. Includes dilution ventilation, hood design, duct system design, selection of fans and air-cleaning devices, and measurement of flows and pressures.
IH&S 627. Industrial Hygiene-Noise Assessment and Control. 3 Hr. PR: Consent. Industrial hygiene aspects of assessing and controlling noise induced hearing loss. Practical experience with noise dosimeters, sound-level meters and instrumentation used to access human noise exposure is provided by field trips and case studies.

IH&S 628. Ventilation Control Technology. 3 Hr. PR: IMSE 561 or Consent. The course will demonstrate techniques for the recognition, evaluation, and control of noise and ventilation problems. Students will use monitoring equipment to evaluate situations and perform several design projects.

IH&S 685. Internship. 3-6 Hr. PR: Consent. (May be repeated.) Professional internship providing on-the-job training under supervision of a previously approved environmentalist in settings appropriate to professional objectives.

IH&S 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

IH&S 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

IH&S 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

IH&S 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

IH&S 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

IH&S 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

IH&S 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading will be S/U.)

IH&S 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

IH&S 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

IH&S 725. Industrial Hygiene Sampling and Analysis. 4 Hr. PR: IENG 561 and Consent. Calibration and use of sampling and analytical equipment used by industrial hygienists to evaluate the work environment. Advantages and disadvantages of different equipment under various conditions. Biological monitoring as an evaluation tool.

IH&S 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
Industrial and Labor Relations (ILR)

ILR 501. Accounting/Economics/Finance. 3 Hr. Overview of accounting, economics and finance as they apply toward making the human resources/industrial relations profession a strategic business partner.

ILR 502. Industrial Labor Relations Management and Marketing 3 Hr. Overview of management and marketing functions as they apply to human resource and industrial relations area. Designed for students without a business educational background. Focus on concepts, practices and ideas.

ILR 505. Employment Law. 3 Hr. PR: ILR 462. Survey of the legal principles guiding the employer-employee relationship. Examines laws regulating hiring, job opportunity, discrimination, affirmative action, sexual harassment, wages, benefits, privacy right, health, safety, employment at will, layoffs and termination.

ILR 506. Performance Management and Training. 3 Hr. PR: ILR 462. Development of individual employees in an organization; performance evaluation, discipline of problem employees, identifying training needs, and design and delivery of training programs.


ILR 508. Organizational Change and Renewal. 3 Hr. PR: ILR 462. Organizational evolution as a result of multiple change process, including employee involvement, empowerment, high performance organizations, process consulting, and goal setting. Emphasis on organizational and union relationships.

ILR 509. Staffing and Selection. 3 Hr. PR: ILR 462. Theoretical, practical, and legal issues involved in staffing and selection in organizations; human resource planning, recruiting, employment testing, statistical analysis, legal issues, and selection methods.

ILR 520. HR Information Systems. 3 Hr. PR: ILR 462. Use of computers for human resource management; HRIS planning, development and implementation, evaluating existing software; development of a database unique to human resource management.

ILR 522. International Industrial Relations. 3 Hr. PR: ILR 462. Analyzes the human resource and labor relations practices of firms and economies as they relate to the global market; basis of international business, legal/governmental environmental, labor movements, and industrial relations practices.

ILR 530. Compensation Issues. 3 Hr. PR: ILR 462. Seminar in compensation designed to develop further understanding of compensation theory and practice. Topic areas will include labor supply, wage theory, legal constraints, motivation, equity theory, organizational development as well as compensation structure and administration.

ILR 534. Work Group Dynamics and Leadership. 3 Hr. PR: ILR 462. Small group or individual research on topics related to leadership and group dynamics in the work environment including training and other human relations programs.

ILR 537. Practicum in Industrial Interviewing. 3 Hr. PR: ILR 462. Experiential learning of industrial interviewing techniques covering legal and technical aspects of employment interviewing and other types of interviewing.

ILR 540. Arbitration Theory and Practice. 3 Hr. PR: ILR 462 and consent. Study of the purpose of arbitration, trends, principles of contract construction, hearing procedure evidence, remedies, training and education of arbitrators, training of advocates, and decision writing. Students will arbitrate mock cases.
ILR 543. Negotiation Strategy. 3 Hr. PR: ILR 462. Theory and practice of both principled negotiations and position bargaining; extensive role play and technique building exercises for individual and team negotiations; detailed preparation methods for all types of personal and professional negotiations.

ILR 544. Benefits. 3 Hr. PR: ILR 462. Considers employee benefits from the perspective of the industrial relations specialist who is responsible for articulating and administering a corporate program. Includes study of all benefits covered by major federal legislation.

ILR 545. Equal Employment Opportunity. 3 Hr. PR: ILR 462. A series of lectures by specialists in equal employment opportunity affairs. Lectures will include attorneys, directors of state and national EEO agencies, and representatives of business and industry and the labor movement.

ILR 548. Strategic Management for Human Resources. 3 Hr. PR: ILR 462. Stages and types of strategies; Formulation and implementation of strategies; human resource aspects of planning and strategic assessment; extensive case analysis and team projects.

ILR 549. Advanced Strategic Management. 3 Hr. This is a case-based course. Case analyses and discussion will focus on the concepts of strategy creation, organization alignment strategy implementation and strategy leverage.

ILR 562. Collective Bargaining and Labor Relations. 3 Hr. PR: ILR 462. Examination of the theory and practice of collective bargaining. Topics include economic and historical environment, labor law, unionization, contract negotiation, patterns in contract content, conflict resolution, grievance handling, and an introduction to arbitration.

ILR 580. Human Resources Practicum. 3 Hr. This course offers professional development opportunities through a series of applied seminars taught by practicing professionals.

ILR 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of industrial labor relations. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on Assistantships to gain teaching experience. (Grading will be S/U.)

ILR 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ILR 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

ILR 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ILR 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ILR 689. MS-IR Internship. 3 Hr. PR: Consent. Supervised professional experience in human resources and/or industrial relations. Internships are organized, administered, and evaluated jointly by faculty, student, and sponsoring organization. Minimum 12 contact hours per week.

ILR 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ILR 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ILR 695. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.
ILR 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

ILR 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ILR 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

ILR 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Instructional Design and Technology (IDT)

IDT 600. Development of Instructional Materials. 3 Hr. Design and development of media and instructional units for education in the technologies.

IDT 601. Distance Education. 3 Hr. This course addresses the nature of technical communication systems in distance education, their configuration and behavior, and the organizational factors associated with their development, acquisition, use, evaluation, and maintenance.

IDT 611. Computer Mediated Communication. 3 Hr. Internet. This course will address the fundamental mechanics of using computers to access information networks for application in elementary, secondary, and higher education classroom instruction, as well as other education/business teaching/learning environment.

IDT 685. Practicum. 1-12 Hr.

IDT 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent Investigation of advanced topics not covered in regularly scheduled courses.

IDT 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

IDT 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

IDT 700. Contemporary Problems in Transportation. 3 Hr. Technical and social/cultural problems related to efforts in the development and utilization of new and improved modes of transportation.

IDT 701. Technical Developments in Transportation. 3 Hr. Selected developments in transportation technology. Principles, concepts, and processes fundamental to the design and development of transportation systems.

IDT 702. Rural Telecommunications. 3 Hr. Analysis of rural telecommunications infrastructure, policy, service providers and agencies related to the role they play in strategic community development and education in rural America.
IDT 710. Contemporary Problems in Communication. 3 Hr. Technical and social/cultural problems related to efforts in the development and utilization of new and improved modes of communication.

IDT 711. Technical Developments in Communication. 3 Hr. Selected developments in communication technology; identification of principles, concepts, and processes fundamental to design and development of communication systems.

IDT 720. Contemporary Problems in Production. 3 Hr. Technical and social/cultural problems resulting from efforts in the development and utilization of new and improved methods of producing goods and services.

IDT 721. Technical Developments in Production. 3 Hr. Selected developments in production technology; identification of principles, concepts, and processes fundamental to the design and development of production systems.

IDT 730. Introduction to Technology. 3 Hr. An introduction to selected technical concepts and the evolution of the technical systems of transportation, communication, and production, with a focus on the relationship of these systems to technological change and the civilization process.

IDT 731. Interdisciplinary Seminar-Technology and Culture. 3 Hr. An analysis of the relationship between individuals, society, and technical systems. Guest presenters assist students in an examination of technology from the perspective of various disciplines.

IDT 732. Technology: Its History and Development. 3 Hr. Major technical periods in the civilization process and the interrelationships of technological developments to the social/cultural milieu.

IDT 733. Readings in Technology and Culture. 3 Hr. Fundamental, historical, and contemporary ideas of the nature of technology as an area of created knowledge.

IDT 734. Innovation and Invention. 3 Hr. A study of the innovation and invention process.

IDT 740. Curriculum Development and Technology. 3 Hr. Development of curriculum components for the study of technology.

IDT 741. Design in Technology. 3 Hr. Study of the design of technical products and systems.

IDT 744. Instructional Technologies Integration. 3 Hr. Development of advanced applications of high-end instructional technologies that support teaching/learning process. Participants will learn a range of technology-based teaching tools, understand the underlying learning theory and pedagogy, and develop instructional modules and prototypes.

IDT 750. Web-Based Instructional Design. 3 Hr. PR: TE 611 or Consent. Addresses the concepts and applications of web-based instructional design as they direct the effective integration of internet activities and resources into a teaching/learning environment.

IDT 751. Internet for Educational Research. 3 Hr. PR: TE 611. An introduction and exploration into the use of Computer Mediated Communication (CMC) for conducting educational research and as a learning/teaching tool.

IDT 790. Teaching Practicum. 1-3 Hr. Supervised practice in college teaching of technology education. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience.
IDT 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

IDT 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

IDT 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

IDT 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

IDT 795. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.

IDT 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

IDT 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project or a dissertation. (Grading may be S/U.)

IDT 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

IDT 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

IDT 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

IDT 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) These tuition- waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Integrated Marketing Communications (IMC)
IMC 610. Introduction to IMC. 3 Hr. PR: Admissions to the program. Overview of advertising, public relations, direct marketing, communications, promotions and online communications.

IMC 611. Marketing Research and Analysis. 3 Hr. PR: IMC 610. Students will learn to (1) specify information needs and design research studies to meet those needs; (2) collect, analyze and use data to make marketing decisions; and (3) communicate research findings and implications.

IMC 612. Audience Insight. 3 Hr. PR: IMC 610. This course focuses on the role that internal and external influences play on consumer insight and decision-making. Topics include: motivation, personality, attitudes, cross-cultural variations, social stratification, information search and post-purchase satisfaction.
IMC 613. Brand Equity Management. 3 Hr. PR: IMC 610. Students examine the various elements that comprise a brand's identity while learning how to apply IMC strategies to build and maintain brand equity. Relationship marketing, cyber-marketing and database marketing are also discussed.

IMC 614. IMC Media Analysis. 3 Hr. PR: IMC 610 and IMC 611. This class will be dedicated to the understanding of media planning including media selection, market analysis, media data, and plan development.

IMC 615. Creative Strategy and Execution. 3 Hr. PR: IMC 610. This course examines the development of the creative brief and strategy statement as well as the basic principles of advertising copy and design for a variety of print, broadcast, and interactive media.

IMC 616. Direct Marketing. 3 Hr. PR: IMC 610. This course focuses on the direct marketing methods used to sell products/services and build mutually beneficial relationships between companies and consumers. Topics include: market segmentation, using a list, developing an offer, cybermarketing and campaign evaluation.

IMC 617. Consumer Sales Promotion. 3 Hr. PR: IMC 610. This course explores the role, function, planning and implementation of consumer sales promotions in IMC. Topics include: continuity programs, coupons, sweepstakes, premiums, sampling, price discounts, and legal regulations.

IMC 618. PR Concepts and Strategy. 3 Hr. PR: IMC 610. Students examine the various functions of public relations in IMC; its impact on key publics and its role in society. Topics include: the evolution of the field, the responsibilities of PR practitioners, ethics, and trends.

IMC 619. Emerging Media and the Market. 3 Hr. PR: IMC 610. An inside look at how modern industry uses emerging media (e.g., webcasts, podcasts, blogs, vlogs, social marketing, RSS feeds) to enhance IMC campaigns. Ethics and the targeting of youth and minorities are also discussed.

IMC 620. Research Methods. 3 Hr. PR: IMC 610 and IMC 611. Students learn to apply qualitative and quantitative methods to different marketing problems and situations. Emphasis is placed on how these methods can be used to guide decisions in IMC. SPSS statistical software is required.

IMC 621. Current Topics in IMC. 3 Hr. PR: IMC 610. This team taught seminar highlights significant issues and trends in IMC. The semester is divided equally into three sections of three weeks per section. A different topic is covered in each section.

IMC 625. Advanced Creative Concepts. 3 Hr. PR: IMC 610 and IMC 615. This course focuses on the creative aspects of executing an IMC strategy for a client. Topics include: visual branding, verbal branding, art direction, creative direction, and media considerations.

IMC 626. B2B Direct Marketing 3 Hr. PR: IMC 610 and IMC 616. This course covers the objectives, strategies, and tactics used in business-to-business (B2B) direct marketing management. Implementation of B2B direct marketing and its role in IMC planning are also discussed.

IMC 628. Applied Public Relations. 3 Hr. PR: IMC 610 and IMC 618. This course provides extensive practical knowledge and experience in public relations. Readings, discussions and assignments help students design key PR tactics including press releases, PSAs, speeches and special events.
IMC 636. Campaigns. 3 Hr. In this capstone course, students develop a complete IMC campaign from target market description to creative execution to evaluation. The course must be successfully completed before a student can receive master of science degree.

IMC 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

**Journalism (JRL)**

JRL 528. Law of the News Media. 3 Hr. The law as it affects the mass media. Considered are such areas as libel, privacy, public records, criminal pre-trial publicity, freedom of information, and obscenity.

JRL 555. Women and Minorities in the Media. 3 Hr. PR: Consent. Students explore the evolution of women and minorities in the media, from the 1960s to the present. Students critically examine how marginalized groups are depicted in mass media texts, such as television, movies, and magazines.

JRL 559. Multimedia Bureau Reporting. 3 Hr. PR: Admission to MSJ program, JRL 428 and JRL 489. In this lab/workshop-style class, graduate students will produce stories for regional media outlets and write a paper based on information from editors/producers.

JRL 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

JRL 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

JRL 594. Seminar. 1-6 Hr. PR: Consent. Advanced study of methodological techniques. Research project chosen from area of student’s major interest. A written report of the study undertaken is required.

JRL 600. Introduction to Graduate Studies. 0 Hr. (Required of all graduate journalism students.) Designed to orient students to graduate study. (Class meets once a week.)

JRL 601. Research Methods. 3 Hr. (Required of all graduate journalism students.) Study of quantitative methods common to research in communications. An introduction to sampling, measurement, analytic procedures, and data.

JRL 604. Mass Media and Society. 3 Hr. (Required of all graduate journalism students.) Study of mass media and their role in and influence on society; includes analysis of the social, political, and economic determinants of media content and character.

JRL 620. Advanced Journalistic Writing and Research. 3 Hr. (Required of all graduate journalism students.) Study of advanced journalistic writing and research techniques. Students will practice the writing and research techniques on topics of their own choosing. Academic or popular topics may be selected.

JRL 689. Ethics of Mass Communication. 3 Hr. PR: Open to graduate journalism students; Consent. Introduction to ethical principles and their application in the development of mass media systems and societal changes; professional codes; case studies; current problems.

JRL 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of Journalism. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)
JRL 691. Professional Field Experience. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

JRL 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

JRL 693 A-Z. Special Topics. 1-6 Hr. PR: Consent. Investigation of topics not covered in regularly scheduled courses.

JRL 694. Seminar. 1-6 Hr. PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

JRL 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

JRL 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

JRL 697. Research. 1-15 Hr. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

JRL 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

JRL 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

**Language Teaching Methods (LANG)**

LANG 521. ESL Methods. 3 Hr. Theory and practice of teaching English as a second language; techniques and approaches for teaching speaking, listening, reading, and writing skills.

LANG 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of languages. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

LANG 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

LANG 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

LANG 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

LANG 594 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

LANG 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.
LANG 621. Teaching Foreign Language in College. 3 Hr. Methods and techniques of teaching a foreign language at the college level.

LANG 622. ESL Theory. 3 Hr. PR: LING 101 or 311. Explores factors and processes involved in the acquisition of English as a second language and their implications for classroom instruction.

LANG 623. ESL Materials and Syllabus Design. 3 Hr. PR: LANG 521. Theory and design of syllabi and materials applied to diverse ESL & EFL teaching situations. Students produce and evaluate all aspects of integrated instructional units.

LANG 624. Second Language Writing. 3 Hr. PR: LING 101 or equivalent. A study of how adults learn to write in a second language and how to help them improve their writing.

LANG 625. Language Assessment. 3 Hr. Introduces fundamental principles of language testing and helps students develop skills in test development, item analysis, interpretation of test results.

LANG 626. Literacy in a Second Language. 3 Hr. reviews theoretical perspectives on reading and literacy development and explores research studies that cover different areas in second language reading and literacy (biliteracy).

LANG 690 A-Z. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of languages. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

LANG 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

LANG 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

LANG 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

LANG 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

LANG 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

LANG 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

LANG 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

LANG 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

LANG 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)
LANG 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

LANG 930. Professional Development. 1-6 Hr. Professional Development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

**Law (LAW)**

LAW 600. Advanced Criminal Law: Case Studies. 3 Hr. PR: LAW 705. The examination of pre-trial, trial and post-trial issues in an actual criminal case, identifying legal errors in all aspects; jury instruction, testimony, evidence to support the conviction and decision.

LAW 601. Lawyers, Poets and Poetry. 3 Hr. The exploration of American historical and contemporary lawyers as poets and the relationship of legal language and poetry, with a theme of reflection and introspection.

LAW 603. Brazilian Study Abroad. 3 Hr. A study abroad course in Brazil that provides students with an immersed learning experience in Brazilian law, culture, and politics. Aspects of Brazilian law are examined and compared to American law and practice.

LAW 689A. Sem: Intellectual Property. 2 Hr. Considers the economic and social role of intellectual property laws in American and world economics. Preparation of a research paper of publishable quality will be required.

LAW 689B. Sem: Judicial Power and Restraint. 2 Hr. This course critically explores the court’s role in our constitutional democracy, including issues of federalism, separation of powers, recusal, interpretation, judicial philosophies, authority, judicial selection, abstention, remedial power, and judicial ethics.

LAW 689C. Sem: Adv Criminal Procedure. 2 Hr. Explores criminal procedure, including bail application, motion, search and seizure, hearings, discovery of evidence, trial structure, appeal, and habeas corpus proceedings.

LAW 689D. Seminar: Environmental Law. 2 Hr. This seminar provides a practical setting for environmental law in a litigation context that uses a case study method.

LAW 689E. Sem: Land Transactions. 2 Hr. This seminar provides the knowledge and practice of title examinations and the documents involved in conveyancing. Students also submit a research paper on an issue involving real estate.

LAW 689F. Sem: Lawyers & Legislation. 2 Hr. Explores the role of lawyers in the legislative process with practical exercise in bill drafting and presentation to legislators.

LAW 689G. Sem: Religion & Constitution. 2 Hr. Explores the major doctrinal issues in the interpretation of the First Amendment’s religion clauses. Related statutory schemes affecting religious liberty such as RFRA and RLUIPA will also be discussed.

LAW 689H. Sem: Bioethics and the Law. 2 Hr. An examination of the theological, philosophical and scientific foundations of bioethics; the operation of bioethical principles in the context of current bioethical controversies; and the relations between bioethics and the law.

LAW 689J. Sem: Civil Rights Litigation. 2 Hr. Explores the history of the American Civil Rights Movement, the legal development of civil rights in the United States, and the development of legal precedents with emphasis on West Virginia Supreme Court of Appeals cases.

LAW 689K. Sem: Civil Disobedience. 2 Hr. An examination of the justification and operation of civil disobedience.

LAW 689L. Seminar Health Care Regulations. 2 Hr. Medical innovation development from concept to clinical application. Primarily designed for law students or business majors, but also extended to medical students. Includes guest lecturers in intellectual property and credentialing areas.

LAW 689M. Sem: Race/Racism and American Law. 2 Hr. This seminar focuses on historical and current event issues regarding race, racism and American law. It offers students the opportunity to advance in research and writing on the subject.

LAW 689N. Sem: Refugee & Asylum Law. 2 Hr. A research and writing seminar examining U.S. and international refugee and asylum law through reading, discussion and individual research.

LAW 689O. Sem: Family Mediation. 2 Hr. A comprehensive exploration of the usage of mediation for the resolution of disputes in the area of family law.

LAW 689P. Sem: Gender and Law. 2 Hr. The examination of the multiplicities of identity regarding the categories of gender, sex, sexual orientation, race and class as used to confer benefits and determine constitutional rights.

LAW 689Q. Sem: Constitutional Litigation. 2 Hr. This course explores the development of U.S. constitutional law from a litigation and advocacy perspective, focusing on theoretical doctrinal, and policy arguments that have been employed to expand constitutional rights.

LAW 700. Legal Analysis, Research and Writing 1. 0 Hr. Introduction to legal analysis, research, and writing. Stresses basic law school skills including case briefing, statutory analysis, and synthesis. Drafting of various legal documents including an office memorandum.

LAW 702. Forensic Mental Health. 2 Hr. This course will address the interface between the law and mental health issues. Topics covered will include the insanity defense, competencies, emotional injury, expert witness, and civil commitment.

LAW 703. Contracts 1. 4 Hr. The study of operation of contracts in society, what it means to have a contract, how contracts are made, and the manner and extent to which contracts and non-contract promises will be enforced.

LAW 705. Criminal Law. 3 Hr. Substantive law of crimes including: (1) the philosophical basis for penal systems, (2) the characteristics of particular crimes, and (3) conditions of exculpation.

LAW 706. Civil Procedure 1. 2 Hr. The study of jurisdictional concepts of civil procedure and the introduction of civil procedures, law, with the examination of the appropriate forums of legal conflict.


LAW 709. Torts 1. 4 Hr. The basic civil common law response to injury. The fault-based liability system for intentional torts, privileges, and negligence. Consideration of fact and proximate cause, joint tortfeasors, and limited duty.
LAW 710. Torts 2. 3 Hr. PR: LAW 709. A continuation of Torts 1. The tort law of land occupiers, damages, defenses, imputed negligence, strict liability, products liability, and modern statutory substitutes for tort law.

LAW 711. Legal Analysis, Research and Writing 2. 4 Hr. PR: LAW 700. Continuation of LAW 700. Stresses research and writing. Drafting of various legal documents culminating in the preparation of a trial motion and memorandum and oral argument of the motion. (Credit for LAW 700, LAW 711.)

LAW 712. Analytical Methods for Lawyers. 3 Hr. An introduction and overview of game theory, probability statistics, finance, accounting and economics, as they relate to the practice of law. Beneficial to students without undergraduate degrees in business or economics.

LAW 713. Toxic Torts. 3 Hr. PR: LAW 709. An in-depth study of the law of toxic torts in the context of environmental harms.

LAW 714. Remedies. 3 Hr. Equity, damages, and restitution. Survey of remedies available for harms.

LAW 715. Appellate Advocacy. 2 Hr. PR: LAW 700 and LAW 711. Survey of appellate practice. Drafting of an appellate brief and an argumentation of the brief.

LAW 716. Wealth Transfers. 3 Hr. An analysis of the laws estate administration, trusts, and future interests governing interstate succession, wills, trusts, and other testamentary substitutes focusing on West Virginia law. Rules of construction governing inner vivas and testamentary dispositions shall also be investigated.

LAW 717. Domestic Violence and The Law. 3 Hr. (Law 769 is recommended.) The examination of civil and criminal statues and case law, as applied to domestic violence, focusing on national trends and West Virginia state law.

LAW 718. Advanced Bankruptcy. 3 Hr. PR: LAW 767. The exploration of bankruptcy code complexities with emphasis on Chapter 11 reorganization.

LAW 719. Income Taxation 1. 3 Hr. Gross income, deductions, exclusions, and gains and losses from dealing in property.

LAW 720. Entertainment Law. 3 Hr. A foundation for the pursuit of a transactional or corporate law career in the entertainment industry. Includes the law contracts, copyright, trademark, and agent representation issues.

LAW 721. Sports Law. 3 Hr. A foundation for the pursuit of a transactional or corporate law career in sports law. Includes the practical application of law of contracts and the process of negotiation.

LAW 722. Civil Procedure 2. 3 Hr. PR: LAW 706. The study of rule making, rule interpretation, and rule application in the context of civil litigation.

LAW 723. Immigration Law. 2-3 Hr. Constitutional underpinnings for immigration power; categories of and requirements for employment-based, family-based, and diversity-based immigration; visas for temporary visitation; problems with illegal immigration; removal procedures; and special policy issues, such as terrorism.

LAW 724. Immigration Clinic. 5 Hr. PR: Law 723. Students work in teams representing real clients with immigration law problems. Instructors supervise the students’ work.
LAW 725. Constitutional Law 1. 3-4 Hr. Basic study of the principles of constitutional decision making. Areas of emphasis include the allocation of power within the federal system, procedural and substantive due process, and equal protection of the law.

LAW 726. Constitutional Law 2. 3 Hr. PR: LAW 725. First Amendment freedoms of speech, press, assembly, association, and petition.

LAW 727. Evidence. 3 Hr. Rules, principles, and practice of the law of evidence covering judicial notice; real, demonstrative, testimonial and circumstantial evidence; hearsay; and other exclusionary rules, privileges, confidential relationships, witnesses, and other related subjects.

LAW 728. West Virginia Constitutional Law. 2 Hr. A study of the West Virginia Constitution, its history, and its judicial interpretation with special emphasis on the branches of state government.

LAW 729. Business Organizations. 4 Hr. Basic introduction to business organizations, their formation, maintenance, and dissolution. Includes agency, partnership, and corporations.

LAW 732. Construction Law. 3 Hr. The course explores specialized legal issues in the law governing building construction including legal relationships among the primary participants in such projects and an examination of current decisional and statutory law affecting those relationships.

LAW 733. Education Law. 3 Hr. A survey of major topics in education law with a focus on public primary and secondary education. The course includes consideration of both constitutional and statutory law affecting schools.

LAW 734. Intellectual Property. 3 Hr. Legal problems in the protection of ideas including copyright, trademark, patent, and law of unfair competition; and their interrelationship.

LAW 735. Patent Law. 3-4 Hr. The application and interpretation of patent law, including the requirements for obtaining a patent, infringement action, and other patent related law and policy.

LAW 736. Legal Estate Planning. 3 Hr. PR: LAW 716. The law in its relation to problems of intergenerational transfers, including federal transfer taxes (estate and gift tax), life insurance, revocable and irrevocable trusts, wills, and the probate process.

LAW 737. Land Use Planning. 3 Hr. PR: LAW 707. An in-depth study of the law of land use planning and zoning, generally and specifically in West Virginia, examining constitutional and statutory basis of land-use controls.

LAW 738. Business Torts. 3 Hr. The study of trademark, trade secrets, and unfair competition law, with a strong emphasis on the development of these doctrines in American law from both a statutory and common law perspective.

LAW 739. American Legal History. 3 Hr. The study of American law from the colonial period to the present with emphasis on the jurisprudential, social, economic, political and cultural influences that have shaped the development of a distinctively American legal system.

LAW 740. Conflict of Laws. 3 Hr. Legal problems arising when an occurrence cuts across state or national boundaries, emphasizing questions of characterization, jurisdiction, foreign judgments, recognition and application of foreign law in selected fields of law.

LAW 741. Employment Law. 3-4 Hr. The course primarily focuses on federal and state regulations of the employee-employer relationships and may include; wrongful discharge, employee discrimination, wage/hour issues, and occupational safety and health.
LAW 742. Professional Responsibility. 3 Hr. Professional responsibility in the administration of justice in society; Code of Professional Responsibility examined in light of traditional and changing demands of the legal system.

LAW 743. Patent Claims Drafting. 2 Hr. PR: LAW 735. A study of all stages of patent prosecution, with an emphasis on claim drafting and amendment of claims. Prosecution study emphasizes drafting responses to official actions.

LAW 744. Law and Economics. 3 Hr. Legal rules and institutions from perspective of economics; basic assumptions and principles with application to private law (contract, tort, nuisance, litigation) and public law (regulations, taxation, redistribution.)

LAW 746. Lawyers and Literature. 3 Hr. A course of literary readings (emphasizing fiction and novels) that involve lawyers and focus on the theme of reflection and introspection.

LAW 747. Health Care Law. 3 Hr. This introductory course in health care law, includes state and federal regulation of the business of health care, “system,” managed care, fraud and abuse, and health care transactions.

LAW 748. Presidential Powers. 2 Hr. This course explores the role of the executive vis-`a-vis Congress and the Judiciary through a study of the historical, textual, and functional bases of executive power, as well as the limitations on it.

LAW 750. Alternative Dispute Resolution. 3 Hr. A theoretical and practical examination of negotiation, court-annexed and private mediation and arbitration, summary jury and mini trials, and other “alternative” dispute resolution processes; an assessment of the appropriateness of ADR for particular legal disputes.

LAW 752. Jurisprudence. 3 Hr. Introduction to legal philosophy. Major jurisprudential issues; definition of law, concept of justice, relation of law and morality considered in light of specific legal theories and contemporary issues.

LAW 753. Estate and Gift Taxation. 3 Hr. Application of federal transfer taxes (estate and gift tax) and West Virginia inheritance tax; inter vivos transfers; joint interests; life insurance; valuation; exemptions, exclusions and deductions; marital deduction.

LAW 754. State and Local Taxation. 3 Hr. Constitutional limitations; examination of specific taxes such as ad valorem, sales and use, business and occupation, and income taxes; tax exemptions; and tax procedure.

LAW 755. Partnership Tax. 2 Hr. PR: LAW 719. The study of Partnership Tax with an emphasis on reading the appropriate sections of the Internal Revenue Code and applying them to various problems to instill in the students the fundamentals of partnership tax.

LAW 756. Trial Advocacy. 4 Hr. PR: LAW 727. Introduction to techniques of, and moral and ethical questions associated with trial practice, jury selection, opening statement, direct and cross examination, closing argument. Lecture, discussion, and simulation.

LAW 757. Law Review Seminar 1. 2 Hr. Legal research, writing, and editing involved in the production for publication of analytical and scholarly commentary on the law. Enrollment is limited to third-year students who are members of the West Virginia Law Review.


LAW 759. Civil Rights. 3 Hr. Survey of federal civil rights and statutes; causes of action to vindicate constitutional rights and remedy discrimination; primary emphases on substance, procedures, and defenses under 42 U.S.C. 1983.
LAW 760. Workers Compensation Law. 3 Hr. A study of the compensation system for work related injuries.

LAW 761. Criminal Procedure. 4 Hr. Investigatory stages of criminal process including search and seizure, interrogation and identification, processing defendant through criminal process; arrest through trial including preliminary hearings, grand jury, discovery, plea negotiation, and double jeopardy.

LAW 762. Federal Courts. 3 Hr. Jurisdiction and procedure in federal courts. Federal question and diversity jurisdiction; removal jurisdiction and procedure; the law applied in federal courts, and procedural rules unique to the federal system.

LAW 763. Employment Discrimination. 3 Hr. Survey of federal and state statutes prohibiting discrimination in employment practices on grounds of race, gender, national origin, religion, age, or disability.

LAW 764. Administrative Law. 3 Hr. Creation and operation of administrative agencies, common procedural practices and requirements of administrative procedure acts, judicial control of administrative agencies.

LAW 766. Coal/Oil and Gas. 3 Hr. Nature of ownership of subsurface minerals; methods of transferring ownership thereof, partition among co-owners, analysis of leasehold estates, and rights and duties thereunder, coal mining rights and privileges.


LAW 768. International Law. 3 Hr. The law governing the behavior of nations; overview of customary law, treaties, dispute resolution, armed conflict, and recent specific problems for the United States in the world community.

LAW 769. Family Law. 3 Hr. The law in its relation to creation, stability, and breakdown of domestic relations including engagement, marriage, annulment, separation, divorce, alimony and child support, custody, and adoption (Based on national and West Virginia law.)

LAW 770. Insurance. 2 Hr. A survey of the basic principles, rules, and issues from the formation of the insurance relationship including indemnity, protections afforded, claims, and payment.

LAW 771. Labor Law. 3 Hr. Labor-management relations under the general jurisdiction of the National Labor Relations Board and the courts. Collective bargaining, administration, and enforcement of labor agreements and enforcement and protection of rights of employees, unions, and the public.

LAW 773. Payment Systems. 2 Hr. The law dealing with bills, notes and checks. The relationship of banks with depositors and other banks; commercial credit operations; creation and protection of claims, and UCC Articles 3, 4 and 4a.

LAW 774. Local Government. 2 Hr. Distribution of governmental authority among local, state, and national governments; public office and employment, liability risks of local governmental action; taxing and budgeting.

LAW 775. Pre-trial Litigation. 3 Hr. This course will immerse students in the daily work of civil litigators. Students will learn the procedural and substantive contours of litigating a hypothetical case from its inception through the eve of trial.
LAW 776. Sales & Secured Transactions. 4 Hr. Functional approach designed to use the UCC for commercial and consumer problems. Focus on sale of goods, security interest in personal property, and Articles 1, 2, 6, and 9 of the UCC.

LAW 777. Health Care Torts. 3 Hr. Introduction to legal issues that arise in the U.S. health care system relating mainly to patient care; emphasizing topics such as medical malpractice, informed consent, patient confidentiality, quality and accessibility of health care to patients.

LAW 778. Trade Regulation. 3 Hr. Federal and state controls of vertical and horizontal integration and the legal limits upon the concentration of economic power in the United States.

LAW 779. Business Transactions Drafting. 4 Hr. Focuses on the process and principles of drafting documents used in connection with various types of business arrangements. Such documents establish norms, or rules of expected behavior between the parties in the business context.

LAW 780. Federal Judicial Externship. 13 Hr. Selected students will serve as regular, full-time clerks to federal district judges in West Virginia. Placement is for one semester. Varied experience is intended to be similar to that of a graduate clerk.

LAW 781. Postmodern Jurisprudence. 3 Hr. This course explores contemporary legal philosophy. It examines reactions of postmodern schools - law and literature, law and economics, critical race, gender law, "queercrit", pragmatism, therapeutic jurisprudence - to classical jurisprudence including natural law, positivism and realism.

LAW 782. Legal Clinic 1. 7 Hr. PR: LAW 706, LAW 722, and LAW 727. A clinical introduction to the arts and skills of lawyering. Students may represent clients and also engage in simulated practice exercises.

LAW 783. Legal Clinic 2. 7 Hr. PR: LAW 782. A continuation of LAW 782. Students are given increased responsibilities for cases and will try a case in a simulated and/or actual trial setting.

LAW 784. Securities. 3 Hr. Federal and state regulations of the distribution of and trading in securities, including the Blue-Sky Laws and federal acts.

LAW 785. Federal Corporate Taxation. 4 Hr. PR: LAW 719. Application of federal income taxation to corporations and shareholders; distributions and redemptions; complete liquidations; corporate acquisitions and divisions; and Subchapter S.

LAW 786. Lugar Trial Advocacy. 2-3 Hr. An extensive lecture series and trial simulation program designed to provide opportunities for students to develop advanced litigation skills. Students must participate in six full-scale mock trials and one outside trial competition.

LAW 787. Intercollegiate Moot Court. 2-4 Hr. Appellate brief writing and argumentation for members of intercollegiate moot court teams.

LAW 788. Legal Interviewing, Counseling and Negotiation. 3 Hr. The course studies each of the lawyer's basic interpersonal skills and develops a client-centered approach to law practice. Readings and class discussion on interpersonal professional relations supplement extensive skills training in simulated cases.

LAW 789. Law of Environmental Protection. 3 Hr. Problems of identifying and evaluating scientific evidence of air and water pollution; weighting the benefits of economic and technological progress against resulting harm to the quality of life; choice among alternative forms of litigation and public regulation as methods of social control.
LAW 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

LAW 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

LAW 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

LAW 794 A-Z. Seminar. 1-6 Hr. Research seminar in various topics. Substantial writing is required under close supervision of the faculty member. (Enrollment limited)

LAW 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.


Legal Studies (LEGS)

LEGS 610. Law and the Legal System. 3 Hr. Introduction to the law and its functions, the structure of the U.S. legal system, and the actors in the legal system.

LEGS 620. Researching the Law. 3 Hr. Provides experience in locating and interpreting primary and secondary legal authority; federal and state constitutions; agency rules and regulations.

LEGS 630. Law and Society. 3 Hr. Explores the relationship between legal rules and social norms; the law's role in defining deviance and establishing social control; issues of equality; where people go to resolve disputes.

LEGS 640. Administrative Legal Process. 3 Hr. Explores the role of administrative agencies in making law.

LEGS 650. The Legislative Process. 3 Hr. Examines how legislation develops and implications of recent legislative reform enactments and proposals.

LEGS 660. Alternative Dispute Resolution. 3 Hr. Theoretical and practical examination of alternative dispute processes and assessment of the appropriateness of alternative dispute resolution for particular legal disputes.

LEGS 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

LEGS 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

LEGS 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

LEGS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

LEGS 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. NOTE: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)
LEGS 700. Research Capstone. 3 Hr. Research activities leading to a scholarly project applying and extending knowledge gained across the master of legal studies program coursework.

LEGS 710. Family Law. 3 Hr. Examines the distribution of power and responsibility among parent, child, and the state related to a variety of family issues and social service workers’ reporting obligations.

LEGS 720. Media and the Law. 3 Hr. Survey of mass media and the law, implications of existing law, and proposed changes.

LEGS 730. Employment Law. 3 Hr. Explores law related to workers compensation, disability insurance, affirmative action/equal opportunity policies, workplace, workplace discrimination and related federal and state statutes.

LEGS 740. Commerce Law. 3 Hr. Survey of the legal principles relating to the organization, operation, and management of business organizations and principles relating to commercial transactions.

LEGS 750. Criminal Law and Procedure. 3 Hr. Covers investigative stages of search and seizure, interrogation, and identification. Familiarizes students with prosecutorial stages and evidentiary issues.

LEGS 760. Administrative Ethics. 3 Hr. Analysis of ethical issues in the law and the administrative decision making process.

LEGS 770. Healthcare Law. 3 Hr. Examines law and health care regulations related to provision of healthcare and issues related to liability.

LEGS 780. Constitutional Law. 3 Hr. Examines the concept of constitutionalism, the relationships between the branches of government and between national and state governments, and the role of the Constitution in protecting individual liberties.

**Library Science (LS)**

LS 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

LS 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

LS 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of library science Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

LS 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

LS 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

LS 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

LS 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.
LS 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

LS 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

LS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

LS 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s program.)

Linguistics (LING)
LING 511. ESL Linguistics. 3 Hr. PR: LING 101 or LING 301. Analysis of English structure for the purpose of teaching it to non-native speakers. Includes identification of problematic aspects and procedures for teaching them effectively.

LING 512. Applied Linguistics. 3 Hr. PR: LING 311 and prior second language study. Study of the application of linguistic analysis in the areas of language acquisition, instruction, and use.

LING 513. History of Linguistics. 3 Hr. PR: LING 311 or Consent. Development of linguistics from Greeks and Romans to contemporary researchers with concentration on major linguists and schools of the nineteenth and twentieth centuries.

LING 514. Sociolinguistics. 3 Hr. PR: LING 101 or LING 311. Linguistic study of geographical and social variation in languages; effects of regional background, social class, ethnic group, sex, and setting; outcomes of conflict between dialect and between languages.

LING 516. Discourse Analysis. 3 Hr. PR: LING 101 or equivalent. A study of the structural properties of spoken and written texts and how they are related to the contextual factors involved in text production.

LING 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of linguistics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

LING 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

LING 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

LING 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

LING 594 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

LING 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.
LING 601. History of the Spanish Language. 3 Hr. PR: 18 Hr. of Spanish and LING 311 or Consent. Evolution of Castilian from Vulgar Latin to its modern standard form through a study of historical phonology, morphology, and syntax, together with the external factors which influenced the development of the language.

LING 603. History of the French Language. 3 Hr. PR: 18 hr. of French and LING 311 or Consent. Evolution of French from Vulgar Latin into the Modern French standard through a study of historical phonology, morphology, and syntax, together with the external factors which influenced the development of the language.

LING 605. History of the German Language. 3 Hr. PR: 18 Hr. of German and LING 311 or Consent. Historical development of standard German languages and dialects.

LING 611. Advanced Phonology. 3 Hr. PR: LING 411. The form of phonological rules and their organization within a grammar, the structure of phonological representations, and the role of language universals in models of language acquisition.

LING 612. Advanced Syntax. 3 Hr. PR: LING 412 or Consent. Examination and discussion of theoretical issues in generative-transformational syntax. Focus on specific proposals advanced within the framework of Government-Binding Theory.

LING 613. ESL Phonetics. 3 Hr. PR: LING 311. Analysis of American English phonetics including sound segments, stress, rhythm, intonation, and positional variants. Techniques and practice offered for teaching pronunciation to non-native speakers.

LING 614. Psycholinguistics. 3 Hr. PR: LING 311 or Consent. Provides an insight into the many areas of psycholinguistics study, including language acquisition, sentence processing, animal communication, dichotic listening, aphasia, and semantics.

LING 615. Language Change and Reconstruction. 3 Hr. PR: LING 311 or equivalent. Exploration of the mechanisms of language change, theories of diachronic linguistics, and techniques for reconstructing unattested languages; concentration on the Indo-European family and its history.

LING 616. Language Typology. 3 Hr. PR: LING 101 or LING 311 or equivalent. Study of the uniformity and diversity of the world’s languages. Which characteristics of human languages are universal and which are subject to cross-linguistic variation. An overview of the main results and methodology of typological research.

LING 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of linguistics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

LING 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

LING 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

LING 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

LING 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.
LING 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

LING 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

LING 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

LING 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

LING 699. Graduate Colloquium. 1-6 Hr. PR: Consent For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her departments Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

LING 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

Management (MANG)
MANG 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of management. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

MANG 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MANG 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MANG 594 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

MANG 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MANG 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

MANG 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MANG 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

MANG 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

MANG 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.
MANG 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

MANG 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

MANG 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Marketing (MKTG)

MKTG 500. Seminar in Marketing. 3 Hr.

MKTG 535. Management Distribution Systems. 3 Hr.

MKTG 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of business and economics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

MKTG 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MKTG 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

MKTG 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MKTG 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

MKTG 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MKTG 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

MKTG 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

MKTG 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)
MKTG 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

MKTG 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) These tuition- waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Mathematics (MATH)


MATH 522. Numerical Solution of PDE. 3 Hr. PR: MATH 261 and computer language. Finite difference and finite element methods for elliptic, parabolic, and hyperbolic problems. Study of properties such as consistency, convergence, stability, conservation, and discrete maximum principles.

MATH 524. Middle School Number and Algebra 1. 2 Hr. PR or CONC: C&I 524. Designed only for in service middle school and elementary mathematics teachers. Sets of numbers as examples of algebraic systems, properties of groups, rings, and fields.

MATH 525. Middle School Number and Algebra 2. 2 Hr. PR or CONC: C&I 525. Continuation of MATH 524. Designed only for in service middle school and elementary mathematics teachers. Properties of polynomials and polynomial rings. Mathematics modeling with finite differences and least squares.

MATH 528. Middle School Functions and Change 1. 2 Hr. PR or CONC: C&I 528. Designed only for in service middle school and elementary mathematics teachers. Function concept, operations on functions, limits, continuity, Intermediate Value Theorem, families of curves, optimization area. Classroom applications current research in learning. Applications in model curricula.

MATH 529. Middle School Functions and Change 2. 2 Hr. PR or CONC: C&I 529. Continuation of MATH 528. Designed only for in service middle school and elementary mathematics teachers. Function concept, operations on functions, limits continuity, Intermediate Value Theorem, families of curves, optimization, area. Classroom applications, current research in learning. Applications in model curricula.

MATH 530. Introduction to Applied Mathematics. S. 1-6 Hr. PR: MATH 251. (Designed especially for secondary-school mathematics teachers; others admitted with departmental approval obtained before registration.) Problem solving and construction of mathematical models in the social, life, and physical sciences. Examples illustrating the origins and use of secondary school mathematics in solving real world problems.
MATH 533. Modern Algebra for Teachers 1. 3 Hr. PR: MATH 251. (Designed especially for secondary-school mathematics teachers. Others admitted with departmental approval obtained prior to registration.) Introduction to algebraic structures; groups, rings, integral domains, and fields. Development and properties of the rational and real number systems.

MATH 534. Modern Algebra For Teachers 2. 3 Hr. PR: MATH 341 or MATH 533. Further investigation of algebraic structures begun in MATH 533. (Emphasis on topics helpful to secondary-school mathematics teachers.) Topics include Sylow theory, Jordan-Holder Theorem, rings and quotients, field extensions, Galois theory and solution by radicals.

MATH 535. Foundations of Geometry. S. 3 Hr. PR: MATH 251 (Designed especially for secondary mathematics teachers; others admitted with departmental approval obtained before registration.) Incidence geometrics with models; order for lines and planes; separation by angles and by triangles; congruence; introduction to Euclidean geometry; geometry.

MATH 536. Transformation Geometry. S. 3 Hr. PR: MATH 341 or MATH 533. (Designed especially for secondary-school mathematics teachers; others admitted with departmental approval obtained before registration.) A modern approach to geometry based on transformations in a vector space setting. The course unifies the development of geometry with the methods of modern algebra.

MATH 541. Modern Algebra. 3 Hr. PR: MATH 341 Concepts from set theory and the equivalence of the Axiom of Choice. Zorn’s Lemma and the Well-Ordering Theorem; a study of the structure of groups, rings, fields, and vector spaces; elementary factorization theory; extensions of ring and fields; modules and ideals; and lattices.

MATH 543. Linear Algebra. II, S. 3 Hr. PR: MATH 441. Review of theory of groups and fields; linear vector spaces including the theory of duality; full linear group; bilinear and quadratic forms; and theory of isotropic and totally isotropic spaces.

MATH 545. Number Theory 1. 3 Hr. PR: MATH 155 or MATH 156. Introduction to classical number theory covering such topics as divisibility, the Euclidean algorithm, Diophantine equations, congruencies, primitive roots, quadratic residues, number-theoretic functions, distribution of primes, irrationals, and combinatorial methods. Special numbers such as those of Bernoulli, Euler, and Stirling.

MATH 551. Real Variables 1. 3 Hr. PR: MATH 451. A development of Lebesgue integral, function spaces and Banach spaces, differentiation, complex measures, the Lebesgue-Radon-Nikodym theorem.

MATH 555. Complex Variables 1. 3 Hr. PR: MATH 451. Number systems, the complex plane and its geometry. Holomorphic functions, power series, elementary functions, complex integration, representation theorems, the calculus of residues, analytic continuation and analytic function, elliptic functions, Holomorphic functions of several complex variables.

MATH 557. Calculus of Variations. 3 Hr. PR: (MATH 261 and MATH 452) or MATH 568. Necessary conditions and sufficient conditions for weak and strong relative minimums of an integral, Euler-Lagrange equation. Legendre condition, field construction, Weierstrass excess function, and the Jacobi equation.

MATH 561. Geometric Modeling-Curves/Surf. 3 Hr. PR: MATH 261 and linear algebra. Mathematical techniques used in CAD/CAM environments, including conics, cubic splines, Bezier splines, B-splines rational Bezier and B-splines, interpolation, geometric continuity, and data exchange.
MATH 563. Mathematics Modeling. 3 Hr. PR: MATH 261 and MATH 465. This course is concerned with construction, analysis, and interpretation of mathematical models that shed light on important problems in the sciences. Emphasis is on the simplification, dimensional analysis, and scaling of mathematical models.


MATH 565. Wave Propagation. 3 Hr. PR: MATH 465 or MATH 567 or Consent. Study of waves in applied mathematics. The wave equation and geometrical optics, water waves, exact solutions, and interacting solitary waves. Basic concepts of hyperbolic and dispersive waves, conservation laws and scalar PDE’s shock waves, Bateman Burgers equation, and hyperbolic systems.

MATH 566. Advanced Calculus. I. 3 Hr. per semester. PR: MATH 261. Primarily for engineers and scientists. Functions of several variables, partial differentiation, implicit functions, transformations; line surface and volume integrals; point set theory, continuity, integration, infinite series and convergence, power series, and improper integrals.

MATH 567. Advanced Calculus. II. 3 Hr. per semester. PR: MATH 567. Primarily for engineers and scientists. Functions of several variables, partial differentiation, implicit functions, transformations; line surface and volume integrals; point set theory, continuity, integration, infinite series and convergence, power series, and improper integrals.

MATH 568. Seminar in Applied Mathematics. 1-12 Hr. PR: Consent. Selected topics in applied mathematics. Topics previously offered include applied linear algebra, computational fluid dynamics, numerical partial differential equations, ordinary differential equations, perturbation methods, and stochastic processes.

MATH 571. Combinatorial Analysis 1. 3 Hr. PR: One year of calculus. Permutations, combinations, generating functions, principle of inclusion and exclusion, distributions, partitions, compositions, trees and networks.

MATH 573. Graph Theory. 3 Hr. PR: MATH 343 and MATH 283. Basic concepts of graphs and digraphs, trees, cycles and circuits, connectivity, traversibility, planarity, colorability, and chromatic polynomials. Further topics from among factorization, line graph, covering and independence, graph matrices and groups, Ramsey theory, and packing theory.

MATH 578. Applied Discrete Mathematics. 3 Hr. PR: MATH 375 or MATH 378 or MATH 341 or MATH 343 or MATH 283. Topics may include combinatorial optimization, applied coding theory, integer programming, linear programming, matching, and network flows.

MATH 581. Topology 1. 3 Hr. PR: MATH 452. A detailed treatment of topological spaces covering the topics of continuity, convergence, compactness, and connectivity; product and identification space, function spaces, and the topology in Euclidean spaces.

MATH 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of mathematics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

MATH 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.
MATH 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

MATH 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MATH 595. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.

MATH 621. Computational Matrix Theory. 3 Hr. Matrix norms singular value decomposition, QR factorization, least-square problems, conditioning and satiability, eigenvalue problems, and iterative methods for solving large systems.

MATH 641. Modern Algebra 2. 3 Hr. PR: MATH 545. Concepts from set theory and the equivalence of the axiom of choice. Zorn's Lemma and the Well-Ordering Theorem; a study of the structure of groups, rings, fields, and vector spaces; elementary factorization theory; extensions of ring and fields; modules and ideals; and lattices.

MATH 645. Number Theory 2. 3 Hr. PR: MATH 305. Introduction to classical number theory covering such topics as divisibility, the Euclidean algorithm, Diophantine equations, congruencies, primitive roots, quadratic residues, number-theoretic functions distribution of primes, irrationals, and combinatorial methods. Special numbers such as those of Bernoulli, Euler, and Stirling.

MATH 651. Real Variables 2. 3 Hr. PR: MATH 551. A development of the Lebesgue integral, function spaces and differentiation, complex measures, the Lebesgue-Radon-Nikodym theorem.

MATH 655. Complex Variables 2. 3 Hr. PR: MATH 555. Number systems, the complex plane and its geometry. Holomorphic functions, power series, elementary functions, complex integration, representation theorems, the calculus of residues, analytic continuation and analytic function, elliptic functions, Holomorphic functions of several complex variables.

MATH 661. Geometric Modeling-Solids. 3 Hr. PR: MATH 561. Mathematical techniques used in CAD/CAM environments, including basic primitives, manifold and non-manifold solids, Euler characteristic, half-space models, constructive solid geometry (CSG), boundary representation (B-rep), Euler operators, Boolean operations, and data exchange.

MATH 671. Combinatorial Analysis 2. 3 Hr. PR: MATH 571. Permutations, combinations, generating functions, principle of inclusion and exclusion, distributions, partitions, compositions, trees, and networks.

MATH 677 A-Z. Topics in Discrete Mathematics. 3 Hr. PR: MATH 571 or MATH 543 or MATH 573. Topics may include algorithmic graph theory, combinatorial designs, matroid theory, (0,1)-matrics, and permanents.

MATH 681. Topology 2. 3 Hr. PR: MATH 581. A detailed treatment of topological spaces covering the topics of continuity, convergence, compactness, and connectivity; product and identification space, function spaces, and the topology in Euclidean spaces.

MATH 683. Set Theory and Applications. 3 Hr. PR: MATH 541 or MATH 551 or MATH 581. The course concentrates on the typical methods of set theory, transfinite induction, and Zorn's Lemma with emphasis on their applications outside set theory. The fundamentals of logic and basic set theory are included.
MATH 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of mathematics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

MATH 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MATH 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

MATH 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MATH 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

MATH 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

MATH 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

MATH 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project or a dissertation. (Grading may be S/U.)

MATH 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, and dissertations. (Grading may be S/U.)

MATH 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her departments graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against requirements for master's program.)

MATH 741. Group Theory 1. 3 Hr.

MATH 742. Group Theory 2. 3 Hr. PR: MATH 741.

MATH 745. Analytic Number Theory 1. 3 Hr. PR: MATH 555 and MATH 645. Selected topics in analytic number theory such as the prime number theorem, primes in an arithmetical progression, the Zeta function, the Goldbach conjecture.

MATH 746. Analytic Number Theory 2. 3 Hr. PR: MATH 745. Selected topics in analytic number theory such as the prime number theorem, primes in an arithmetical progression, the Zeta function, the Goldbach conjecture.

MATH 747. Advanced Topics in Modern Algebra. 1-6 Hr. This course will cover selected topics of modern algebra as an extension of the basic material covered in the 541-641 sequence. The topic will be selected from algebraic number theory, noncommutative rings and modules, representation theory, algebraic model theory, homological algebra. (May be repeated for credit with consent.)
MATH 750. Seminar in Analysis. 1-12 Hr.

MATH 751. Functional Analysis 1. 3 Hr. PR: MATH 551. A study of Banach and Hilbert spaces; the Hahn-Banach theorem, uniform boundedness principle, and the open mapping theorem; dual spaces and the Riesz representation theorem; Banach algebras; and spectral theory.

MATH 752. Functional Analysis 2. 3 Hr. PR: MATH 751. A study of Banach and Hilbert spaces; the Hahn-Banach theorem, uniform boundedness principle, and the open mapping theorem; dual spaces and the Riesz representation theorem; Banach algebras; C* algebras; spectral theory.

MATH 753. Special Functions. 3 Hr. PR: MATH 261 and MATH 452. Operational techniques, generalized hypergeometric functions, classical polynomials of Bell, Hermite, Legendre, Noerlund, etc. Introduction to recent polynomial systems. Current research topics.


MATH 764. Asymptotic Methods. 3 hr. PR: MATH 564. Study of asymptotic methods for differential equations. Basic concepts - asymptotic expansions, asymptotic approximation; asymptotic evaluations of integrals - Laplace’s methods, Kelvin’s methods, the steepest descent; asymptotic solutions of equations; perturbation of eigenvectors; the difference between singular and regular perturbations; multiple scale analysis; the method of matched asymptotic expansions; perturbations of periodic systems.

MATH 771. Matroid Theory 1. 3 Hr. PR: (MATH 541 or MATH 543) and (MATH 571 or MATH 573). Independent sets, circuits, bases, rank functions, closure operators and close sets, other axiom systems, geometric representations, duality and minors, linear and algebraic representability, connectivity, basics of partial ordered sets, flats and lattices, relationship between lattices and matroids.

MATH 772. Matroid Theory 2. 3 Hr. PR: MATH 771. Matroid representability, representability over finite fields, algebraic matroids, matroid constructions, higher connectivity of matroids, binary and ternary matoids, the splitter theorem and its applications, submodular functions, matroid intersection theorem, matroids in combinatorial optimizations.

MATH 773. Advanced Topics in Graph Theory. 3 Hr. PR: MATH 573. Topics may include: Algebraic graph theory, random graph theory, extremal graph theory, topological graph theory, and structural graph theory. (May be repeated for credit with consent.)

MATH 777. Advanced Topics in Combinatorics. 3 Hr. PR: MATH 571 or MATH 677. Topics may include: Combinatorics on finite sets, probabilistic methods in combinatorics, enumerations, Polya Theory, combinatorial matroid theory, coding theory, combinatorial identities, infinite combinatorics, transversal theory, and matroid theory. (May be repeated for credit with consent.)

MATH 780. Seminar in Topology. 1-12 Hr.

MATH 781. Continuum Theory 1. 3 Hr. PR: MATH 581. The fundamental properties of continua (compact, connected, metric spaces), including boundary bumping, space filling curves, structure of special continua, and inverse limits.
MATH 782. Continuum Theory 2. 3 Hr. PR: MATH 781. The fundamental properties of continua (compact, connected, metric spaces), including boundary bumping, space filling curves, structure of special continua, and inverse limits.

MATH 783. Set Theory and Applications. 3 Hr. PR: MATH 683. The course elaborates on the applications of the transfinite induction, and combines recursion methods with other elements of modern set theory, including the use of additional axioms of set theory, introduction to the forcing method.

MATH 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of mathematics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

MATH 791 A-Z. Advanced Topics. I, II. S. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MATH 792. Directed Study. I, II, S. 1-6 Hr. Directed study, reading, and/or research.

MATH 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MATH 794. Seminar. I, II, S. 1-6 Hr. Seminars arranged for advanced graduate students.

MATH 795. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.

MATH 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

MATH 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or dissertation. (Grading may be S/U.)

MATH 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

MATH 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her departments graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against requirements for master's programs.)

MATH 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition- waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.
Mechanical and Aerospace Engineering (MAE)
MAE 521. Advanced Thermodynamics 1. 3 Hr. PR: MAE 321 or MAE 426. First and second laws of thermodynamics with emphasis on entropy production and availability (exergy); Maxwell's relationships and criteria for stability; equations of state and general thermodynamic equations for systems of constant chemical composition.

MAE 525. Heavy Duty Vehicle Emissions. 3 Hr. PR: Graduate student standing in engineering or instructor Consent. Present research and development of advanced heavy-duty engines and their use in vehicle powertrains. Study emissions formation and control from existing and developing heavy-duty vehicle system designs using conventional and hybrid propulsion systems.

MAE 528. Introduction to Fuel Cell Technology. 3 Hr. PR: Graduate student standing in engineering or Consent. Fuel cells definition, types and application areas, thermodynamics of fuel cells, introduction of electrochemistry, Nernst Potential, Butler-Volmer and Tafel equations, experimental techniques, computational techniques, fuel cell materials, fuel processing and storage, stack, and system design.


MAE 532. Dynamics of Viscous Fluids. 3 Hr. PR: Consent. Derivation of and exact solutions for the Navier-Stokes equations; laminar boundary-layer theory, similarity solutions, and integral methods.

MAE 534. Fluid Flow Measurements. 3 Hr. PR: MAE 336 or Consent. Principles and measurements of static and dynamic pressures and temperatures, velocity, and Mach number and forces. Optical techniques and photography. Design of experiments. Review of selected papers from the literature. (2 hr. lec., 3 hr. lab.)

MAE 543. Advanced Mechanics of Materials. 3 Hr. PR: Consent. Shear flow and shear center; curved beams; unsymmetric bending, energy methods in structural analysis; theories of failure; instability of structures; beams on elastic foundation.

MAE 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MAE 621. Advanced Thermodynamics 2. 3 Hr. PR: MAE 521 or Consent. Thermodynamics of multi-component inert and reacting systems; equilibrium analysis; introduction to irreversible processes involving diffusion and chemical kinetics; application of concepts to heterogeneous systems.

MAE 623. Conduction Heat Transfer. 3 Hr. PR: MAE 423 or Consent. Analytical and numerical solutions of steady and non-steady heat conduction problems in one-, two-, and three-dimensional bodies; solution of linearized equations; applications include extended surfaces, moving surfaces, moving heat sources, and instrumentation techniques.

MAE 624. Convection Heat Transfer. 3 Hr. PR: MAE 423 or Consent. Laminar and turbulent flows in forced and free convection systems; external and internal flows with application to heat exchanger design; introduction to aerodynamic heating.

MAE 625. Radiation Heat Transfer. 3 Hr. PR: MAE 423 or Consent. Classical derivation of black body radiation laws; gray body and non-gray analysis; radiant properties of materials, radiant transport analysis, specular-diffuse networks, gas radiation, thermal radiation measurements; analytical, numerical solutions, and study of selected publications. (3 hr. lec.)

MAE 633. Computational Fluid Dynamics. II. 3 Hr. PR: MAE 532 or equivalent. Finite difference methods; convergence and stability; Navier-Stokes equations; discretization methods; grid distribution; solution of difference equations; pressure coupling; application to conduction/convection, boundary layers, and recirculating flows; introduction to general purpose CFD codes.

MAE 635. Turbomachinery. 3 Hr. PR: MAE 320 or Consent. Flow problems encountered in design of water, gas, and steam turbines, centrifugal and axial flow pumps and compressors, design parameters.

MAE 637. Multiphase Flows. 3 Hr. PR: MAE 331. Particle dynamics including particle-particle and particle-surface interactions; fluidized bed concepts; mathematical models and numerical methods as applied to multiphase flows; design and instrumentation pertaining to multiphase units.

MAE 640. Continuum Mechanics. 3 Hr. PR: MAE 242 and MAE 243. Mathematical preliminaries including index notation; analysis of stress; analysis of deformation; fundamental laws, field equations, and constitutive equations; application to fluids and solids.

MAE 641. Theory of Elasticity 1. 3 Hr. PR: Consent. Cartesian tensors; plane stress and plane strain; 2-D problems in Cartesian and polar coordinates; stress and strain in 3-D; general theorems; torsion of noncircular sections.


MAE 643. Inelastic Behavior of Engineering Materials. 3 Hr. PR: MAE 543 or Consent. Characterization and constitutive relations of engineering materials; nonlinear elasticity, plasticity, viscoelasticity and creep; numerical implementation.

MAE 644. Fracture Mechanics. 3 Hr. PR: MAE 641. Linear-elastic and elastic-plastic fracture mechanics; fatigue, dynamic, and creep crack growth; fracture mechanics models for composite materials.


MAE 646. Advanced Mechanics of Composite Materials. 3 Hr. PR: MAE 446 or Consent. Manufacturing, testing, and diagnostics of composite materials. Anisotropic plates with cutouts. Inelastic behavior of polymer matrix composites. Analysis of advanced composites such as metal matrix, ceramic matrix, and textile.

MAE 648. Experimental Stress Analysis. 3 Hr. PR: Consent. Strain gage techniques and instrumentation; stress analysis using optical methods such as photoelasticity and interferometric techniques; NDE and NDT or problems involving stress analysis. (2 hr. lec., 3 hr. lab.)

MAE 650. Mechanical Metallurgy. 3 Hr. PR: MAE 244 or Consent. Elastic behavior and plastic theory. Dislocation theory. Strengthening mechanisms and fracture. Mechanical properties from materials testing including tension, torsion, fracture toughness, fatigue, and creep.

MAE 652. Advanced Kinematics of Mechanisms. 3 Hr. PR: MAE 452 or Consent. Analytical synthesis of mechanisms with up to five accuracy points; Burmester curve theory and path curvature theory; force and moment balancing of mechanisms; computer-aided dynamic analysis of mechanisms and inverse dynamic analysis.

MAE 653. Advanced Vibrations. 3 Hr. PR: Consent. Dynamic analysis of multiple degree-of-freedom discrete vibrating systems; Lagrangian formulation; matrix and numerical methods; impact; mechanical transients.

MAE 654. Advanced Machine Design. 3 Hr. PR: Consent. Design for extreme environments, material selection, lubrication and wear, dynamic loads on cams, gears, and balancing of multiengines and rotors, electromechanical components.

MAE 656. Advanced Computer Aided Design. I. 3 Hr. Geometric modeling; finite element meshing; design approaches, case studies using CAD principles; projects utilizing state-of-the-art CAD packages. (2 hr. lec., 3 hr. lab.)

MAE 660. Feedback Control in Mechanical Engineering. 3 Hr. PR: Consent. Emphasis on design of control systems using classical, frequency domain, and time domain methods; advanced mathematical modeling of physical systems, compensation, stabilization, pole placement, state estimation; extensive use of computerized design tools, especially Matlab.

MAE 662. Robot Mechanics and Control. 3 Hr. Kinematic and dynamic behavior of industrial robot manipulators; formulation of equations of motion for link joint space and end effector Cartesian space; path planning and trajectory motion control schemes.

MAE 663. Instrumentation in Engineering. 3 Hr. PR: Consent. Theory of instrumentation suitable for measuring rapidly changing force, pressure, strain, temperature, vibration, etc.; computerized acquisition, analysis, and transmission of data; methods of noise reduction. (2 hr. lec., 3 hr. lab.)

MAE 647. Materials Engineering. 3 Hr. A study of materials engineering fundamentals emphasizing semiconductor, polymer, metal, and ceramic/cementitious material systems. Mechanical and physical properties, theoretical aspects, testing, design criteria, manufacturing, and economics of material systems. Laboratory testing and evaluation. (Equivalent to CE 687, CHE 687, EE 687, MINE 687, and IMSE 687.)

MAE 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MAE 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MAE 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

MAE 695. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.

MAE 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
MAE 721. Fundamentals of Combustion. 3 Hr. PR: MAE 321 or MAE 426. Thermodynamics, chemical kinetics, and diffusion of reacting gases; laminar and turbulent flames; flame stability and ignition.


MAE 733. Perfect Fluid Theory. 3 Hr. PR: Consent. Conformal mapping including Schwarz-Christoffel and Joukowski transformations. Inviscid flows over airfoils, spheres, cones, wedges, and bodies of revolution. (3 hr. lec.)

MAE 741. Theory of Elasticity 2. 3 Hr. PR: MAE 641. Complex variable methods, stress couples, nonlinear elasticity, numerical methods, potential methods, boundary value problems, various special topics.

MAE 743. Theory of Elastic Stability. 3 Hr. PR: Consent. Stability of discrete mechanical systems, energy theorems, buckling of beams, beam columns and frames, torsional buckling, buckling of plates and shells, special topics.

MAE 744. Theory of Plates and Shells. 3 Hr. PR: MAE 543 or Consent. Classical and modern theories of plates; dynamic response, nonlinear effects, and exact and approximate solutions of plates; application to rectangular and circular plates; membrane shells; shells with bending stiffness.

MAE 760. Advanced Topics in Control Theory. 3 Hr. PR: MAE 660 or MAE 465. State feedback through eigenstructure assignment; Observers and Kalman filters; multiple-model adaptive estimation and control; parameter estimation; direct and indirect model-reference adaptive-control algorithms; introduction to neural networks.

MAE 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of College of Engineering and Mineral Resources. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

MAE 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MAE 795. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.

MAE 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

MAE 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

MAE 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)
Medical Technology (MTEC)

MTEC 600. Seminar. 1 Hr. Seminars include topics in laboratory management and education in medical technology, and timely topics. Minimum of three semester hours to include all three topics is required of all graduate students in the medical technology program.

MTEC 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation in advanced subjects that are not covered in regularly scheduled courses.

MTEC 697. Research. 1-15 Hr. PR: Consent. Research activities leading to a thesis, problem report, research paper, or equivalent scholarly project.

Medicine (MED)

MED 731. Clinical Clerkship in Medicine. 8 Hr. (Third year.) CR. Required of third-year medical students. The individual student is assigned responsibility for specific patients from the inpatient and outpatient services at West Virginia University Health Sciences Center or Charleston Area Medical Center service. The student is an integral part of the team providing diagnostic and treatment services needed by the patient, under direct supervision of members of the faculty of the department. The student elicits the patient’s history, performs physical examinations, and performs or secures indicated laboratory and clinical studies. The student records findings and presents case reports for discussion by members of the faculty during hospital rounds or outpatient clinics. The student attends such conferences, as directed. Clerkship in medicine occupies 8 weeks. (Grading will be S/U.)

MED 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MED 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Microbiology and Immunology (MICB)

MICB 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

MICB 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MICB 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MICB 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

MICB 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)


MICB 781. Advanced Immunology. 3 Hr. PR: BMS 710 and BMS 736 or MICB 701 or permission from the instructor. Students participate in a study of contemporary topics using primary literature selected from recent developments in the field of immunology.
MICB 784 A-Z. Special Problems in Microbiology. 1-6 Hr. PR: Consent.


MICB 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of microbiology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

MICB 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MICB 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

MICB 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MICB 794. Seminar. 1-6 Hr. PR: Consent. Seminars arranged for advanced graduate students.

MICB 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

MICB 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

MICB 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading will be S/U.)

MICB 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

MICB 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

**Mining Engineering (MINE)**

MINE 611. Advanced Ground Control-Coal Mines. 3 Hr. PR: MINE 411 or consent. Ground and strata control for underground and surface coal mining, including slope stability and subsidence.

MINE 612. Surface Subsidence Engineering. 3 Hr. PR: MINE 411. Elements of surface subsidence engineering due to underground mining: theories of surface subsidence, characteristics and prediction of surface movements, and effects of surface movements.

MINE 613. Ground Control Failures. 3 Hr. PR: MINE 611 or Consent. Case studies of ground control failures on coal pillar, roof bolting, roof fall, cutter, floor heave, multiple-seam mining, and longwall mining.
MINE 616. Advanced Rock Mechanics. 3 Hr. PR: MINE 414 or consent. Testing techniques and interpretation, strength and fracture, classification, anisotropy, friction, jointed rock, fluid pressure, fragmentation, and excavation.

MINE 624. Num Analysis in Mineral Engr. 3 Hr. PR: Graduate standing or consent. Application of mathematical and numerical methods in metallurgy and mineral processing problems.

MINE 625. Advanced Mineral Processing. 3 Hr. PR: MINE 327 or consent. Theory and technology of separation. Triboelectric and magnetic dry ore and coal separation. Engineering and scientific aspects of column flotation of fines in coal and mineral industries.


MINE 628. Compt Fluid Flow Mineral Eng. 3 Hr. PR: Graduate standing or consent. Applications of appropriate theories for solving fluid transportation problems in mineral engineering. Newtonian and non-Newtonian slurries applications to mineral engineering are emphasized.

MINE 629. Mine Wastes Management/Closure. 3 Hr. PR: Consent. Planning and design to control, detoxicate and contain mine openings for mine and mill closure in mineral industry. Regulatory frameworks.

MINE 631. Mine Ventilation Network Analysis. 3 Hr. PR: MINE 331 and MINE 381 or consent. Theory and computational techniques for mine ventilation network problems with emphasis on computer-aided analysis of complex mine ventilation systems.

MINE 632. Advanced Mine Ventilation. 3 Hr. PR: MINE 331. Advanced topics in mine atmospheric control including control of methane, dust, humidity, and heat. Also covers leakage characteristics, fan selection, analysis of ventilation networks, and planning of mine ventilation system.

MINE 633. Coal Mine Methane Control. 3 Hr. PR: Graduate standing or consent. Control of explosive gas emissions in coal mines. Procedures for measurement, mitigation, capture, and utilization of mine-generated gases. Techniques for gas emission forecasting.

MINE 661. Num Analysis for Mine Design. 3 Hr. PR: Graduate standing or consent. An introduction to the formulation and application of boundary-element, finite-difference, and discrete element methods for geomechanical design of mines and geologic structures.

MINE 662. Disp. Disc Modeling in Mining. 3 Hr. PR: MINE 661 or consent. An in-depth look into the formulation and application of the displacement discontinuity method for modeling stresses and displacements in single and multiple-seam coal mines.

MINE 663. Geomech Modeling with FLAC. 3 Hr. PR: MINE 611 or consent. An in-depth study of the application of the finite-difference program, FLAC, for modeling static and dynamic scenarios in mining, geologic and soil structures.

MINE 682. Advanced Mine Power Systems. 3 Hr. PR: Graduate standing or consent. Advanced study of mine electrical power systems from theory to practice covering the vital aspects that go into planning and designing a mine power system.

MINE 685. Graduate Seminar in Coal Mining. 3-6 Hr.

MINE 686. Graduate Seminar Coal Mine. 3-6 Hr.
MINE 687. Materials Engineering. 3 Hr. A study of materials engineering fundamentals emphasizing semiconductor, polymer, metal, and ceramic/cementitious material systems. Mechanical and physical properties, theoretical aspects, testing, design criteria, manufacturing, and economics of material systems. Laboratory testing and evaluation. (Equivalent to CE 687, CHE 687, EE 687, IMSE 687, and MAE 687.)

MINE 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MINE 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MINE 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

MINE 697. Research. 1-15 Hr. PR: Consent. Research activities leading to a thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

MINE 711. Theories of Surface Subsidence. 3 Hr. PR: MINE 612. Theories of surface subsidence due to underground coal mining including empirical, profile function, theoretical and physical modeling methods, and time factors. (3 hr. lec.)

MINE 712. Theory of Pillar Design. 3 Hr. PR: MINE 411 and MINE 611. Examination of various theories of pillar design for room and pillar mining and longwall mining including chain pillars, barrier pillars, and bleeder pillars.

MINE 713. Theory of Roof Bolting. 3 Hr. PR: MINE 611 or consent. Review and discuss various theories of roof bolting. Review select papers representative of recent developments of design of roof bolts and selection of materials.

MINE 716. Theory of Rock Failure. 3 Hr. PR: MINE 414 or consent. Friction, elasticity, strength of rock, mechanism of brittle failure, factors affecting failure process, theories of failure, fracture propagation in rock, fracture toughness of rock and coal, fluid pressure, size, stress gradient, and time-dependent effects.

MINE 718. Rock Mechanics in Mine Design. 3 Hr. PR: MINE 411 and MINE 414 or consent. Design process in mining engineering; design approaches for excavations in rock; input parameters for design; empirical, observational, and analytical methods of design; integrated designs. (1 hr. lec., 2 hr. lab.)

MINE 731. Mine Ventilation Network Optimization. 3 Hr. PR: MINE 631 or consent. Application of mathematical optimization techniques to mine ventilation network problems, including linear and nonlinear optimization for controlled-flow and generalized networks.

MINE 769. Expert Systems in Mining. 3 Hr. PR: Graduate standing. An overview of expert systems applications in mining, a detailed study of two mining applications, study of shells and their components, and study of a specific shell used to develop a project.

MINE 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of mining engineering. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

MINE 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.
MINE 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

MINE 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MINE 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

MINE 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

MINE 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

MINE 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

MINE 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

MINE 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Multidisciplinary Studies (MDS)

MDS 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of multidisciplinary studies. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

MDS 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MDS 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

MDS 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MDS 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

MDS 595. Directed Study. 1-6 Hr. Seminars arranged for advanced graduate students.

MDS 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

MDS 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

MDS 696. Graduate Seminar. I, II, S. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.
MDS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

MDS 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, and dissertations. (Grading may be S/U.)

MDS 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

MDS 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

MDS 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in professional field or content area (e.g., education, community health, geology). These tuition waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Music (MUSC)

MUSC 500. Secondary Performance: Bassoon. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on bassoon, with emphasis on methods and materials for school music teachers.

MUSC 500A. Secondary Performance: Cello. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on cello, with emphasis on methods and materials for school music teachers.

MUSC 500B. Secondary Performance: Clarinet. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on clarinet, with emphasis on methods and materials for school music teachers.

MUSC 500C. Secondary Performance: Euphonium. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on euphonium, with emphasis on methods and materials for school music teachers.

MUSC 500D. Secondary Performance: Flute. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on flute, with emphasis on methods and materials for school music teachers.

MUSC 500E. Secondary Performance: Guitar. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on guitar, with emphasis on methods and materials for school music teachers.

MUSC 500F. Secondary Performance: Horn. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on horn, with emphasis on methods and materials for school music teachers.

MUSC 500G. Secondary Performance. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on a minor instrument (or voice), with emphasis on methods and materials for school music teachers.
MUSC 500H. Secondary Performance: Oboe. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on oboe, with emphasis on methods and materials for school music teachers.

MUSC 500I. Secondary Performance: Percussion. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on percussion instruments, with emphasis on methods and materials for school music teachers.

MUSC 500J. Secondary Performance: Piano. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on piano, with emphasis on methods and materials for school music teachers.

MUSC 500K. Secondary Performance: Pipe Organ. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on pipe organ, with emphasis on methods and materials for school music teachers.

MUSC 500L. Secondary Performance: Saxophone. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on saxophone, with emphasis on methods and materials for school music teachers.

MUSC 500M. Secondary Performance: String Bass. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on string bass, with emphasis on methods and materials for school music teachers.

MUSC 500N. Secondary Performance: Trombone. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on trombone, with emphasis on methods and materials for school music teachers.

MUSC 500O. Secondary Performance: Trumpet. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on trumpet, with emphasis on methods and materials for school music teachers.

MUSC 500P. Secondary Performance: Tuba. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on tuba, with emphasis on methods and materials for school music teachers.

MUSC 500Q. Secondary Performance: Viola. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on viola, with emphasis on methods and materials for school music teachers.

MUSC 500R. Secondary Performance: Violin. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on violin, with emphasis on methods and materials for school music teachers.

MUSC 500S. Secondary Performance: Voice. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on voice, with emphasis on methods and materials for school music teachers.

MUSC 500T. Secondary Performance: Ethnic Percussion. 1 or 2 Hr. (May be repeated for credit.) Group or individual instruction in performance on ethnic percussion with emphasis on methods and materials for school music teachers.

MUSC 500U. Secondary Performance. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on a minor instrument (or voice), with emphasis on methods and materials for school music teachers.
MUSC 500V. Secondary Performance. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on a minor instrument (or voice), with emphasis on methods and materials for school music teachers.

MUSC 500W. Secondary Performance. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on a minor instrument (or voice), with emphasis on methods and materials for school music teachers.

MUSC 500X. Secondary Performance. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on a minor instrument (or voice), with emphasis on methods and materials for school music teachers.

MUSC 500Y. Secondary Performance. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on a minor instrument (or voice), with emphasis on methods and materials for school music teachers.

MUSC 500Z. Secondary Performance. 1-2 Hr. (May be repeated for credit.) Group or individual instruction in performance on a minor instrument (or voice), with emphasis on methods and materials for school music teachers.

MUSC 561. Graduate Theory Review. 3 Hr. Review of undergraduate basic musicianship (writing, ear training, sight singing, and analysis) for incoming graduate students with deficiencies. Not open to undergraduates.

MUSC 590. Teaching Practicum. 1-3 Hr.


MUSC 592 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

MUSC 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MUSC 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

MUSC 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

MUSC 630. Keyboard Performance and Pedagogy. 1-3 Hr. (May be repeated for credit.) (Offered in one credit modules of which students may take one or more each semester.) Pedagogy, repertoire, interpretation, and other topics that will enhance preparation of private piano teachers.

MUSC 631. Survey of Orchestral Music. 3 Hr. PR: 6 hr upper-division music history or consent. Survey analysis of orchestral music from the late Baroque period to the present from the perspective of the conductor.

MUSC 632. Survey of Wind Music. 3 Hr. PR: 6 hr. of upper-division music history or consent. Survey and analysis of wind music from the late Baroque period to the present from the perspective of the conductor.

MUSC 633. Survey of Vocal Music. I. 3 Hr. PR: 6 hr. upper-division music history. Survey of masses, oratorios, cantatas and opera from late Renaissance to the twentieth century. Sole repertoire will not be included.
MUSC 634. Jazz Performance and Pedagogy. 1-3 Hr. (May be repeated for credit.) Methods and materials, observation. Offered in modules of which students may take one or more each semester: survey of jazz literature, survey of teaching technique, practical teaching/experience, or special topics.

MUSC 640. Chamber Music: Brass. 0-3 Hr. (May be repeated for credit.) Performance in small brass ensembles.

MUSC 641. Chamber Music: Guitar. 0-3 Hr. (May be repeated for credit.) Performance in small guitar ensembles.

MUSC 642. Chamber Music: Jazz. 0-3 Hr. (May be repeated for credit.) Performance in jazz ensembles, instrumental or vocal.

MUSC 643. Chamber Music: Percussion. 0-3 Hr. (May be repeated for credit.) Performance in percussion ensembles.

MUSC 644. Chamber Music: Percussion-Ethnic. 0-3 Hr. (May be repeated for credit.) Performance in percussion ensembles emphasizing music from non-Western cultures.

MUSC 645. Chamber Music: Percussion-Gamelan. 0-3 Hr. (May be repeated for credit.) Performance in Gamelan ensembles.

MUSC 646. Chamber Music: Percussion Steel Band. 0-3 Hr. (May be repeated for credit.) Performance in steel band ensembles.

MUSC 647. Chamber Music: Piano. 0-3 Hr. (May be repeated for credit.) Performance in piano four-hand chamber music or performance by pianists in other ensembles.

MUSC 648. Chamber Music: String. 0-3 Hr. (May be repeated for credit.) Performance in small string ensembles.

MUSC 649. Chamber Music: Voice. 0-3 Hr. (May be repeated for credit.) Performance in small vocal ensembles.

MUSC 650. Chamber Music: Woodwind. I, II. 0-3 Hr. (May be repeated for credit.) Performance in wind quintet and small woodwind ensembles.

MUSC 651. Chamber Music: Other. 0-3 Hr. (May be repeated for credit.) Performance in small mixed ensembles.

MUSC 660. Composition. 3 Hr. (May be repeated for credit.) PR: Consent. Primarily for candidates for graduate degrees in theory or composition.

MUSC 670. Perspectives of Music History. I. 3 Hr. A survey of western vernacular and art music from the Middle Ages to the present with particular attention to historiography, social context, and evolution of musical styles.

MUSC 678. Masters Field Study. 2-4 Hr. A school-based field study that demonstrates application of knowledge and skills from graduate study as a culminating project in music education.

MUSC 680. Music In The Elementary School. 3 Hr.

MUSC 681. Teaching Music Appreciation. 3 Hr.
MUSC 682. Contemporary Techniques in Classroom Music. 3 Hr. PR: MUSC 382 or Consent. Principles and practice of contemporary techniques in elementary and junior high school classroom music, including those of Orff and Kodaly.

MUSC 683. Music Making in Middle School/Junior High. II. 3 Hr. PR: MUSC 380, and MUSC 381, and MUSC 382 equivalent or Consent. Identification and sequencing of appropriate concepts and skills for general music class students. Selection and use of materials including popular music. Emphasis on student music-making activities. Evaluation procedures included.

MUSC 684. Music in Early Childhood. S. 3 Hr. PR: MUSC 380, and MUSC 381, and MUSC 382, or equivalent, or Consent. Musical experiences for children three through ten years. Emphasis on intellectual, physical and social/emotional needs and characteristics of children. Materials and activities for developing music concepts, skills, and positive response.

MUSC 686. Instrumental Methods and Materials. 3 Hr. PR: Consent. Methods, materials, and administration of K-12 instrumental music programs; sequential instruction; conceptual and skill development; aural and reading competencies in music. (Bi-weekly lab. 3 hr. lec.)

MUSC 687. Choral Music Methods and Materials. 3 Hr. PR: Consent. Methods, materials, and administration of choral music programs; sequential instruction; conceptual and skill development; teaching aural and reading competencies. (Bi-weekly lab. 3 hr. lec.)

MUSC 688. General Music Methods and Materials. 3 Hr. PR: Consent. Introduction to major pedagogical approaches used in K-12 general music classrooms; examination and development of materials and curricula; analysis of teaching and learning styles. (Bi-weekly lab. 3 hr. lec.)

MUSC 689. Master's Recital. 2-4 Hr. PR: MUSC 499 Senior Recital or Consent. May be repeated for credit. Master's performance students shall be permitted to give a recital only after they pass a qualifying audition before a designated faculty committee at least six weeks before the recital is to be given.

MUSC 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of music. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

MUSC 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MUSC 692 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

MUSC 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MUSC 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

MUSC 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

MUSC 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
MUSC 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

MUSC 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s, Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit my not be counted against credit requirements for master’s programs.)

MUSC 700. Performance: Bassoon. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700.

MUSC 700A. Performance: Cello. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700A.

MUSC 700B. Performance: Clarinet. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700B.

MUSC 700C. Performance: Horn. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700C.

MUSC 700D. Performance: Percussion. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700D.

MUSC 700E. Performance: Piano. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700E.

MUSC 700F. Performance: Pipe Organ. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700F.

MUSC 700G. Performance: Saxophone. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700G.
MUSC 700H. Performance: Trumpet. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700H.

MUSC 700I. Performance: Voice. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700I.

MUSC 700J. Performance: Conducting. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700J.

MUSC 700K. Performance: Euphonium. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700K.

MUSC 700L. Performance: Flute. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700L.

MUSC 700M. Performance: Guitar. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700M.

MUSC 700N. Performance: Harpsichord. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700N.

MUSC 700O. Performance: Oboe. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700O.

MUSC 700P. Performance: String Bass. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700P.

MUSC 700Q. Performance: Trombone. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700Q.

MUSC 700R. Performance: Tuba. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700R.
MUSC 700S. Performance: Viola. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700S.

MUSC 700T. Performance: Violin. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700T.

MUSC 700U. Performance: Applied Jazz. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700U.

MUSC 700V. Performance. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700V.

MUSC 700W. Performance. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700W.

MUSC 700X. Performance. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700X.

MUSC 700Y. Performance. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700Y.

MUSC 700Z. Performance. 1-4 Hr. (Open to qualified students in any field in performance. May be repeated.) Normally offered for two credits (one 30-minute lesson per week) or four credits (one 60-minute lesson per week). A student must demonstrate ability of grade-level 10 to receive credit in MUSC 700Z.

MUSC 704. Opera Theatre. 0-4 Hr. PR: MUSC 104 or Consent. Continuation of MUSC 104. Performance of major roles and advanced production techniques. Qualified students will undertake production-direction projects under supervision.

MUSC 710. Conducting. 3 Hr. PR: MUSC 202 or equivalent. Instrumental and choral conducting. Major works are prepared and conducted through the use of recordings and music organizations.

MUSC 711. Conducting Seminar. 3 Hr. PR: MUSC 710. Instrumental and choral conducting of major works under the supervision of the conductor of a major ensemble.

MUSC 730. Master Class in Applied Repertoire: Keyboard. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of the D.M.A. in keyboard.
MUSC 730A. Master Class in Applied Repertoire: Voice. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of the D.M.A. in voice.

MUSC 730B. Master Class in Applied Repertoire: Percussion. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of the D.M.A. in percussion.

MUSC 730C. Master Class in Applied Repertoire: Organ. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of the D.M.A. in organ.

MUSC 730D. Master Class in Applied Repertoire: Woodwind. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of the D.M.A. in a woodwind instrument.

MUSC 730E. Master Class in Applied Repertoire: String. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of the D.M.A. in a stringed instrument.

MUSC 730F. Master Class in Applied Repertoire: Brass. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of the D.M.A. in a brass instrument.

MUSC 730G. Master Class in Applied Repertoire: Piano. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of the D.M.A. in piano.

MUSC 730H. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730I. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730J. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730K. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730L. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730M. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730N. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.
MUSC 730O. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730P. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730Q. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730R. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730S. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730T. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730U. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730V. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730W. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730X. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730Y. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 730Z. Master Class in Applied Repertoire. 2 Hr. (May be repeated for credit.) PR: Consent. Designed to give coverage through performance of the literature of a specific D.M.A. Performance field.

MUSC 731. Keyboard Literature. 3 Hr. PR: MUSC 434 and MUSC 435A. Intensive study of the literature for keyboard instruments and the history of the literature.


MUSC 733. Choral Literature. 3 Hr.
MUSC 737. Ethnic Percussion. 3 Hr. PR: MUSC 116 and MUSC 434 and MUSC 435; graduate percussion majors only. Examination of selected music from regions such as Africa, Asia, and Latin America; focus on music, instruments, and performance techniques and practices; functions of percussion music in society.

MUSC 738. Seminar in Ethnic Music. 3 Hr. PR: Consent. Open to graduate music majors only. Examination of selected ethnic music from Africa, Asia, and Latin America. Focuses on the music, instruments, and performance techniques and practices of these regions, and how the music functions in society.

MUSC 761. Theory Topics. 3 Hr. (May be repeated for max. 8 hr. credit.) Various types of analytical and theoretical problems and approaches to their solutions.

MUSC 762. Pedagogy of Theory. 3 Hr. PR: MUSC 264 or Consent. Consideration of various approaches to the teaching of theory.

MUSC 763. Analytical Techniques. 3 Hr. Analytical techniques and their application to scholarship and performance, with emphasis on pre-twentieth century styles.


MUSC 765. Transcription and Arranging. 3 Hr. (May be repeated once for credit.) PR: MUSC 266 or equivalent. Major projects in scoring for orchestra, band, or wind ensemble.

MUSC 766. Composition Pedagogy. 3 Hr. PR: graduate composition major status. Seminar in teaching techniques, curriculum design, and assessment of talent of undergraduate composers. Teaching practicum included.

MUSC 771. Music Research and Bibliography. 3 Hr. Introduction to research strategies to discover and critically evaluate print and electronic music resources in the search for new understanding of the field and related disciplines. Students will defray costs of a required field trip.

MUSC 779. Psychology of Music. 3 Hr. Introductory study of musical acoustics and psychology of perception of music.

MUSC 780. Choral Techniques. 2 Hr. PR: (MUSC 380 and MUSC 381 and MUSC 382) or equivalent. Advanced techniques and procedures involved in development of choral ensembles.

MUSC 781. Instrumental Techniques. 2 Hr. PR: (MUSC 380 and MUSC 381 and MUSC 382) or equivalent. Advanced techniques and procedures involved in individual performance and instruction through lecture demonstrations by performance faculty.

MUSC 782. Historical Foundations of Music Education. 3 Hr. Examination of the history of music education from classical antiquity to the present, with particular emphasis on practices in the United States; examination and application of historical research methods.

MUSC 783. Foundations of Music Education. 3 Hr. PR: (MUSC 380 and MUSC 381 and MUSC 382) or equivalent. Survey and critical study of historical, philosophical, psychological, and sociological aspects of music education. Includes current trends in music education.

MUSC 784. Introduction to Research in Music Education. 3 Hr. PR: MUSC 380 and MUSC 381 and MUSC 382 or equivalent. Methods and measures necessary for conduct and understanding of research in music education.
MUSC 788. Doctoral Recital. 1-4 Hr. PR: MUSC 689 (Master’s Recital) or Consent. Number of credits depends upon length and content of the program; it must be approved in advance by the student's doctoral committee. Acceptance of the recital will be at the discretion of the doctoral committee.

MUSC 789. Lecture Recital. 2 Hr. PR: MUSC 771.

MUSC 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

MUSC 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

MUSC 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

MUSC 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

MUSC 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

MUSC 900. Professional Development. 1-6 Hr. Courses intended for professional development and require students to possess a bachelor's degree, but the course does not count toward graduation and is not applicable towards attaining a graduate degree. (Grading is S/U only.)

MUSC 930. Professional Development. 1-6 Hr. Professional development course provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Neurobiology and Anatomy (NBAN)
NBAN 701. Advanced Gross Anatomy. 2-6 Hr. PR: NBAN 703 or NBAN 724 and Consent. Morphological and functional analysis of a selected region, with dissection.

NBAN 703. Human Structure. 1-17 Hr. PR: Admission to medical school or medical basic science graduate program or Consent. Integrated approach combining human gross anatomy, microanatomy and embryology. Includes human cadaver dissection, microscopic anatomy of cells, tissues and organs with application to human health and disease.

NBAN 705. Microanatomy. 5 Hr. PR: Admission to medical basic science graduate program or Consent. Study of cells, tissues, and organs.

NBAN 706. Advanced Neuroanatomy. 2-4 Hr. PR: CCMD 775 and Consent. (Course may be repeated.) Detailed study of selected areas of the nervous system.

NBAN 712. Special Topics in Anatomy. 2-4 Hr. PR: Consent. Different topics of current interest in anatomy that are not included in the regular graduate courses.

NBAN 714. Applied Anatomy. 2-6 Hr. PR: Consent. Detailed study of anatomy, adapted to the needs of the individual student.

NBAN 716. Craniofacial Growth and Maturation. 1 Hr. PR: Consent. The current concepts of craniofacial growth and maturation are presented and integrated for application to clinical problems.
NBAN 718. Dental Histology. 6 Hr. PR: Dental student standing or consent of instructor or chairperson. Cells, tissues, organs. Structure, function, and development of oral tissues.

NBAN 719. Advanced Head and Neck Anatomy. 1 Hr. PR: Admission to medical, dental or basic science graduate programs, or Consent. Head and neck craniofacial anatomy as it applies to specialties in dental or medical practice.

NBAN 724. Human Gross Anatomy. 7 Hr. PR: Admission to dental school or medical basic science graduate program or Consent. Human anatomy including cadaver dissection for dental students. 4 Hr. lec., 3 Hr. lab.

NBAN 751. Advanced Microanatomy and Organology. 2-4 Hr. PR: NBAN 705 or NBAN 709 and Consent. An extension of the major topics included in NBAN 705 or 709. Special emphasis on recent contributions.

NBAN 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of anatomy. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

NBAN 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

NBAN 792. Directed Study. 1-6 Hr. PR: Consent. Directed study, readings, and/or research.

NBAN 793. Special Topics. 1-6 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field.

NBAN 795. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.

NBAN 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program. (Grading may be S/U.)

NBAN 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

NBAN 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

NBAN 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Neurology (NEUR)

NEUR 741. Clinical Clerkship in Neurology. (Third year.) 2 Hr. Required of third-year students. Basic fundamentals of the neurological evaluation and neurological diseases. Evaluation and treatment of hospitalized patients and patients seen at the physician office center. All evaluations are performed under supervision of attending and resident physicians. Conferences and correlative instruction in neuropathology and neuroradiology.
NEUR 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

NEUR 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

News Editorial (N-E)
N-E 518. Advanced Reporting. 3 Hr. Students write carefully researched stories using skills they acquired in previous classes while applying literary journalism techniques. Course emphasizes immersion reporting - spending extended time with one subject as well as peripheral theoretical readings. (Lab Fees.)

N-E 527. American Journalism History. 3 Hr. An intensive look at the development of media from seventeenth-century England and the American Colonies. Press freedom and its implications on the nation and world are considered on theoretical, economic, and cultural levels.

N-E 528. Law of the News Media. 3 Hr. The law as it affects the mass media on both obvert and symploric levels. Considered are such areas as libel, privacy, public records, criminal pre-trial publicity, freedom of information, and obscenity.

N-E 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of news editorial. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

N-E 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

N-E 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

N-E 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

N-E 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

N-E 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

N-E 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

N-E 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

N-E 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

N-E 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

N-E 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)
N-E 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

**Nursing (NSG)**

NSG 522. Culture and Health. 3 Hr. Healthcare is encountering increasing cultural diversity. By identifying cultural behaviors, beliefs, and meaning of health in diverse cultural contexts, students will become more culturally proficient in delivering care.

NSG 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

NSG 610. Leadership in Health Care. 3 Hr. PR or CONC: NSG 622 and NSG 623. Critical analysis of leadership frameworks, values and beliefs, and application of skills in the practice setting.

NSG 611. System Based Decision Making. 2 Hr. PR or CONC: NSG 622 and NSG 623. Decision making grounded in an understanding of the organization as an open living system.

NSG 612. Leading Health System Change. 4 Hr. PR: NSG 610 and NSG 611. Developing system-based change management critical to advanced nursing in various settings, including selection training, and support of effective teams and workgroups.

NSG 613. Managing Health Care Resources. 3 Hr. PR: NSG 622 and NSG 623. Management of financial and human resources to promote professional practice and organizational growth within organizational financial constraints.

NSG 614. Health Care Informatics. 3 Hr. PR: NSG 627. Explore technologies to improve health care practices and learn to utilize technology for outcomes management.

NSG 615. Program Planning/Evaluation. 3 Hr. PR: NSG 613. Health care program planning, strategies for program implementation, and program evaluation techniques.

NSG 617. Leadership Practicum 1. 2-5 Hr. PR or CONC: NRS 615. Supervised practicum designed to apply healthcare leadership principles to practice. Students participate in nursing leadership and administrative activities in a selected healthcare setting.

NSG 618. Leadership Practicum 2. 2-5 Hr. PR: NSG 617. Supervised practicum designed to build on initial application of healthcare leadership principles. Students participate in leadership and administrative activities in a selected health care setting.

NSG 622. Theory and Disciplined Reasoning. 3 Hr. Introduction to the theoretical foundations of the discipline of nursing as a basis for applying critical thinking skills to the development of a conceptual framework for nursing.


NSG 624. Advanced Pathophysiology. 4 Hr. Theoretical basis of pathophysiological changes in acute and chronic illness confronted in primary care across lifespan. This course lays the foundation for subsequent courses in diagnosis, management, and therapeutic interventions.
NSG 626. Lifespan Health Promotion. 2 Hr. An in-depth study of theoretical foundations, epidemiological principles, and advance practice strategies for the promotion of health and prevention of disease across the life-span.

NSG 627. Research and Systematic Analysis. 5 Hr. PR: NSG 622. An overview of research methods, evidence and epidemiological and statistical measures used in advanced practice nursing.

NSG 628. Health Policy, Finance, Ethics. 3 Hr. PR: NSG 622. Study of how health policy, the organization and financing of health care, and of how ethical principles shape professional practice.

NSG 629. Advanced Practice/Families. 2 Hr. PR: NSG 622 and NSG 623 and NSG 626 and NSG 627. Exploration and analysis of family theories, assessments, and interventions applicable to the advanced practice of nursing.

NSG 631. Advanced Pharmacotherapeutics. 3 Hr. PR: NSG 624. Examination of the relationship between pharmacologic principles and the selection of pharmacologic agents in altered health states across the lifespan. This course lays the foundation of subsequent courses in diagnosis, management, and therapeutic interventions.

NSG 632. Advanced Assessment. 2 Hr. PR: NSG 622 and NSG 623 and NSG 624. Preparation for the conduct of advance health assessment of patients. Diagnostic reasoning is emphasized as the student collects and analyzes data obtained from the patient history, physical examination, and diagnostic procedures.

NSG 633. Primary Care: Rural Families 1. 3 Hr. PR: NSG 622 and NSG 623 and NSG 624 and NSG 626, and NSG 631 and NSG 632. Introduction to the domains and competencies of the advanced practice nursing role that are fundamental to primary health care of the rural family unit.

NSG 634. Primary Care: Rural Families 2. 4 Hr. PR: NSG 633. Further development of the domains and competencies of the advanced practice nursing role introduced in NSG 633 that are fundamental to primary health care of the rural family unit.

NSG 635. Rural Family Health Practicum 1. 5 Hr. PR or Conc: NSG 634. Supervised practicum designed to apply theory- and evidence-based advanced practice nursing. Students develop the advanced practice role as they manage health care and participate in service learning.

NSG 636. Rural Family Health Practicum 2. 5 Hr. PR: NSG 635. Supervised practicum that builds upon NSG 635 and focuses on the application of theory- and evidence-based advanced nursing practice. With supervision, students manage health care and participate on interdisciplinary terms.

NSG 642. Advanced Pediatric Assessment. 2 Hr. PR: NSG 622 and NSG 623 and NSG 624 and PR or CONC: NSG 643. Preparation for the conduct of advanced health assessment of pediatric patients. Diagnostic reasoning is emphasized as the student collects and analyzes data obtained from the patient history physical examination, and diagnostic procedures.

NSG 643. Pediatric Primary Care 1. 3 Hr. PR: NSG 622 and NSG 623 and NSG 624 and NSG 631 and PR or CONC: NSG 642. Knowledge and skills basic to the assessment of health status, diagnosis, treatment, and evaluation of children in the primary care setting.

NSG 644. Pediatric Primary Care 2. 4 Hr. PR: NSG 643. Further acquisition of knowledge and skills central to the assessment of health status, diagnosis, treatment and evaluation of children in the primary care setting.
NSG 645. Pediatric Practicum 1. 5 Hr. PR or CONC: NSG 644. Supervised practicum designed
to facilitate the student’s competency in the delivery of primary health care to children.

NSG 646. Pediatric Practicum 2. 5 Hr. PR: NSG 645. Supervised practicum designed to
advance the student’s competency in the delivery of primary health care to children.

NSG 647. Pediatric Assessment/Care 1. 5 Hr. PR: NSG 622 and NSG 623 and NSG 624 and
NSG 627. An Introduction to the knowledge and skills basic to the assessment of health status,
diagnosis, and evaluation of children in the primary care setting.

NSG 654. Neonatal Pathophysiology. 4 Hr. An introduction to the scientific foundations
underlying processes contributing to health/illness states in neonates. Principles from genetics,
embryology, and developmental physiology lay the foundation for subsequent courses in
assessment, diagnosis and management.

NSG 655. Neonatal health Promotion. 2 Hr. PR: NSG 622. Review of practices and services
that contribute to healthy outcomes for sick and well neonates with focus on health promotion,
disease prevention, and maintenance of function in the context of critical care and primary
care.

NSG 656. Current Issues in Aging. 2-3 Hr. An overview of contemporary gerontology that offers
a multidisciplinary approach to providing services to older people in the United States.

NSG 657. Advanced Assessment of Older Adults. 2 Hr. PR: NSG 624. Preparation for the
conduct of advanced health assessment of older adults. Diagnostic reasoning is emphasized as
the student collects and analyzes data obtained from the patient history, physical examination,
and diagnostic procedures.

NSG 658. Geriatric Primary Care 1. 2-3 Hr. PR: NSG 631 and NSG 672. Study of constellation
of symptoms in the older adult that may be manifestations of health problems.

NSG 659. Geriatric Primary Care 2. 3-4 Hr. PR: NSG 658. Study of common diseases and
disorders seen in the older adult.

NSG 660. Women’s Reproductive Health. 2 Hr. PR: Graduate status or permission. This course
focuses on fertility control, reproductive health, menopause, and health promotion activities for
women.

NSG 663. Neonatal Assessment/Care 1. 5 Hr. PR: NSG 622, NSG 623 and NSG 654. COREQ:
NSG 655. Preparation for conducting advanced assessment of neonates/young infants.
Diagnostic reasoning is emphasized through collecting and analyzing data obtained from
patient history, physical examination, and diagnostic procedures.

NSG 664. Neonatal Care 2. 4 Hr. PR: NSG 663 and NSG 631. This course focuses on the
management of common problems and conditions in neonates.

NSG 665. Neonatal Practicum 1. 5 Hr. PR: NSG 631. COREQ: NSG 664. This supervised
practicum is designed to facilitate the student’s competency in the delivery of care to infant
populations.

NSG 666. Neonatal Practicum 2. 5 Hr. PR: NSG 665. This supervised practicum is designed to
facilitate the student’s competency in the delivery of care to infant populations.

NSG 670. Curriculum in Nursing. 3 Hr. A review of contemporary theory-based determinants
of curriculum development in nursing, including analysis and evaluation of curricula for nursing
education.
NSG 671. Clinical Practicum-Educators. 2 Hr. PR: NSG 635. Implementation of theory-based advanced nursing practice in an area of student’s clinical interest/expertise. Student develops the advanced practice role with a select population of clients and families.

NSG 672. Education Practicum. 5 Hr. PR: NSG 625. Specialty practicum 1 in area of interest. Supervised practice in the application of theories and methods related to nursing education.

NSG 674. Teaching in Nursing. 3 Hr. PR: NSG 670. A general methods course involving the principles of instruction in didactic and clinical nursing education including analysis of course planning, teaching methods, and evaluation of student outcomes.

NSG 675. Geriatric Practicum 1. 2 to 5 Hr. PR: NSG 674. Supervised practicum designed to apply essential skills and knowledge to develop the role of geriatric nurse practitioner. Students will engage in evidence-based advanced practice in the primary care setting.

NSG 676. Geriatric Practicum 2. 4 to 5 Hr. PR: NSG 675. Supervised practicum that focuses on evidence-based advanced practice in a variety of settings. The students, with supervision, will manage health care of geriatric clients and their families and participate on interdisciplinary teams.

NSG 683. Primary Care: Women & Girls 1. 3 Hr. PR: NSG 622, NSG 623, NSG 624, NSG 626, NSG 631 and NSG 632. Introduction to the domains and competencies of the advanced practice nursing role that are fundamental to primary health care of women and girls.

NSG 684. Primary Care: Women & Girls 2. 4 Hr. PR: NSG 683. Further development of the domains and competencies of the advanced practice nursing role introduced in NSG 683 that are fundamental to primary health care of the rural family unit.

NSG 685. Clinical Scholarship. 1 Hr. Co-Req: NSG 635 (For FNP track). or NSG 645 (For PNP track). Knowledge dissemination within the advanced practice role using disciplined reasoning and systematic inquiry to examine and incorporate evidence-based strategies in the caring/healing process.

NSG 686. WHNP Practicum 1. 2-5 Hr. PR or CONC: NSG 684. Supervised practicum designed to apply theory- and evidence- based advanced practice nursing. Students develop the advanced practice role as they manage health care and participate in service learning.

NSG 687. WHNP Practicum 2. 4-5 Hr. PR: NSG 686. Supervised practicum that builds upon NSG 686 and focuses on the application of theory-and-evidence-based advanced nursing practice. With supervision, students manage health care and participate on interdisciplinary teams.

NSG 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

NSG 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

NSG 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

NSG 697. Research. 1-3 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper, or equivalent scholarly project, or a dissertation guided by a student-graduate faculty contact based on the course objectives and culminating in a written product. (Grading may be S/U.)
NSG 715. Scientific Underpinnings. 3 Hr. Provides an understanding of the scientific underpinnings of the application of theory to health care at the highest level of advanced nursing practice.

NSG 716. Analytical Methods. 4 Hr. PR: NSG 715. Prepares the DNP student to translate research into practice, evaluate practice guidelines to improve care practices and outcomes, and to participate in collaborative research.

NSG 717. Organization and Leadership. 3 Hr. Provides a foundation for developing organizational and systems leadership skills critical to clinical care and health outcomes. Knowledge will help students to promote patient safety and excellence in health care organizations.

NSG 718. Population Health. 3 Hr. PR: NSG 716. Provides a foundation for analysis of clinical prevention and population health programs for individuals, aggregates, and populations.

NSG 719. Health Care Policy. 3 Hr. Provides a foundation for influencing, developing, implementing, and evaluating health care policies and legislation pertinent to issues in health care such as ethics, safety, costs, access, and quality.

NSG 727. Contemporary Nursing Science. 3 Hr. PR: 728. In-depth study of the theoretical, empirical, and methodological dimensions of foundational nursing science in the conceptual areas of empowerment, significant life transitions, and health system outcomes.

NSG 728. Theoretical Basis of Nursing. 3 Hr. PR: NSG 722. This course builds on philosophical basis of nursing. Discovery and verification of scientific knowledge are addressed by focusing on theory development. Methodologies include concept analysis and evaluation of middle-range theories of nursing and related sciences.

NSG 729. Research Methods 2. 3 Hr. PR: NSG 726 and PR or CONC: STAT 512. This course continues the study of the quantitative and qualitative research process extending from methodology to analysis and interpretation. It includes sampling theory, power, measurement, data collection procedures, and advanced analysis procedures.

NSG 730. Principles of Measurement. 3 Hr. PR: NSG 727 and NSG 728. The role of measurement in nursing research is studied. Measurement in the areas of attitudes, personality, competence, development, and group qualities is emphasized. Instrument development and reliability/validity issues are also discussed.

NSG 731. Qualitative Research Methods. 3 Hr. PR: NSG 727 and NSG 728. An exploration of the philosophical foundation and methods of qualitative inquiry. Research designs, ethical issues, rigor, integrity, data collection, interpretation, and representation are studied in depth.

NSG 734. Use of Data. 3 Hr. PR: NSG 726 and NSG 729. This course focuses on use of the following data bases: clinical, financial, health services, nursing, local, state, and national. The uses of existing data in clinical and policy decisions and in research will be explored.

NSG 735. Principles: Nursing Education. 3 Hr. PR: EDP 700. This course examines the research base of educational strategies in nursing education in classroom and clinical settings. The course also examines external determinants on nursing curriculum, accreditation issues, and evaluation of nursing programs.

NSG 737. Leadership. 3 Hr. PR: NSG 734. Through exploration of contemporary leadership theory and application to self, an authentic personal leadership style will be developed to enable the student to enact a leadership role in health care and/or education.
NSG 738. Issues In Nursing Scholarship. 3 Hr. PR: NSG 729, NSG 731, and NSG 737. Seminar focused on broad issues of ethics in the conduct of research and role acquisition of nurse scientist in academic, clinical, and health policy settings.

NSG 741. Clinical Focus. 2 Hr. Provides for the development of knowledge and skills relative to the state of the science in a particular area of clinical practice.

NSG 742. Clinical Application. 1-8 Hr. PR: NSG 741. Provides for the mastery of clinical skills relative to the state of the science in a particular area of clinical practice.

NSG 761. Clinical Project 1. 1 Hr. PR: NSG 715 and NSG 716. Identifies a practice problem and connects the problem to existing knowledge and science.

NSG 762. Clinical Project 2. 1 Hr. PR: NSG 761 and NSG 717 and NSG 718. Students design an initiative to address the practice problem identified in NSG 761 using the appropriate research methods and a variety of scientific principles.

NSG 763. Capstone 1. 3 Hr. PR: NSG 762. Develops leadership skills to create change relative to the practice problem as designed in NSG 762.

NSG 764. Capstone 2. 3 Hr. PR: NSG 763. Evaluates the change implemented in NSG 763 and analyzes the relationship of the findings to practice and policy.

NSG 781. Research Mentorship 1. 1 Hr. PR: NSG 729. In this guided practicum, the student’s research skills are developed and cultivated through participation in the mentorship process with an experienced researcher (the chairperson or his/her designee).

NSG 783. Dissertation Seminar 1. 2 Hr. PR: NSG 729. This seminar provides an opportunity for continued knowledge synthesis related to the selected topic of research. Students will participate in proposal presentation and critique. The expectation is a National Research Service Award Predoctoral Fellowship Application.

NSG 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

NSG 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

NSG 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

NSG 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

NSG 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

NSG 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

NSG 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

NSG 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)
NSG 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Obstetrics and Gynecology (OBST)

OBST 741. Clinical Clerkship in Obstetrics and Gynecology. 8 Hr. (Required of third-year medical students) Presents core knowledge of obstetrics and gynecology with small group instructional seminars, ward rounds, didactic teaching sessions and grand rounds conducted by faculty, house officers, visiting faculty, and students. Students participate in the care of all inpatients and attend all departmental clinics.

OBST 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

OBST 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Occupational Therapy (OTH)

OTH 500. Health Care Issues in Occupational Therapy. 3 Hr. PR: OTH student status. Occupational therapy practice models in diverse health care delivery systems are discussed, including hospital based, home health, outpatient/private practice, long term care settings, and public schools. (2 hr. lec., 2 hr. other.)

OTH 501. Management for OT Practice. 4 Hr. PR: OTH student status. This course reviews the structure and recent changes in the United States health care system with attention to those aspects of managed care of importance to the entry-level occupational therapist. (3 hr. lec., 2 hr. lab.)

OTH 503. Occupational Therapy in Pediatrics. 3 Hr. PR: OTH student status. This course reviews the medical and developmental conditions of pediatric populations commonly encountered by occupational therapists. Emphasis is placed on OT assessment and interventions. (2 hr. lec., 2 hr. lab.)

OTH 505. Prosthetics and Orthotics. 3 Hr. PR: OTH student status. Principles of practice applications of upper and lower limb prosthetics and orthotics commonly encountered and/or manufactured by the occupational therapist. (1 hr. lec., 4 hr. lab.)

OTH 520. Occupational Therapy in the Work Environment. 3 Hr. PR: OTH student status. A holistic approach to evaluation and intervention commonly practiced by occupational therapists in work settings. This course will focus on task analysis in various work settings using an occupational performance frame of reference. (1 hr. lec., 4 hr. lab.)

OTH 540. Level 2 Fieldwork 1. 1-6 Hr. PR: OTH student status. Students are placed full-time for six-weeks in a facility under the supervision of a licensed occupational therapist. Students are required to register for OTH 540 for a full 12-week Summer Term for six credits in fieldwork experience. (Course will be graded S/U.)

OTH 550. Education in Occupational Therapy. 3 Hr. PR: OTH student status. Principles of community and adult education are provided. Students are taught to prepare instructional materials, workshops/seminars, and how to assess instructional outcomes. Use of various media are used and reviewed.
OTH 551. Occupational Therapy in Prevention and Wellness. 3 Hr. PR: OTH student status. Students are taught occupational therapy principles and strategies to develop community health promotion and wellness programs in a variety of settings.

OTH 593. Special Topics. 1-6 Hr. A Study of contemporary topics selected from recent developments in the field.

OTH 640. Level II Fieldwork 2. 6 Hr. PR: OTH student status. Students are placed in one 12-week, or two six-week placement(s), depending on the facility and the needs of the student. Students will be placed in facilities where individualized instruction can occur. (Grading will be S/U.)

OTH 697. Research. 1-5 Hr. PR: OTH student status. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Orthodontics (ORTH)
ORTH 616. Biomechanics. 2 Hr. PR: Consent. Design and function of the teeth and their surrounding structures, and response of these tissues to orthodontic procedures.

ORTH 617. Orthodontic Technique. 2 Hr. PR: Consent. Laboratory course in techniques related to fabrication and manipulation of orthodontic appliances.


ORTH 619. Orthodontic Diagnosis. 1-3 Hr. PR: Consent. Seminar-type class on technique of patient examination, acquiring diagnostic records, and analyzing and correlating this information to the treatment of clinical problems.


ORTH 621. Orthodontic Mechanics. 1-4 Hr. Seminar and laboratory course on basic orthodontic mechanical properties.


ORTH 625 A-Z. Orthodontic Seminar. 1-8 Hr. PR: Consent. Discussions including all branches of dental science, with special emphasis on the orthodontic interest. Assigned topics and articles in the literature discussed.

ORTH 626. Orthodontic Clinic. 1-12 Hr. PR: ORTH 616 and ORTH 617. Clinical treatment of selected patients.

ORTH 627. Surgical Orthodontics. 1 Hr. PR: Consent. Diagnosis and treatment of patients that require surgical orthodontic treatment.

ORTH 628. Early Treatment. 1 Hr. PR: Consent. Diagnosis and treatment of young patients that require early orthodontic and orthopedic treatment.

ORTH 629. Patient Management. 1 Hr. PR: Consent. Addresses the skills needed to effectively manage an orthodontic practice.
ORTH 630. Craniofacial Anomalies. 1 Hr. PR: Consent. Diagnosis and treatment of patients presented with craniofacial anomalies.

ORTH 631. Journal Club. 1 Hr. PR: Consent. Review of literature in the orthodontic journals.

ORTH 632. Dentofacial Orthopedics. 1 Hr. PR: Consent. Diagnosis and treatment of young patients that require orthopedic treatment.

ORTH 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of dentistry.

ORTH 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

ORTH 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

ORTH 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

ORTH 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

ORTH 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

ORTH 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate will present at least one seminar to the assembled faculty and graduate student body of his/her program.

ORTH 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

ORTH 716. Craniofacial Growth and Maturation. 1 Hr. PR: Consent. The current concepts of craniofacial growth and maturation are presented and integrated for application to clinical problems.

Pathology (PATH)
PATH 520. Seminars in Molecular Diagnostics. 1 Hr. This course provides an overview of molecular diagnostic theory and procedures.

PATH 601. Special Studies in Oral Pathology. (For dental and graduate students, residents, and interns.) 1-3 Hr. PR: PATH 738 and PATH 753. Advanced study of local or systemic disease processes affecting oral structures through seminars, assignment of specific topics, or research activities.

PATH 603. Pathology and Anatomy. 6 Hr. This course will cover gross and microscopic human anatomy including embryology, histology and microanatomy lab.

PATH 610. Pathology Assistant Education Methods. 1 Hr. Techniques in educational methodology for pathologist’s assistants.

PATH 620. Clinical Pathology Seminar. 2 Hr. This course presents a review of clinical pathology, including pertinent forensic molecular, toxicologic and radiologic diagnostics.

PATH 625. Anatomical Pathology Techniques. 4 Hr. This course will cover standard techniques in surgical and autopsy dissection, preparation of reports, basic forensic, investigation techniques, basic histological and immunological staining techniques.
PATH 627. Pathology Assistant Practicum 1. 9 Hr. Rotations in surgical and autopsy pathology to include forensics and pediatrics.

PATH 628. Pathology Assistant Practicum 2. 9 Hr. Rotations in surgical and autopsy pathology to include forensics and pediatrics.

PATH 629. Pathologists’ Assistant Practicum 3. 7 Hr. PR: PATH 628. This course is a continuation of PATH 628 and advanced procedures and application of advanced techniques in surgical and autopsy pathology.

PATH 630. Pathology Review 1. 2 Hr. This course includes an intense review of clinical and anatomical pathology theory and techniques, and presentation of scientific journal articles and clinical cases.

PATH 631. Pathology Review 2. 2 Hr. PR: PATH 630. This course is a continuation of PATH 630 and includes an intense review of clinical and anatomical pathology theory and techniques, and presentation of journal articles and clinical cases.

PATH 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PATH 728. General Pathology. II. 5 Hr. PR: Consent. A study of the pathophysiological changes associated with human disease and a study of disease of major organ systems.

PATH 738. Oral Pathology 1. 3 Hr.

PATH 751. Mechanisms of Human Disease. 12 Hr. (For medical and selected graduate students in the medical sciences, with instructor consent.) Integrated study of disease using structure-function relationships. Includes participation in pathology departmental activities (postmortem exams and other diagnostic procedures), student presentations of clinical materials, case study discussions, and lectures.

PATH 753. Oral Pathology 2. (For dental students.) 2 Hr. PR: PATH 738 or Consent. Continuation of PATH 738.

PATH 755. Clinico-Pathologic Correlation Conference. (For dental students.) 1 Hr. PR: PATH 738 and PATH 753 or Consent. Histopathologic correlation with clinical case histories and presenting signs and symptoms presented in a case-based learning format.

PATH 782. Advanced Oral Histopathology. (For dental and graduate students, residents and interns.) 1-2 Hr. PR: PATH 738 and PATH 753 or Consent. An elective seminar stressing the significant microscopic features and diagnosis of various oral lesions.

PATH 790. Teaching Practicum. 1-3 Hr. PR: (PATH 301 and PATH 302) or (PATH 728 and PATH 738 and PATH 753.) Supervised practice in college teaching of pathology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

PATH 791. Advanced Study. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PATH 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PATH 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
PATH 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PATH 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PATH 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PATH 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PATH 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PATH 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Pediatrics (PEDI)


PEDI 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PEDI 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Petroleum and Natural Gas Engineering (PNGE)


PNGE 532. Introduction to Reservoir Simulation. 3 Hr. PR or CONC: PNGE 434 or Consent. Partial differential equations for fluid flow in porous media and the use of finite-difference equations in solving reservoir flow problems for various boundary conditions. Study of individual well pressures and fundamentals of history matching.

PNGE 533. Secondary Recovery of Oil by Water Flooding. 3 Hr. PR: PNGE 333. Theory of immiscible fluid displacement mechanism, evaluation and economics of water flood projects, and oil field flooding techniques. (3 hr. lec.)

PNGE 601. Fluid Flow in Porous Media. 3 Hr. PR: PHGE 434 and MATH 261 or Consent. Theoretical and practical aspects of the physical principles of hydrodynamics in porous media. (3 hr. lec.)

PNGE 632. Reservoir Simulation and Modeling. 3 Hr. PR: PNGE 532 or consent. Application of finite-difference equations to multi-phase fluid flow in porous media in two or three dimensions with gravity and capillary pressure effects. Simulation of waterflood performance and enhanced recovery techniques.
PNGE 633. Advanced Secondary Recovery. 3 Hr. PR: PNGE 533. Secondary recovery of oil by gas flooding, miscible fluid injection, in-situ combustion, and heat injection. (3 hr. lec.)

PNGE 634. Pressure Transient Analysis. 3 Hr. PR: PNGE 434 or Consent. Methods of analysis of pressure transient data obtained from well testing for the purpose of determining in-situ reservoir conditions including porosity, lateral extent, average reservoir pressure, and formation permeability.
PNGE 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PNGE 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PNGE 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PNGE 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PNGE 701. Environmental Issues in Petroleum Engineering. 3 Hr. PR: Graduate standing. Environmental impacts of petroleum exploration and production, methods to minimize or eliminate potential environmental impacts, treatment and disposal of the drilling and production wastes, and remediation methods for petroleum contaminated sites.

PNGE 710. Advanced Drilling Engineering. 3 Hr. PR: PNGE 310. Drilling optimization, methods for estimating formation pore and fracture pressures, air drilling, application of directional drilling and deviation control, horizontal drilling, coiled tubing applications.

PNGE 711. Advanced Productions Engineering. 3 Hr. PR: PNGE 420. Advanced well completion methods, problem well analysis, well remediation and workover planning, multi-phase flow in pipes, system approach for oil and gas wells, application of NODAL analysis, surface and subsurface production equipment.

PNGE 734. Advanced Reservoir Engineering. 3 Hr. PR: PNGE 434. Modeling and simulation of heterogeneous reservoirs, predicting the performance of the heterogeneous reservoirs during primary, secondary, and enhanced recovery production.

PNGE 735. Advanced Formation Evaluation. 3 Hr. PR: PNGE 450. Advanced methods for interpreting well logs, shaly sand analysis, and production logging methods.

PNGE 770. Advanced Natural Gas Engineering. 3 Hr. PR: PNGE 470. Application of reservoir modeling, history matching, and type curves techniques to analyze and predict the performance of conventional and unconventional gas reservoirs.

PNGE 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of petroleum and natural gas engineering. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

PNGE 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PNGE 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PNGE 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
PNGE 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PNGE 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PNGE 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PNGE 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PNGE 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

**Pharmacology and Toxicology (PCOL)**

PCOL 549. Applied Pharmacology. 4 Hr. PR: For exercise physiology and other graduate students or selected undergraduate seniors with consent. Effect of drugs in humans with emphasis on application of drugs relevant to health professionals.

PCOL 562. Occupational Toxicology. 3 Hr. PR: Consent. General principles of toxicology with special emphasis on occupational health. Classes of chemicals that pose problems in the workplace will be emphasized.

PCOL 743. Pharmacology 1. 3 Hr. PR: Second year professional standing or Consent. Cellular and biochemical effects that explain the therapeutic or adverse effects of drugs. These will be integrated into considerations of drug effects, toxicities and interactions between drugs.

PCOL 744. Pharmacology 2. 3 Hr. PR: Second year professional standing or Consent. Continuation of Pharmacology 1. Cellular and biochemical effects that explain the therapeutic or adverse effects of drugs. These will be integrated into considerations of drug effects, toxicities and interactions between drugs.

PCOL 745. Advanced Pharmacology 1. 1-4 Hr. This course contains three modules and addresses general pharmacological principles and contemporary topics in integrative, cellular, and molecular aspects of cardiovascular, inflammatory, endocrine, and pulmonary pharmacology, and toxicology.

PCOL 746. Advanced Pharmacology 2. 1-3 Hr. This course contains three modules and addresses contemporary topics in integrative, cellular, and molecular aspects of neuropharmacology (first two modules) and cancer pharmacology (third module).

PCOL 760. Pharmacology and Therapeutics. (For dental and graduate students) 5 Hr. PR: Second year dental students or graduate students with Consent. Lecture and demonstrations relevant to explaining how drugs function in the human body. Team teaching by basic science faculty and clinical dental faculty.

PCOL 761. Medical Pharmacology. 7 Hr. (For medical and selected graduate students in the medical sciences with instructor’s consent) PR: Basic principles of drug action, mechanisms of therapeutic effects and undesirable effects. Emphasis on the classes of drugs currently used in medical practice.

PCOL 762. Literature Survey. 1 Hr. per semester. PR: Graduate status in pharmacology and toxicology or Consent. Current literature pertinent to pharmacology and toxicology including journals of allied biological sciences.
PCOL 764. Advanced Pharmacology. 1-6 Hr. PR: PCOL 761 or Consent. Advanced lectures and discussion of general principles of pharmacology and toxicology and advanced lectures in biochemical, endocrine, pulmonary, and cardiovascular pharmacology. 1-6 hr. lec. (Alt. Yrs.)

PCOL 770. Summer Medical Pharmacology. 7 Hr. Online course covering basic principles of drug action, mechanisms of therapeutic effects, and undesirable effects. Emphasis on the classes of drugs currently used in medical practice.

PCOL 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of pharmacology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience.

PCOL 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PCOL 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PCOL 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PCOL 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PCOL 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PCOL 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PCOL 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PCOL 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Pharmacy (PHAR)

PHAR 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PHAR 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PHAR 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students. (Grading may be S/U.)

PHAR 696 A-Z. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program. (Grading may be S/U.)
PHAR 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PHAR 700. Pharmacy as a Profession. 1 Hr. PR: First professional year standing or consent. Introduces students to the concept of professionalism, the scope of pharmacy practice opportunities, the health care system as it relates to pharmacy, and other contemporary issues in pharmacy practice. (Grading will be S/U.)

PHAR 701. Pharmaceutical Care Lab 1. 2 Hr. PR: First professional year standing or consent. Students will develop skills in medical terminology, communications, information retrieval, dispensing, compounding, calculations, pharmaceutical care, and problem-solving skills.

PHAR 702. Physical Pharmacy. 3 Hr. PR: First professional year standing or consent. Designed to teach students the basic principles related to physical phenomena and stability as well as introduce them to a variety of factors that influence drug dosage form design and stability.

PHAR 703. Pharmacy Practice Experience 1. 1 Hr. PR: First professional year standing or consent. Provides an overview of the roles and responsibilities of community pharmacists and provides experiential learning in a community pharmacy setting. First courses in a six-semester sequence that introduces students to various pharmacy practice settings.

PHAR 708. Pharmaceutics. 3 Hr. PR: PHAR 702. Pharmaceutics builds upon the concepts discussed in physical pharmacy and focuses on drug dosage forms and delivery systems, their design, drug delivery to the body through a variety of routes, and factors affecting drug delivery.

PHAR 709. Immunology and Biotechnology. 3 Hr. PR: First year professional standing or consent. Students will learn basic functions of the immune system, elements of the pharmaceutical applications of biotechnology, and be introduced to the chemotherapy of infections.

PHAR 710. Pharmacy Practice Experience 2. 1 Hr. PR: PHAR 703 or consent. Provides an overview of the roles and responsibilities of community pharmacists and provides experiential learning in a community pharmacy setting. Second course in a six-semester sequence that introduces students to various pharmacy practice settings.

PHAR 711. Chemical Properties of Drugs. 2 Hr. PR: First year professional standing or consent. Principles of chemical stability and chemical properties as they relate to drug molecules. Topics to be covered include functional group analysis, solubility, oil/water partitioning, organic acids and bases, and drug decomposition and metabolism.

PHAR 712. Pharmaceutical Care Lab 2. 2 Hr. PR: First professional year standing or consent. Continuation of PHAR 701.

PHAR 714. Introduction to Community Rotation. 2 Hr. PR: PHAR 710. Students will gain experience preparing prescriptions, providing basic drug information to patients, and participating in disease prevention activities in a community pharmacy setting.

PHAR 715. Pathophysiology/Therapeutics 1. 4 Hr. PR: Second professional year standing or consent. Principles and concepts of pathophysiology and pharmacotherapeutics. An organ system approach to disease states and their therapeutic management will be followed.

PHAR 716. Chemistry of Drug Action 1. 3 Hr. PR: PHAR 711 or Consent. Provides a basic understanding of relationships between the chemical structure of a drug and its biological effect. Physiochemical properties, enzymatic transformations and structure-activity relationships (SAR) of important pharmaceutical agents are discussed.
PHAR 717. Pharmacy Practice Experience 3. 1 Hr. PR: Second professional year standing or consent. Introduces students to the principles of service learning through development of an on-site healthcare-related service project. Third course of a six-semester sequence that introduces students to various pharmacy practice settings.

PHAR 719. Pharmacy Practice Experience 4. 1 Hr. PR: PHAR 717 or consent. Introduces students to the principles of service learning through implementation of an on-site healthcare-related service project. Fourth course of a six-semester sequence that introduces students to various pharmacy practice settings.

PHAR 720. Patient Health Education. 2 Hr. PR: Second professional year standing or consent. Interpersonal communication skills will be enhanced in the areas of patient-centered and colleague-centered communications. Students will learn processes for providing pharmaceutical care (e.g., interviewing and counseling patients; formulating a plan; monitoring; and documenting information).

PHAR 723. Pharmaceutical Care Lab 3. 1 Hr. PR: Second professional year standing or Consent. Continuation of PHAR 712.

PHAR 724. Pharmaceutical Care Lab 4. 2 Hr. PR: Second professional year standing or Consent. Continuation of PHAR 723.

PHAR 725. Pathophysiology/Therapeutics 2. 4 Hr. PR: PHAR 715 or consent. A continuation of PHAR 715.

PHAR 726. Chemistry of Drug Action 2. 2 Hr. PR: PHAR 716 or consent. A continuation of PHAR 716.

PHAR 727. Medical Literature Evaluation. 2 Hr. PR: Second professional year standing or consent. Emphasis is placed on the critical analysis and evaluation of the primary literature. Secondary and computerized information resources are also discussed, including other selected aspects of drug information.

PHAR 728. Pharmacy Management. 2 Hr. PR: Second professional year standing or consent. This course provides an introductory survey of the basic principles of personnel and fiscal management as they apply to organizational planning and decision-making, organizational design and structure, leadership and control in organizations, and the issues facing pharmacy managers.

PHAR 729. Intro Institutional Rotation. 2 Hr. PR: PHAR 719. Second professional year standing or consent. Gain experience in an institutional pharmacy setting.

PHAR 730. Pathophysiology/Therapeutics 3. 4 Hr. PR: PHAR 725 or consent. A continuation of PHAR 725. An organ system approach to disease states and their therapeutic management will be followed.

PHAR 731. Biopharm & Pharmacokinetics. 3 Hr. PR: Third year professional standing or consent. Fundamental principles of biopharmaceutics (physicochemical and biological processes affecting drug transit into the systemic circulation) and pharmacokinetics (kinetic and biological processes a drug undergoes upon entering the body).

PHAR 732. Non-Prescription Drugs. 3 Hr. PR: Third year professional standing or consent. An advanced level course on the appropriate selection, and use of non-prescription drug products in the contemporary practice setting, the basis for self-medication, assessment of patient condition, and approach to patient counseling.
PHAR 733. Pharmacy Systems. 2 Hr. PR: Third year professional standing or consent. Basic principles of financial management as they apply to the day-to-day operations in pharmacy systems present in institutional, community, long-term care facilities and other pharmacy venues.

PHAR 734. Pharmacy Law and Ethics. 3 Hr. PR: First professional year standing or consent. The legal and ethical basis of pharmacy practice. Students learn about federal and state statutes, rules, and regulations that affect pharmacy practice. Ethics related situations that can arise during pharmacy practice will also be discussed.

PHAR 735. Pharmaceutical Care Lab 5. 1 Hr. PR: PHAR 724. Continuation of PHAR 724.

PHAR 736. Pharmaceutical Care Lab 6. 1 Hr. PR: Third Year Professional standing or consent. Experience in pharmaceutical compounding, patient assessment and monitoring, professional/ethical decision making, pharmacokinetic dosing of medications, and prevention of adverse drug-related events and medication errors.

PHAR 737. Disease Prevention Health Promotion. 2 Hr. PR: Third year professional standing or consent. This course exposes pharmacy students to pharmacoepidemiology and public health. Instruction focuses on pharmacists as integral to preventing and detecting disease and promoting community health. Emphasis is given to rural health care and Appalachian culture.

PHAR 738. Outcomes Assessment and Quality Improvement. 2 Hr. PR: Third professional year standing or consent. Outcomes assessment and quality improvement will expose students to the development and implementation of formularies, drug use evaluations, outcomes assessment, and quality improvement. Emphasis will be placed on how these issues relate to pharmaceutical services.

PHAR 739. Therapeutic Patient Monitoring. 3 Hr. PR: Third professional year standing or consent. Employs both didactic and experiential instruction to provide students with the knowledge and skills required to assess the health status of medicated patients with special emphasis on monitoring therapeutic endpoints.

PHAR 740. Pathophysiology/Therapeutics 4. 4 Hr. PR: PHAR 730 or consent. A continuation of PHAR 730.

PHAR 741. Clinical Pharmacokinetics. 3 Hr. PR: PHAR 731 or consent. This course will review advanced concepts in pharmacokinetics and cover the basic pharmacokinetic properties of commonly used drugs and apply these principles to drug dosing, patient management, and rational therapeutic drug monitoring.

PHAR 742. Pharmacy Practice Experience 5. 1 Hr. PR: Third professional year standing or consent. Provides experiential learning in an acute or ambulatory care pharmacy practice setting. Fifth course in a six-semester sequence that introduces students to various pharmacy practice settings.

PHAR 746. Pharmacy Practice Experience 6. 1 Hr. PR: PHAR 742 or consent. Provides experiential learning in an acute or ambulatory care pharmacy practice setting. Sixth course in a six-semester sequence that introduces students to various pharmacy practice settings.

PHAR 747. History of Pharmacy. 2 Hr. Gives the student a deeper appreciation of the background of pharmacy and its development from ancient times to present.

PHAR 749 A-Z. Pharmaceutical Investigations. 2-3 Hr. PR: Consent. Original investigation in pharmaceutics, medical chemistry, pharmacology, pharmaceutical systems and policy, or clinical pharmacy. (Grading may be S/U.)
PHAR 750. Automation and Technology. 2 Hr. PR: Second year professional standing or consent. Provides an understanding of the newest technology that is available to a pharmacist in a retail or institutional setting. Students will learn to use PowerPoint, and gain experience making presentations and public speaking.

PHAR 751. Geriatrics and Gerontology. 2 Hr. PR: Second or third year pharmacy students. A review of common pharmacotherapeutic and social issues of importance to older adult patients.

PHAR 760. Medicine Rotation 1. 5 Hr. PR: Fourth year professional standing or consent. Five-week experience in the delivery of pharmaceutical care in an acute care setting.

PHAR 761. Medicine Rotation 2. 5 Hr. PR: Fourth year professional standing or consent. Experience in the delivery of pharmaceutical care in an acute care setting.

PHAR 762. Ambulatory Care Rotation 1. 5 Hr. PR: Fourth year professional standing or consent. Experience in the delivery of pharmaceutical care in an ambulatory care setting.

PHAR 763. Ambulatory Care Rotation 2. 5 Hr. PR: Fourth year professional standing or consent. Five-week experience in the delivery of pharmaceutical care in an ambulatory care setting.

PHAR 764. Elective Rotation 1. 5 Hr. PR: Fourth year professional standing or consent. Five-week experience in a pharmacy practice setting, such as acute care, ambulatory, community, hospital, poison center, drug information, home health, long-term care, or research.

PHAR 765. Elective Rotation 2. 5 Hr. PR: Fourth year professional standing or consent. Five-week experience in a pharmacy practice setting, such as acute care, ambulatory, community, hospital, poison center, drug information, home health, long-term care, or research.

PHAR 766. Elective Rotation 3. 5 Hr. PR: Fourth year professional standing or consent. Five-week experience in a pharmacy practice setting, such as acute care, ambulatory, community, hospital, poison center, drug information, home health, long-term care, and research.

PHAR 767. Elective Rotation 4. 5 Hr. PR: Forth Year Professional standing or consent. Five-week experience in the delivery of pharmaceutical care in a community pharmacy setting.

PHAR 768. Elective Rotation 5. 5 Hr. PR: Fourth year professional standing or consent. Five-week experience in a pharmacy practice setting, such as acute care, ambulatory, community, hospital, poison center, drug information, home health, long term care, and research.

PHAR 770. Community Rotation 1. 5 Hr. PR: Fourth year professional standing or consent. Five-week experience in the delivery of pharmaceutical care in a community pharmacy setting.

PHAR 771. Community Rotation 2. 5 Hr. PR: Fourth year professional standing or consent. Five-week experience in the delivery of pharmaceutical care in a community pharmacy setting.

PHAR 772. Institutional Rotation 1. 5 Hr. PR: Fourth year professional standing or consent. Five-week experience in the delivery of pharmaceutical care in a health system setting.

PHAR 773. Institutional Rotation 2. 5 Hr. PR: Fourth year professional standing or consent. Five-week experience in the delivery of pharmaceutical care in a health system setting.

PHAR 775. Advanced Biopharmaceutics. 3 Hr. Concepts of biopharmaceutics and pharmacokinetics in relation to the design and evaluation of dosage forms and determination of rational dosage regimens in health and disease.
PHAR 779. Drugs: Bench to Market. 3 Hr. PR: Graduate standing or permission of instructor. This is an introductory course that describes the process of drug discovery to the development of new forms for therapeutic use. Topics covered include drug design/discovery, pharmacokinetics and dynamics, pharmaceutics and industry pharmacy.

PHAR 780. Introduction to Molecular Modeling. 4 Hr. PR: Graduate standing or permission of instructor. Introduction to molecular modeling describes computational methods for chemical and biological problems and is designed to enable the student to use molecular modeling methods as a research tool in these current or future research activities.

PHAR 781. Drug Metabolism. 3 Hr. PR: Graduate standing or permission of instructor. This course presents a comprehensive review of the field of drug metabolism with an emphasis on the chemistry and enzumology of drug biotransformation, and current methods in drug metabolism research.

PHAR 786. Claims Data Research/Analysis. 3 Hr. PR: PHAR 785. This course presents various topics related to claims data research including common study designs, advantages and limitations, and basic steps to extracting and analyzing claims data.

PHAR 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of pharmacy. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

PHAR 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PHAR 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PHAR 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PHAR 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PHAR 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PHAR 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PHAR 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PHAR 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PHAR 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)
Philosophy (PHIL)

PHIL 501. Metaphysics. 3 Hr. Traditional problems associated with universals and particulars, reality and experiences, causality, space and time, matter and mind, the nature of the self, etc.

PHIL 502. Theory of Knowledge. 3 Hr. Definitions of knowledge, truth, and belief. Problems associated with skepticism, induction, perception, introspection, memory, and a priori knowledge.

PHIL 510. Philosophy of Science. 3 Hr. Philosophical problems associated with the concepts and methodology of science.

PHIL 531. Health Care Ethics. 3 Hr. Topics: Clinician-patient relationship, life-sustaining treatment, physician-assisted death, physician-nurse conflicts, confidentiality, research, reproductive technology, abortion, maternal/fetal conflicts, genetics, rationing, and access.

PHIL 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of philosophy. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain college teaching experience. (Grading may be S/U.)

PHIL 591 A-Z. Advanced Topics. 3 Hr. Investigation of advanced topics not covered in regularly scheduled courses.

PHIL 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PHIL 594. Seminar. 3 Hr. Seminars arranged for advanced graduate students.

PHIL 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PHIL 692. Directed Study. 1-6 Hr. PR: Consent. Directed study, reading, and/or research.

PHIL 693. Special Topics. 1-6 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field.

PHIL 694. Seminar. 1-6 Hr. PR: Consent. Seminars arranged for advanced graduate students.

PHIL 695. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.

PHIL 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PHIL 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PHIL 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)
PHIL 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

**Physical Education/Teaching (PET)**

PET 600. Workshop in Physical Education. 1-15 Hr. Professional development experience for the physical education teacher.

PET 605. Professional Issues in Physical Education. 3 Hr. Designed to examine current professional issues in physical education and the impact of these issues on the professional’s life.

PET 615. Research Methodology in Physical Education. 3 Hr. Application of historical, descriptive, and experimental research strategies and designs to physical education.

PET 636. Instructional Methods for Physical Education. 3 Hr. Designed to provide physical educators with methodological skill. The research justification for the methodological approaches examined will be emphasized.

PET 638. Operant Principles for Physical Education. 3 Hr. Designed for the use and evaluation of operant principles in the development and control of motor behavior in physical education. Applications will be made to traditional group physical education.

PET 665. Curriculum in Physical Education. 3 Hr. Designed to examine the factors affecting curriculum development. Emphasis on research in the changing curriculum, and the selection and sequencing of developmentally appropriate activities for early, middle, and adolescent childhood.

PET 668. Issues in Motor Development. 3 Hr. Examines the contributions made to the body of knowledge of motor development by various theories of child development, psychology, learning, and ecology. A variety of theoretical perspectives, assessment techniques, and issues will be reviewed.

PET 671. Childhood Motor Development. 3 Hr. PR: PET 668. This course will study changes during childhood in motor behavior that reflect the interaction of the mover with contextual features of the environment and the demands of the movement task. Laboratory experiences with children included.

PET 680. Theory of Fitness Education. 3 Hr. This course explores the theoretical foundations and related literature underlying the provision of fitness education and the role of this content in physical education programs.

PET 681. Motor Development in Special Populations. 3 Hr. Designed to examine the motor developmental patterns of various special population groups focusing on physical education’s interactive role with the developmental process. Current developmental research related to the area will be emphasized. (Offered every third summer.)

PET 683. Principles of Effective Teaching. 3 Hr. Research based principles of effective teaching as they relate to physical education. Students will examine and evaluate their own teaching practices through a series of reflective assignments.
PET 685. Physical Education Supervision Techniques. 3 Hr. Effective supervision practices for the perspective physical education directing teacher.

PET 686. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of physical education teaching. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

PET 688. Applied Motor Learning. 3 Hr. Examines the theoretical foundations and related literature that underlie the learning, performance, and retention of motor skills with applications to teaching and coaching.

PET 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of physical education teaching. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

PET 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PET 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PET 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PET 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PET 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PET 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PET 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PET 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PET 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

PET 730. Diversity Issues in PET. 3 Hr. A synthesis of research and literature covering a wide range of social/political issues related to diversity and inclusion in physical education such as gender equity, developmental disabilities, and multiculturalism.
PET 735. Reading Research 1. 3 Hr. This course provides the doctoral student with an introduction to the literature that underlies the knowledge base in physical education teaching and teacher education.

PET 736. Reading Research 2. 3 Hr. This course provides the doctoral student with an introduction to the literature that underlies the knowledge base in physical education teaching and teacher education.

PET 745. Physical Education/Teaching Curriculum Development and Evaluation. 3 Hr. A historical and philosophical analysis of curriculum theory related to the preparation of physical education teachers with an emphasis on current models, content standards, curricular design and evaluation, as well as the curriculum accreditation.

PET 750. Research on Teaching. 3 Hr. An introduction to research on teaching in physical education with an emphasis on the cognitive process that underlie learning and instruction.

PET 770. Motor Behavior Issues Seminar. 3 Hr. This course is a readings, discussion, research, and application seminar in human movement production. Emphasis will be placed on bridging theory to practice. Applications focus on teaching/learning, fundamental motor skills, and rehabilitation of motor skills.

PET 780. Research on Teaching. 3 Hr. The history, methods, findings, and educational implications of research on behavioral and cognitive processes that underlie teaching.

PET 781. Research on Teaching in PE. 3 Hr. This course is designed to examine issues related to the provision of quality physical education in P-12 programs, and to the integration of many elements contributing to the student's professional preparation.

PET 785. Behavior Analysis. 3 Hr. Examination of basic and advanced concepts of applied behavior analysis as they relate to research in physical education and related fields as well as course design and implementation at the college level.

PET 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of physical education. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

PET 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PET 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PET 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PET 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PET 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PET 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PET 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
PET 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PET 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

PET 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology) The tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

PET 931. Professional Development 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Physical Science (PHSC)
PHSC 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of physical science. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

PHSC 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PHSC 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PHSC 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PHSC 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PHSC 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through course offerings.

PHSC 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PHSC 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PHSC 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)
PHSC 699. Graduate Colloquium. I, II, S. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participates in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Physical Therapy (PT)

PT 503. Pediatric Physical Therapy. 2 Hr. Survey of developmental conditions commonly seen in pediatric physical therapy. Includes laboratory practice of evaluation, treatment planning and clinical problem solving.

PT 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PT 593. Special Topics. Variable 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PT 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PT 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of physical therapy. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

PT 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PT 693. Special Topics. 1-6 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field.

PT 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PT 705. Intro to Evidence Based PT. 2 Hr. An introduction to evidence based practice. Students learn strategies for obtaining and building evidence databases. Introduction to analysis and application of evidence.

PT 706. Advanced Clinical Anatomy. 5 Hr. This course presents advanced study of clinical applications of gross anatomy to physical therapy practice through lecture and lab. Laboratory includes dissection, computer-based instruction and clinical palpation.

PT 711. Professional Roles 1. 3 Hr. PR: PT 705. Introduction to fundamentals of professional behavior for the physical therapist. Includes units on professionalism, culture, health care ethics, and clinical documentation.

PT 713. Lifespan Functional Movement. 2 Hr. An overview of motor learning including acquisition of developmental patterns, motor control, motor skill acquisition. This course also provides an overview of the effects of normative processes of aging on neuromotor patterns in occupational performance.
PT 715. Evidence Based PT 1. 2 Hr. PR: PT 705. The purpose of this course is to give the student the information needed to begin to apply research findings to individual patients. Research design and methods, ethics, appraisal and evidence-based practice will be emphasized.

PT 716. Kinesiologic Foundations. 4 Hr. PR: Admission to professional program in PT. Functional anatomical correlations and human movement. Statics, biomechanics, dynamics and functional movement analysis. (2 hr. lec., 4 hr. lab.)


PT 720. Clinical Education 1. 1 Hr. Students observe various members of the health care team in practice. Students practice verbal and written communication skills. Course open to PT majors.

PT 723. Developmental Life Tasks. 3 Hr. Life-span human development across cognitive, psychosocial and neuromotor domains with particular emphasis on applications to physical or occupational therapy interventions. Cultural influences in health and illness.

PT 724. Exercise Foundations. 3 Hr. Principles of aerobic and resistance training for rehabilitation populations. Includes laboratory experience in exercise testing and development of exercise programs for therapeutic purposes.

PT 725. Evidence-Based Physical Therapy 2. 3 Hr. PR: PT 705 and PT 715. Continuation of critical thinking and scientific inquiry. Emphasis is on understanding quantitative and qualitative research designs and data analysis.

PT 727. Neurobiologic Foundations. 4 Hr. PR: Enrolled in professional sequence. Basic and clinical applications of neurophysiological basis of physical and occupational therapy practice.

PT 728. Physical Therapy Procedures 1. 4 Hr. Introduction, theoretical basis, and laboratory practice of procedures basic to physical therapy practice.

PT 730. Clinical Education Symposium 1. 1 Hr. PR: PT 720. Coreq: PT 733. Students attend and evaluate case presentations applicable to physical therapy practice, and practice documentation skills. Case topics will coincide with didactic material presented in PT 733.

PT 732. Physical Therapeutic Agents 1. 2 Hr. Theory and practical application of modalities used in physical therapy practice. Therapeutic agents of this course include but are not limited to, hydrotherapy, therapeutic heat and cold, and ultrasound.

PT 733. Cardiopulmonary PT. 3 Hr. Medical lectures on cardiovascular and pulmonary conditions, including surgical and pharmacologic treatments. Course includes topics on stress testing, using of monitoring equipment and evaluation and planning of rehabilitation protocols.

PT 734. Clinical Sciences 2. 2 Hr. PR: PT 714. Introduction to radiology for the physical therapy student. Study includes plain file radiology of the musculoskeletal and cardiopulmonary systems, an overview of advanced imaging techniques, and exposure to tests and intervention treatments performed by radiologists.

PT 738. Physical Therapy Procedures 2. 3 Hr. Theory and clinical application of therapeutic exercise techniques. (1 hr. lec., 4 hr. lab.)

PT 740. Clinical Education Symposium 2. 1 Hr. PR: PT 720 and PT 730. Coreq.: PT 746. Students evaluate and present patient cases applicable to physical therapy management. Case topics will coincide with didactic material presented in PT 746.
PT 741. Professional Roles 2. 4 Hr. PR: PT 711. Provides information on educational theories and methods for use when working with patients, peers, students, and community members. Students use educational principles to design prevention, screening, and wellness programs for various community agencies.

PT 742. Physical Therapy Agents 2. 2 Hr. PR: Physical therapy majors only; must have successfully completed the required previous coursework in the professional sequence. Continuation of therapeutic physical agents 1. Includes, but is not limited to, practical application and theory in electrotherapeutic modalities used in physical therapy practice. (1 hr. lec., 2 hr. lab.)

PT 743. Geriatric Physical Therapy 1. 2 Hr. Students are provided information about medical and psychosocial factors associated with aging. Study of the role of physical therapy in geriatrics, including laboratory practice of common evaluation and treatment procedures. (1 hr. lec., 2 hr. lab.)

PT 744. Clinical Sciences 3. 2 Hr. PR: PT 714 and PT 734. Introduction to pharmacology for the physical therapy s student. Includes study of pharmacotherapeutics, and an overview of selected medications. The emphasis is on clinical application and the therapist's role as a health care team member.

PT 745. Evidence Based PT 3. 2 Hr. PR: PT 705 and PT 715 and PT 725. Continuation of preparation for critical thinking and clinical decision-making. Emphasis is on generating a clinical research proposal and small group learning aimed at utilizing evidence to support clinical judgment in simulated patient cases.

PT 746. Orthopedic Physical Therapy 1. 5 Hr. PR: PT 706 and PT 708 and PT 716. The first of two courses in physical examination of the musculoskeletal system, including mechanisms of injury, differential diagnosis and medical, surgical, and physical therapy interventions for musculoskeletal problems.

PT 750. Clinical Education 2. 2 Hr. PR: PT 720 and PT 730 and PT 740. A four-week, full-time clinical education experience provided in an acute care setting. Students participate in direct patient care opportunities including examination, intervention, and documentation under the direction and supervision of a licensed physical therapist.

PT 754. Clinical Sciences 4. 4 Hr. Introduction to selected topics in clinical medicine basic to physical therapy practice, beginning with an overview of genetics related to disease and medical conditions. Include integumentary, metabolic and endocrine disorders, oncology and rheumatology (4 hr. lec.)

PT 755. Evidence Based PT 4. 2 Hr. PR: PT 705 and PT 715 and PT 725 and PT 745. Continuation of preparation for clinical-thinking and decision-making in the clinic. Emphasis is on autonomous practice. Students will work in small groups in a case-based learning format, utilizing evidence to make clinical decisions.

PT 756. Orthopedic Physical Therapy 2. 3 Hr. PR: PT 706 and PT 708 and PT 716. The second of two courses in physical examination of the musculoskeletal system, including mechanisms of injury, differential diagnosis and medical, surgical, and physical therapy interventions for musculoskeletal problems.

PT 757. Neurologic Physical Therapy 1. 3 Hr. PR: PT 727. Issues related to physical therapy management of patients with neurologic disorders are presented. Through lecture and lab, students learn assessment and intervention for several common problems based on theories of motor control, learning and function.
PT 760. Clinical Education 3. 6 Hr. PR: PT 750. Students practice full-time for 12 weeks under the direction of licensed physical therapists and participate in rural health projects.

PT 761. Professional Roles 3. 3 HR. PR: PT 741. Principles of business and management as they apply to contemporary physical therapy practice. Fiscal management, risk management, and program improvement are addressed.

PT 762. Health Care Issues in PT. 2 Hr. PR: PT 741. The role of physical therapists as advocates for people with disabilities is discussed. Investigation of community and home barriers is included. Students discuss the roles of and demands on physical therapists in various practice settings.

PT 763. Pediatric Physical Therapy. 3 Hr. Students learn assessment and interventions for a variety of conditions that uniquely affect children. Students will explore current topics that influence pediatric practice. Practical experience sessions include observations in pediatric settings.

PT 768. Prosthetics and Orthotics 1. 3 Hr. Presents biomechanical principles applies to prosthetic and orthotic prescription and fabrication. Student learns how to plan and implement rehabilitation programs for patients that must use orthotic or prosthetic devices. (2 hr. lec.; 1 hr. lab.)

PT 770. Clinical Education Symposium 3. 2 Hr. PR: PT 730 and PT 740. Students prepare oral and written case reports based on their patient care experiences.

PT 780. Clinical Education 4. 8 Hr. PR: PT 720, and PT 750 and PT 760. Students practice full-time for sixteen weeks under the direction and supervision of licensed physical therapists.

PT 781. Advanced Cardiopulmonary PT. 1 Hr. This course emphasizes content necessary for physical therapists to act as autonomous practitioners. Previous coursework and concepts of differential diagnosis are applied to simulated patient cases representative of cardiovascular and pulmonary physical therapy.

PT 782. Advanced Integumentary PT. 1 Hr. This course emphasizes content necessary for physical therapists to act as autonomous practitioners. Previous coursework and concepts of differential diagnosis are applied to simulated patient cases representative of integumentary physical therapy.

PT 783. Advanced Orthopedic PT. 2 Hr. This course emphasizes knowledge and skills necessary for physical therapists to act as autonomous practitioners. Previous coursework and concepts of differential diagnosis are applied to simulated patient cases representative of orthopedic physical therapy.

PT 784. Advanced Neurologic PT. 1 Hr. This course emphasizes content necessary for physical therapists to act as autonomous practitioners. Previous coursework and contemporary literature are applied to analysis of patient cases.


PT 792: Directed Study. Variable 1-6 Hr. Directed study, reading, and/or research.

PT 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PT 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or dissertation. (Grading may be S/U.)
Physics (PHYS)

PHYS 554. Outline of Modern Physics. 3 Hr. PR: One year introductory college physics. (Primarily for education majors; not open to physics majors.) Elementary study of atomic and molecular structures and spectra, solid state and nuclear physics, relativity and elementary particles.

PHYS 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PHYS 611. Introduction Mathematical Physics. 3 Hr. PR: Calculus, differential equations, PHYS 111 and PHYS 112 or equivalent. Complex variables: series, contour integration and conformal mapping; ordinary differential equations; Fourier series, laplace transforms; Fourier transforms; special functions; bessel functions and legendre, hemite differential equations; poisson's equation, wave equation, and laquerre polynomials; introduction to partial differential equations.

PHYS 621. Optics. 3 Hr. PR: PHYS 112 or equivalent and MATH 251. A basic course in physical optics covering radiation theory, diffraction, interference, polychromatic waves, scattering, polarization, double refraction, and selected topics in quantum optics.


PHYS 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PHYS 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PHYS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PHYS 710. Nonliner Dynamics. 3 Hr. A survey of the nonlinear dynamics of physics systems. Topics include bifurcation, limit cycles, fractals, strange attractors, and quasiperiodicity.

PHYS 761. Statistical Mechanics. 3 Hr. PR: PHYS 461 and PHYS 651. Ensemble theory, applications to noninteracting systems, as well as perturbative and approximate treatment of interactions. Typical applications include equilibrium constants, polymers, white dwarfs, metals, superfluids, magnetic transitions.


PHYS 781. Principles of Plasma Physics. 3 Hr. Plasmas occur naturally in electrical discharges and in space and are produced artificially in laboratory devices. This course is a survey of plasma phenomena using fluid and kinetic models.

PHYS 782. Computer Simulation of Plasma. 3 Hr. PR: (PHYS 481 or PHYS 781) and PHYS 633; programming proficiency in C, FORTRAN, or BASIC. Projects teach mathematical and physical foundations of computer simulation algorithms and develop and refine physical understanding and intuition of phenomena encountered in plasma research.


PHYS 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of physics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

PHYS 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PHYS 792. Directed Study. 1-6 Hr. Directed study, reading, or a research.

PHYS 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
PHYS 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PHYS 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PHYS 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PHYS 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PHYS 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PHYS 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic cultural program. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in their department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by their program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

**Physiology (PSIO)**


PSIO 743. Fundamentals of Physiology. 5 Hr. PR: College physics, algebra, chemistry, and consent. (For dental students and a limited number of full-time graduate students.) Analysis of basic facts and concepts relating to cellular processes, organ systems, and their control.

PSIO 744. Graduate Seminar. 1-3 Hr. PR: Graduate standing and consent. (Grading may be S/U.)

PSIO 746. Neurophysiology. 1-4 Hr. PR: (MATH 126 or MATH 341) and (PHYS 101 and PHYS 102) or consent. (For graduate students in the Health Sciences Center’s basic sciences departments and a limited number of regular full-time graduate students.) Properties of excitable tissues (nerve and muscle), synaptic transmission, reflexes and central nervous system function, and behavior. (1-3 hr. lec., 1 hr. conference.)

PSIO 750. Graduate Physiology. 7 Hr. (For graduate students in HSC graduate programs and a limited number of other full-time graduate students.) PR: Consent. Survey of quantitative level of basic concepts and experimental approaches to cellular, endocrine, and neural mechanisms controlling physiological processes.

PSIO 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of physiology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)
PSIO 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PSIO 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PSIO 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PSIO 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PSIO 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PSIO 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PSIO 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PSIO 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PSIO 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

**Plant Pathology (PPTH)**

PPTH 501. Diseases of Economic Plants. 1-3 Hr.; 2 Hr. in summer. PR: PPT 401 or 503 or consent. Recognition, cause, and control of diseases of economic plants. (Sem. 1--Diseases of vegetable crops and of tree and small fruits; Sem. 2--Diseases of ornamental plants and field and forage crops; S--Diseases of forest trees. Students may register for 1-3 Hrs. in fall and spring and 2 Hr. in summer until 8 hours of credit are accumulated).

PPTH 503. Mycology. 4 Hr. Lectures and field and laboratory studies of parasitic and saprophytic fungi.

PPTH 509. Nematology. 3 Hr. (Primarily for graduate students majoring in the agricultural sciences or biology.) Nematode taxonomy, binomics, and control, with particular emphasis on plant parasitic forms.

PPTH 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PPTH 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PPTH 730. Physiology of the Fungi. 4 Hr. PR: Organic chemistry, mycology, and bacteriology, or Consent. Physiological aspects of growth, reproduction, and parasitism of fungi, with emphasis on nutrition, environmental, and other biotic factors.
PPTH 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in the college teaching of plant pathology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

PPTH 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PPTH 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PPTH 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PPTH 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PPTH 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PPTH 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PPTH 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PPTH 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PPTH 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Plant Science (PLSC)

PLSC 547. Applied Wetlands Ecology and Management. 3 Hr. The management and ecology of wetland vegetation, soils, hydrology, and wildlife. (Cross listed as WMAN 547 and CE 547.)

PLSC 550. Grants and Grantsmanship. 2 Hr. A course covering all steps of grant preparation, application, submission and review process.

PLSC 553. Organic Crop Production. 3 Hr. PR: PLSC 206 and AGRN 202 and AGRN 203 or consent. Principles, practices, history, philosophy and economics of organic farming and gardening. Crop/livestock systems, national and international research on organic production. (Students may not receive credit for both PLSC 453 and PLSC 553).

PLSC 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PLSC 592 A-Z: Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PLSC 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
PLSC 692 A-Z. Directed Study 1-6 Hr. Directed study, reading, and/or research.

PLSC 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PLSC 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of plant science. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

PLSC 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PLSC 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PLSC 793 A-Z. Special Topics. 1-6 hr. A study of contemporary topics selected from recent developments in the field.

PLSC 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PLSC 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PLSC 796 A-Z. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PLSC 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PLSC 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PLSC 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s 799 or 899 graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Political Science (POLS)

POLS 530. Policy Analysis. 3 Hr. Overview of the field of political science and the sub-field of public policy studies. Focuses on the issues and problems involved in studying policymaking, and an assessment of policy analysis as a mode of thinking and inquiry. (3 hr. seminar.)

POLS 531. Economic Analysis of Politics. 3 Hr. Application of economic analysis to questions of politics and public policy. Consideration of problems of public goods, voting behavior, and legislative behavior. (3 hr. seminar.)

POLS 536. Politics of Agenda Setting. 3 Hr. Examines the social, economic, institutional and political influences on the development of public problems and their placement on the policy agenda. (3 hr. seminar.)
POLS 555. Comparative Public Policy. 3 Hr. Comparison of public policy stages in several advanced industrial democracies with emphasis on various explanations of public policy in these countries in different policy areas. (3 hr. seminar.)

POLS 560. International Theory & Policy. 3 Hr. Survey of theoretical approaches in the study of international relations, covering major works in the realist, neo-liberal, and foreign policy literature. Emphasis on the place of foreign policy explanations within the wider, systemic international relations literature. (3 hr. seminar.)

POLS 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

POLS 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

POLS 600. Introduction to Political Research. 3 Hr. Introduction to the research methods and techniques used in political and policy analysis. Topics include logic of inquiry, research design, measurement, and survey and unobtrusive research.

POLS 601. Quantitative Political Analysis. 3 Hr. PR: POLS 600 and STAT 511, or equivalent. Application of a range of statistical techniques in political and public policy research. Includes use of selected computer software commonly used in political science and policy analysis.

POLS 602. Advanced Quantitative Methods. 3 Hr. PR: POLS 601 or equivalent advanced topics in quantitative methods for political science and policy research. Methods surveyed include multiple linear regression, time-series analysis, causal modeling, and linear programming.

POLS 603. Advanced Quantitative Analysis. 3 hr. A survey of advanced statistical applications in political science, covering time series analysis, maximum likelihood estimation, and structural equation modeling.

POLS 611. Intergovernmental Relations. 3 Hr. Examination of the politics and policy consequences of intergovernmental relations among the national, state, and local governments in the United States. Topics include the development of intergovernmental relations, regulatory federalism, and intergovernmental fiscal relations. (3 hr. seminar.)

POLS 630. Seminar: American Politics & Policy. 3 Hr. A survey of classic and contemporary literature on U.S. politics and policy. Emphasis on how various institutions and linkage mechanisms affect the policy process. (3 hr. seminar.)

POLS 635. Seminar: Policy Evaluation. 3 Hr. Methods and techniques in evaluating public policies. Topics include the relation of policy analysis to policymaking; types of evaluation; planning, evaluations; alternative evaluation designs; measuring program consequences; problems of utilization, and the setting of evaluation research. (3 hr. seminar.)

POLS 638. Seminar: Policy Implementation. 3 Hr. Research seminar focusing on how the intentions of policy-makers are transformed into programs and policies which have both intended and unintended consequences. Topics include traditional implementation studies, rational choice approaches, neo-institutionalism, and principal-agent theory. (3 hr. seminar.)

POLS 639. Research in Policy Analysis. 3 Hr. Supervised, independent research on a policy problem utilizing the techniques and methods of quantitative policy research. Designed for advanced students, the research is conducted following the completion of the department’s research methods sequence.

POLS 650. Professional Seminar in Comparative Politics. 3 Hr.
POLS 660. International Political Economy. 3 Hr. Advanced theoretical courses in IPE. Topics include capital financial and trade liberalization, economic development, regionalism, and the intricacies between domestic governments and international economic relations.

POLS 665. Comparative Foreign Policy. 3 Hr. Application of the comparative method of theoretically assessing the mainly domestic sources of conflict and change in foreign policy beyond the U.S. case and in cross-national and historical perspective.

POLS 666. National Security Policy. 3 Hr. Overview of security policy issues as both foreign and domestic policy. Traces the development of defense and security, arms transfers, spending tradeoffs, deterrence, game theoretic decision models, intelligence analysis, and terrorism.

POLS 667. Foreign Policy Decision making. 3 Hr. This course examines the roots of foreign policy decision making. It examines how ideational, cultural, institutional and political variables constrain decision makers, and how the core psychological characteristics of decision makers shape their behavior.

POLS 670. Professional Seminar in Political Theory. 3 Hr.

POLS 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

POLS 703. Internship. 6-9 Hr. per semester; students may enroll more than once. PR: Consent.

POLS 710. Judicial Politics, Policy & Law. 3 Hr. Judicial influence on American public policy with emphasis on the political theory of American law, the agenda of disputes, the formulation of public policy by courts, and the effects of judicial policy on politics. (3 hr. seminar.)

POLS 715. The American Presidency. 1-6 Hr. This course examines how the president interfaces with other power centers in the political system, and assesses the extend to which this institution is capable of meeting what we have come to expect of it.

POLS 729. Seminar: State and Local Government. 3 Hr. Examination of selected topics in state government and politics. (3 hr. seminar.)

POLS 771. Read Research Political Theory. 2-4 Hr.

POLS 779. Seminar in Political Theory. 3 Hr.

POLS 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of political science Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

POLS 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

POLS 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

POLS 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

POLS 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

POLS 795. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular college offerings.
POLS 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

POLS 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

POLS 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

POLS 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities and participate in its academic and cultural program's. NOTE: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

POLS 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

POLS 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Print Journalism (PRNJ)
PRNJ 518. Advanced Reporting. 3 Hr. Students write carefully researched stories using skills they acquired in previous classes while applying literary journalism techniques. Course emphasizes immersion reporting - spending extended time with one subject as well as peripheral theoretical readings. (Lab Fees.)

PRNJ 527. American Journalism History. 3 Hr. An intensive look at the development of media from seventeenth-century England and the American Colonies. Press freedom and its implications to the nation and world are considered on theoretical, economic, and cultural levels.

PRNJ 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of news editorial. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

PRNJ 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PRNJ 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PRNJ 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.
Prosthodontics (PROS)

PROS 688. Advanced Clinical Prosthodontics. 1-6 Hr. Advanced prosthodontic practice in the areas of fixed and removable partial dentures, complete dentures, temporomandibular dysfunction, maxillofacial prosthetics and implant prosthodontics.

PROS 689. Advanced Prosthodontic Theory. 1-6 Hr. Advanced theories and techniques in fixed and removable partial dentures, complete dentures, maxillofacial prosthetics, implantology and geriatric prosthodontics to include case presentations, literature surveys and articulator analysis seminars.

Psychology (PSYC)

PSYC 511. Research Design and Data Analysis 1. 3 Hr. Principles of experimental design in psychology including group and single subject methodologies. Topics include: (1) internal and external validity; (2) simple and complex analysis of variance; and (3) reversal and multiple baseline designs.

PSYC 512. Research Design and Data Analysis 2. 3 Hr. PR: PSYC 511. Inferential statistics, simple correlation and regression, multiple correlation and regression, partial correlation, analysis of power, analysis of covariance, analysis of variance of designs with unequal cell sizes.

PSYC 524. Fundamentals of Gerontology. 3 Hr. An advanced multidisciplinary examination of current research in biological, psychological, and sociological issues of human aging and the ways in which these impinge on the individual to create both problems and new opportunities. (Also listed as BIOL 738.)

PSYC 531. Experimental Analysis of Behavior. 3 Hr. Research and theory in the psychology of learning. Assessment of traditional and behavior-analytic approaches to the study of positive reinforcement, aversive control, and stimulus control. Includes laboratory work with animals.

PSYC 532. Human Behavior. 3 Hr. PR: PSYC 531. Review of the role of basic human operant research in testing the generality of animal-based behavior principles, analyzing phenomena that are specific to humans, and extending behavior analysis to traditional psychological problems.

PSYC 533. Applied Behavior Analysis. 3 Hr. PR: PSYC 531. Methodological, empirical, and conceptual issues in the application of basic research in behavior analysis to problems of social significance.

PSYC 541. Infant Development. 3 Hr. Examination of psychological literature on prenatal and infant development. Topics include physical, cognitive, perceptual, language, and socioemotional development.

PSYC 542. Child Development. 3 Hr. Examination of psychological literature on child development. Topics include perception, learning, language, problem solving, social cognition, peer and family relationships, gender, moral development, friendship, aggression, and altruism.

PSYC 543. Adolescent and Young Adult Development. 3 Hr. Examination of the psychological literature in adolescence and young adulthood. Topics include learning, problem solving, social cognition, peer and family relationships, gender, moral development, friendship, aggression, and altruism.

PSYC 544. Adult Development and Aging. 3 Hr. Examination of psychological literature on adulthood and aging. Topics include health, cognition, family relationships, personality, psychopathology, work, and retirement.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Notes</th>
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<tbody>
<tr>
<td>PSYC 545</td>
<td>Conceptual Issues in Developmental Psychology</td>
<td>3</td>
<td>History, philosophies, and theories of psychological development in the major age periods and the life span; conceptual issues such as nature-nurture, sex differences, cultural differences, life events, rigidity-plasticity, continuity-discontinuity, and competence-performance.</td>
</tr>
<tr>
<td>PSYC 546</td>
<td>Methodological Issues in Developmental Psychology</td>
<td>3</td>
<td>Methodological issues in psychological research on the major age periods and the life span. Topics include: validity; reliability; age, cohort, and time of measurement; cross-sectional, longitudinal, and mixed designs; data analytic methods; ethical issues.</td>
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<tr>
<td>PSCY 593 A-Z</td>
<td>Special Topics</td>
<td>1-6</td>
<td>A study of contemporary topics selected from recent developments in the field.</td>
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<tr>
<td>PSYC 601</td>
<td>Professional Issues in Behavior Analysis</td>
<td>1-3</td>
<td>(May be repeated for credit.) Survey of professional issues in behavior analysis.</td>
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<tr>
<td>PSYC 602</td>
<td>Professional Issues in Developmental Psychology</td>
<td>1-3</td>
<td>(May be repeated for credit.) Survey of professional issues in developmental psychology. (Grading may be S/U.)</td>
</tr>
<tr>
<td>PSYC 603</td>
<td>Professional Issues in Clinical Psychology</td>
<td>1-3</td>
<td>(May be repeated for credit.) Survey of professional issues in clinical psychology. (Grading may be S/U.)</td>
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<tr>
<td>PSYC 604</td>
<td>Ethical Issues in Psychology</td>
<td>1-3</td>
<td>(May be repeated for credit with consent.) The ethical standards for psychologists as applied to research and clinical problems.</td>
</tr>
<tr>
<td>PSYC 605</td>
<td>Legal Issues in Clinical Psychology</td>
<td>1-3</td>
<td>(May be repeated for credit with consent.) Review of the major areas in which psychologists interact with the civil and criminal legal systems.</td>
</tr>
<tr>
<td>PSYC 606</td>
<td>Seminar on Teaching Psychology</td>
<td>1-3</td>
<td>(May be repeated for credit.) Review and discussion of methods and issues in college teaching of psychology.</td>
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<tr>
<td>PSYC 607</td>
<td>Ethical &amp; Legal Issues in Psychology</td>
<td>3</td>
<td>Surveys the ethical guidelines and major legal issues confronted by psychologists.</td>
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<tr>
<td>PSYC 611</td>
<td>Single-Subject Research Methods</td>
<td>3</td>
<td>PR: PSYC 511 and PSYC 531. Critical evaluation of single-subject designs in basic and applied research. Major topics include single-subject methodology’s historical and conceptual bases, its relation to group-statistical methods, and its role in behavioral psychology.</td>
</tr>
<tr>
<td>PSYC 612</td>
<td>Multivariate Analysis</td>
<td>3</td>
<td>PR: PSYC 511. Data analysis techniques in psychology with application to typical research problems. Includes simple matrix algebra, discriminate analysis, multivariate analysis of variance, and an introduction to factor analysis. (Equiv. to STAT 541.)</td>
</tr>
<tr>
<td>PSYC 613</td>
<td>Quasi-Experimental Design</td>
<td>3</td>
<td>PR: PSYC 511 and PSYC 512. Consideration of the statistical procedures used with quasi-experimental group and single-subject designs.</td>
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<tr>
<td>PSYC 614</td>
<td>Program Evaluation and Intervention</td>
<td>3</td>
<td>Examines the nature, method, and process of evaluative research, especially as it applies to social and behavioral treatment and service delivery programs.</td>
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<tr>
<td>PSYC 630</td>
<td>Behavior Analysis Practicum</td>
<td>3</td>
<td>PR: PSYC 533 and consent. Supervised applied behavior analysis experience integrated with a seminar emphasizing group solutions to problems that individuals encounter in students’ applied projects. Progress and final project reports are presented and evaluated. (1 hr. sem., 2 hr. practicum.)</td>
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</tbody>
</table>
PSYC 651. Behavior Pathology. 3 Hr. Advanced study of diagnostic classification, functional analysis, and experimental research in psychopathology of child, adult, and geriatric adjustment problems.

PSYC 652. Clinical Interviewing. 3 Hr. Clinical interviewing assessment, and interviewing skills acquisition

PSYC 653. Behavioral & Psychological Assessment 1. 3 Hr. Conceptual and methodological bases for behavioral assessment; comparison of trait-oriented versus behavioral assessment; design and evaluation of measurement systems, particularly self-report, ratings by others, and direct observation, within the basic framework of generalizability theory.

PSYC 654. Behavioral and Psychological Assessment 2. 4 Hr. PR: PSYC 653. Evaluation of clinically relevant behavior and environments by means of testing and other methods. Includes test selection, administration, and report writing.

PSYC 660. Clinical Psychology Practicum. 1-15 Hr. (May be repeated for credit.) PR: Consent. Supervised practice of psychological techniques in clinics or institutional settings; experience in psychological testing, interviewing, report writing, case presentation, interpretation of tests and supportive counseling.

PSYC 661. Adult Behavior Therapy. 3 Hr. Reviews the roots and development of behavioral interventions with adult populations. Applied clinical intervention is stressed in concert with evaluation and research application.

PSYC 670. Clinical Child Psychology Practicum. 1-15 Hr. (May be repeated for credit.) PR: Consent. Supervised field experience in various aspects of delivering psychological services directly or indirectly to children. Experience in assessment, treatment, program design, administration, and evaluation.

PSYC 671. Child Behavior Therapy. 3 Hr. Assessment, intervention, and evaluation strategies appropriate for childhood disorders and based on behavior principles.

PSYC 698. Thesis. 2-4 Hr. PR: Consent Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PSYC 701. Advanced Professional Issues in Psychology. 1-3 Hr. (May be repeated for credit.) Discussion of professional issues in psychology relevant to advanced doctoral students. (Grading May be S/U.)

PSYC 711. Seminar in Methodology. 1-3 Hr. (May be repeated for credit with consent.) Current problems and techniques in research design, data analysis, and research methods.

PSYC 721. History and Systems. 3 Hr. Study of the history of psychology from its roots in physics, biology, and philosophy. The development of American psychology is emphasized.

PSYC 722. Biological Aspects of Behavior. 3 Hr. PR: Consent. Overviews of the areas of psychological investigation that pertain to the relation between biology and psychology, including neuroscience, psychobiological theories of personality and development, neurological and neuropsychological assessment, psychophysiology, and biologically-based treatment strategies, including basic psychopharmacology.

PSYC 723. Psychophysiology 3 Hr. PR: 3 hr. of physiological psychology or consent. The current state of theory, methods, and findings concerning the association of physiological response systems and psychological states and processes, including biofeedback intervention.
PSYC 725. Social Psychology. 3 Hr. Survey of current concepts, research, and findings in social psychology. Includes such topics as self and identity, attribution theory, interpersonal perception, social cognition, attitude change, social influence, interpersonal processes, prosocial behavior, aggression, and prejudice.

PSYC 730. Advanced Behavior Analysis Practicum. 1-6 Hr. PR: PSYC 630 or consent. Supervised applied behavior analysis experience in an approved setting.

PSYC 731. Research Issues in Behavior Analysis. 3 Hr. (May be repeated for credit with consent.) PR: Consent. Examination of research issues in general psychology from a behavior analytic perspective. Topics vary from year to year.

PSYC 732. Behavior Theory & Philosophy. 3 Hr. PR: PSYC 531 or equivalent. Critical consideration of contemporary concepts, theories, and methods of psychology.

PSYC 733. Stimulus Control and Memory. 3 Hr. PR: PSYC 531 or consent. Critical review of basic research and theory in discrimination learning, stimulus generalization, and memory.

PSYC 734. Reinforcement and Punishment. 3 Hr. PR: PSYC 531. Examination of theories of response acquisition, maintenance, and suppression in the context of recent experimental work with animals and humans.

PSYC 736. Advanced Experimental Analysis of Behavior. 3 Hr. (May be repeated for credit with consent.) PR: PSYC 531. Selected topics and research issues in the experimental analysis of behavior.

PSYC 737. Advanced Applied Behavior Analysis. 3 Hr. (May be repeated for credit with consent.) PR: PSYC 533. Application of research and theory of behavior analysis to social problems; other selected topics.

PSYC 740. Practicum in Developmental Psychology. 1-6 Hr. PR: Consent. Provides experience in a wide range of applied settings. Sites are chosen to accommodate exposure to the entire life-span from infancy through old age. Supervising responsibilities are determined by the instructor-in-charge in the agency.

PSYC 745. Seminar in Life-Span Development. 3 Hr. (May be repeated for credit with consent.) Current issues in life-span development or selected periods of the life span.

PSYC 750. Clinical Internship. 1-15 Hr. Intensive training in clinical assessment, diagnosis, consultation, and/or treatment skills that offer during an internship placement, typically at an off-campus training site.

PSYC 751. Integrative Behavioral Psychotherapy. 3 Hr. Conceptual and practical introduction to basic tenets, concepts, and techniques of major schools of psychotherapy. Reviews psychotherapy integration efforts by analyzing therapy process variables and therapist activities presumably common to many effective forms of therapy.

PSYC 752. Family and Marital Therapy. 3 Hr. Examines both theoretical and practical aspects of the assessment and treatment of family and marital difficulties.

PSYC 754. Clinical Psychopharmacology. 3 Hr. Survey of the ways in which psychotropic drugs are used to treat behavioral and psychological disorders.

PSYC 755. Seminar in Clinical Supervision. 1 Hr. (May be repeated for credit with consent.) Theoretical foundations and empirical research pertaining to clinical supervision, coupled with experiential training in conducting clinical supervision in applied settings.
PSYC 762 A-Z. Seminar in Clinical Psychology. 1-3 Hr. (May be repeated for credit with consent.) Research and problems in clinical psychology.

PSYC 772. Seminar in Clinical Child Psychology. 1-3 Hr. (May be repeated for credit with consent.) Current issues and research related to a particular area of clinical psychology involving children.

PSYC 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of psychology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

PSYC 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

PSYC 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PSYC 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduates students.

PSYC 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PSYC 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

Public Administration (PUBA)

PUBA 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PUBA 600. Scope and Practice. 3 Hr. Orientation to the field of public administration, ethics and professional standards and professional skills. Review of foundations, theories, scope and methods. Study of public management heritage and exploration of current trends and issues.

PUBA 610. Public Management Theory and Practice. 3 Hr. Graduate-level introduction to management theory and practice in the public sector, including contextual influences, administrative behavior and motivation, decision-making, leadership, organizational design, communication, and evaluation.

PUBA 611. Public Planning. 3 Hr. Principles and practices of government planning including development and management of policy, political and economic context of strategic planning, and social planning.

PUBA 620. Public Financial Management. 3 Hr. PR: Consent. Principles and practices of public sector financial management including management control concepts, governmental financial accounting and reporting, analytical and managerial techniques, and microcomputer applications to public financial management.

PUBA 630. Research Methods. 3 Hr. Introduction to the foundations and processes of applied research applicable to public administration, with emphasis upon data collection and analysis, statistical modeling and research design.

PUBA 640. Legal and Political Foundations. 3 Hr. PR: Consent. Constitutional-legal basis of American public administration; the policy making process; administrative agency relationships with executive, legislative, and judicial branches; bureaucratic power and legitimacy; and administrative legal process.
PUBA 645. Public Administration and Policy Development. 3 Hr. Policy development examined in terms of values, process, specific policy cases, alternative “futures” analyses, and policy science.

PUBA 670. Health Systems. 3 Hr. Graduate-level introduction to the development, structure, and current issues in the healthcare in the United States including health promotion, disease prevention, epidemiology, delivery and utilization of health services, financing, policy, regulation, and ethical concerns.

PUBA 671. Health-care Organization & Operation. 3 Hr. PR: PUBA 670 or PR or CONC: CHPR 635. Examines the organization and management of health-care settings including system influences, leadership, communication, organization behavior, team development, organization design, evaluation, productivity, performance improvement.

PUBA 672. Health Care Finance. 3 Hr. PR or CONC: PUBA 670 or CHPR 635. Examines financing of health-care, financial management concepts, insurance mechanisms, reimbursement, cost accounting, budgeting, and staffing for healthcare organizations, including integrated networks and managed care. The course focuses on concepts needed by first line and mid-level managers.

PUBA 673. Alternative Health Care Delivery Systems. 1 Hr. PR or CONC: PUBA 670. Examines the key management issues in a variety of nontraditional settings, such as but not limited to, birthing centers, physician practice management, PATCH. Settings chosen will be determined from current developing areas in health care.

PUBA 674. Rural Health Care. 1 Hr. PR or CONC: PUBA 670 or CHPR 635. Provides an overview of the issues affecting healthcare in rural settings, the health status of rural populations, and initiatives to provide improved access and address issues in service delivery and administration of rural health care settings.

PUBA 675. Organization Performance Improvement. 1 Hr. Introduces tools used to measure and improve organizational performance. The focus is on health-care organizations, with general application to public management. Techniques of total quality management and continuous quality improvement are covered.

PUBA 678. Population Health Management. 1 Hr. PR: PUBA 670. Examines concepts of populations' health, managerial uses of epidemiological data, and population management approaches to health maintenance.

PUBA 691. Advanced Topics. 1-6 Hr. Investigation of advanced topics not covered in regularly scheduled courses.

PUBA 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PUBA 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PUBA 700. Capstone Seminar. 3 Hr. PR: All PUBA 600 level and PUBA 751 or concurrent. Links MPA academic preparation to professional career through analysis of practice settings, professional literature, and internship/professional experience of student; integrates coursework, practice themes, competencies, and ethics.

PUBA 710. Administrative Behavior in Public Organizations. 3 Hr. Introduces and familiarizes the student with the nature of individual and group behavior in public organizations and bureaucratic settings.
PUBA 712. Administrative Ethics and Justice. 3 Hr. PR: PUBA 610 or consent. Analysis of ethical issues in public administration. Study of the concepts of distributive and procedural justice and their applications to administrative decision-making.

PUBA 715. Organizational Development and Change Management. 3 Hr. Examines organization development and change management applied to public agencies. Explores basic organization development skills, and techniques for effective change management.

PUBA 716. Creativity and Innovation. 3 Hr. Examines knowledge about creativity and innovation in public organizations. Explores approaches to increasing creativity for individuals and groups. Reviews organization structure and processes as they relate to creativity.

PUBA 717. Performance Management. 3 Hr. Examines the principles of performance management in public organizations. Explores a variety of performance management models and practices with emphasis on service delivery to improve organizations.

PUBA 720. Public Budgeting. 3 Hr. PR: PUBA 620. Advanced study of public budgeting at the federal, state, and local levels of government. Emphasis is placed on principles of public finance, budgeting processes and approaches; revenue sources and tax structures; and budget preparation and analysis.

PUBA 730. Applied Research in Public Administration. 3 Hr. PR: PUBA 630. Completion of an original, quantitative, applied research project dealing with issues and/or problems in the public sector.

PUBA 741. Human Resources Systems. 3 Hr. PR: Consent. Examines competing values, systems, processes, and methods for managing human resources in government and non-profit organizations; including merit, patronage, professional, collective bargaining, and entrepreneurial models.

PUBA 743. Conflict Management. 3 Hr. PR: Consent. Explores the nature and causes of organizational, personal, and policy conflict in the public and non-profit sectors; develops approaches and tools for managing, negotiating, and resolving conflicts.

PUBA 751. Public Service Internship. 1-6 Hr. PR: Consent. A working internship in a government or public service related agency, designed to provide students with an opportunity to gain field experience, and to relate knowledge gained through coursework situation. (Grading will be S/U.)

PUBA 770. Managed Care. 1 Hr. PR or CONC: PUBA 670. Examines the key management issues in the managed care environment. General organization of managed care entities, key management control issues, financing, and reimbursement mechanisms and trends in managed care will be covered.

PUBA 772. Integrated Delivery System. 3 Hr. PR: PUBA 670. Examines organization and management of integrated delivery systems in healthcare including models of integration.

PUBA 773. Policy Issues in Women’s Health. 1 Hr. PR: PUBA 670 or Consent. Provides an overview of women’s healthcare issues involving the interaction of medical and social systems. How to facilitate quality care will be examined from policy, administrative and advocacy standpoints.

PUBA 774. Health Care Law and Ethics. 1 Hr. PR or CONC: PUBA 670. Explores legal and ethical issues in the healthcare setting for administrative and medical managers.
PUBA 775. Health Care Policy. 1 Hr. PR or CONC: PUBA 670. Provides an introduction to policy issues in health care including state and federal roles in health care, the policy process and various health care policy. Explores values and American political processes as they influence health policy.

PUBA 776. Health Care Planning/Marketing. 1 Hr. PR: PUBA 670. Examines planning and marketing for health-care settings. Includes strategic planning. Serves to introduce key issues for administrators.

PUBA 777. Health Care Information Systems. 1 Hr. PR: PUBA 670. Provides an overview of major factors influencing health care information systems, categories of healthcare information technology; and legal, ethical, human resource issues within management systems.

PUBA 779 A-Z. Special Topics in Health Care. 1-6 Hr. PR: PUBA 670. Focuses on those subjects of most topical concern in health care administration.

PUBA 780. Health Care Administration Practicum. 3 Hr. Students will develop and execute a field experience or scholarly research project that applies and integrates knowledge gained during healthcare administration coursework into a functional capstone experience.

PUBA 790. Teaching Practicum. 1-3 Hr. PR: Consent. Teaching practice as a tutor or assistant.

PUBA 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PUBA 792. Directed Study. 1-6 Hr. PR: Consent. Directed study, reading and/or research.

PUBA 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PUBA 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PUBA 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PUBA 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PUBA 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PUBA 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PUBA 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s 799 or 899 graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)
Public Health (PUBH)

PUBH 501. Advanced Professional Writing. 3 Hr. A review of English syntax and usage in professional writing; constructing and developing ideas; research and writing based on careful reading of author's instructions, using the APA style manual, using library resources, and academic honesty.

PUBH 536. Worksite Wellness. 3 Hr. Overviews the field of health promotion in a worksite setting, offering a comprehensive introduction. Persons with interest in exploring the possibility of employment in health promotion in a worksite setting will find this course helpful.

PUBH 580. Prevention through Resilience. 3 Hr. The principles of resilience, resiliency theories and current research, resilience and stress and the mind-body implications, recognizing and eliciting resilience and resilient outlooks and behaviors in ourselves and clients, professional and public health implication.

PUBH 581. Rural Gerontology. 3 Hr. This course is designed to provide students with a broad understanding of current research information regarding health and social aspects of rural elderly in the United States. The course consists of lecture and class discussions.

PUBH 586. Public Mental Health. 3 Hr. This course will teach the students the principles, concepts, and methods of general epidemiology, and how to apply them to the study of the distribution and causes of mental disorders in populations.

PUBH 595. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.

PUBH 601. Introduction to Community/Public Health. 3 Hr. An introduction to the field of community/public health with an emphasis on the relationship and role of public health to other disciplines in resolving public health problems.

PUBH 605. International Public Health. 4 Hr. This course identifies and explores major global issues in public health including infectious diseases, malnutrition, famine, and water sanitation. Approaches for devising solutions to these problems in developing countries will be explored.

PUBH 611. Applied Biostatistics for Health. 3 Hr. Statistical models, distributions, probability, random variables, tests of hypotheses, confidence intervals, regression, correlation, transformations, F and Chi-square distributions, analysis of variance and multiple comparisons. For students in the MPH and CHPR programs.

PUBH 615. Nutrition/Chronic Disease Prevention. 3 Hr. This course addresses the role of nutrition and food components in primary, secondary, and tertiary disease prevention. Through cooperative learning, students will practice critical thinking skills in the study of nutrition in chronic disease prevention.

PUBH 617. Ethical/Legal Issues in Public Health. 3 Hr. This course provides an opportunity for sustained reflection on the many ethical and legal issues involved in public health. Ethical and legal frameworks will be identified and applied to the analysis of critical issues.

PUBH 618. Health Services/Outcomes Research Methods. 3 Hr. This course covers the key issues facing the health care system today and teaches the basic skills needed to evaluate health care programs addressing these issues.

PUBH 619. Issues in Men's Health. 3 Hr. Men are markedly at risk for specific health problems and complications. This course will provide skills for students to research and develop educational programs to improve health and well-being of men.
PUBH 620. Women and Violence. 3 Hr. This course examines the issue of violence in the lives across the lifespan and from a socio-cultural perspective. Implications for health concerns and educational interventions will be addressed.

PUBH 621. Issues in Women’s Health. 3 Hr. This course examines a broad array of health issues and causes of illness that shape and define women’s access and understanding of health concerns across the lifespan, which includes examination of cultural diversity.

PUBH 623. Public Health Disaster Response. 3 Hr. This course addresses the basics of how public health practitioners respond to disasters, develop response protocols and reform as skillful leaders in the 21st century.

PUBH 628. Aging Women & Culture Issues. 3 Hr. This course will use a multi-disciplinary approach to examine the impact of gender, race/ethnicity, and culture on aging and the aging population.

PUBH 629. Survey Methods. 3 Hr. This course presents scientific knowledge and practical skills used in survey research. Focus is on question construction and development, questionnaire design, sampling and survey modes, interviewing techniques, and survey data analysis.

PUBH 630. Policy and The Health System. 3 Hr. Overview and analysis of the development of health-related public policy in the United States, with particular emphasis on aging populations, policy development, process, and implementation on the state and national levels.

PUBH 645. Fundamentals of Gerontology. 3 Hr. This course introduces students to a broad spectrum of topics and issues related to aging by drawing upon several core disciplines and their contributions to the corpus of gerontological knowledge and research.

PUBH 646. Public Policy of Aging. 3 Hr. Analysis of major policy and public programs for older adults, including Medicaid, Medicare, Social Security and the Older Americans Act. A major emphasis is placed on programs in West Virginia.

PUBH 650. Environmental Health. 3 Hr. A review of issues illustrating the responsibilities and roles of the public health work force in identifying, managing, and preventing casualties from environmental causes in air, water, soil, food, pesticides, and related subjects. Problems are illustrated using policy dilemmas facing West Virginia.

PUBH 660. Public Health Epidemiology. 3 Hr. Examines mortality and morbidity trends, disease and injury models, data sources classification, measures of frequency and association, research design, casual assessment, data interpretation, and screening from an epidemiological perspective.

PUBH 661. Advanced Epidemiology. 3 Hr. PR: PUBH 611 and PUBH 660 CON. Causality and threats to validity in epidemiologic research are presented, focusing on assessment and control of bias, including selection bias, information bias and confounding. Assessment and control of effect modification (interaction) are included.

PUBH 665. Work Site Evaluation. 2 Hr. Students are introduced to health and safety hazards associated with industrial operations through in-plan inspections, interaction with plant medicinal and safety staff and in class discussions.

PUBH 679. Public Health Seminar. 1 Hr. Students are given opportunities to synthesize information about latest developments within the field of public health through dialogue.
PUBH 680. Health-Based Leadership. 3 Hr. PR: CHPR 635 or equivalent. Gain personal understanding, knowledge, and growth in the human dimensions of leadership: developing rapport, trust, teamwork, and mentoring; managing tone and facilitating “problem” situations; evaluating systems and leading system change; articulating vision, mission and strategy.

PUBH 686. Occupational Medicine Practicum. 5 Hr. This course provides occupation medicine residents with the opportunity to develop practical skills and professional competencies by applying the knowledge and techniques gained from their MPH and occupational medicine coursework to public health practice.

PUBH 687. Practicum Proposal. 2 Hr. PR: PUBH 611 and PUBH 630 and PUBH 650 and PUBH 660 and (PUBH 691E or CHPR 634). A structured, faculty-supported process for developing a proposal for the 300-hour practice- and theory-based practicum.

PUBH 688. MPH Practicum Report. 3 Hr. PR: PUBH 611 and PUBH 630 and PUBH 650 and PUBH 660 and PUBH 687 and PUBH 689 and (PUBH 691E or CHPR 634). Provides students with the opportunity to report the results of their practicum projects to others via a professional paper and presentation.

PUBH 689. Practicum. 3 Hr. PR: PUBH 611 and PUBH 630 and PUBH 650 and PUBH 660 and PUBH 687 and CHPR 612 and (PUBH 691E or CHPR 634). Implementation of the practicum proposal; a planned, supervised, and evaluated public health-oriented experience encompassing 300 hours of activity reflecting public health practice and theory. Students are required to take 3 credit hours of the practicum but may spread credits among semesters.

PUBH 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PUBH 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

PUBH 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

PUBH 701. Qualitative Research Methods. 3 Hr. Application of qualitative research methods to public health issues. Students will learn about theory of public health qualitative research methodology, hypothesis generation, data collection, preparation, analysis, reporting and conclusion.

PUBH 702. Public Health Program Evaluation. 3 Hr. Application of scientific public health program evaluation methods. Students will learn about theory and methods of program evaluation, identification of stakeholders, data collection, preparation, analysis, reporting and conclusion.

PUBH 703. Social and Behavioral Measurement. 3 Hr. Theory and development of effective tools for measuring social and behavioral public health phenomena. Students will learn how to find, construct and analyze effective social and behavioral measurement instruments.

PUBH 704. Mortality and Survival. 3 Hr. PR: PUBH 660 or equivalent, and basic proficiency in Excel. Life table and other population-based techniques and approaches to studying international and sociodemographic patterns and differentials in mortality, morbidity, and disability.

PUBH 705. Injury Control Research Methods. 3 Hr. PR: PUBH 660 or equivalent and PUBH 611 or equivalent. Evidence-based approach to increasing the knowledge and methodological skills necessary for basic injury (unintentional and intentional) control research.
PUBH 706. Current Research Issues. 2 Hr. The purpose of this course is to utilize research-based discussions to stimulate a unique information gathering environment of current research and investigation.

PUBH 707. Applied Multivariable Stats. 3 Hr. Basic theory and application of survival analysis, multivariate analysis of variance (MANOVA) and exploratory factor analysis.

PUBH 766. Medical Toxicology. 2 Hr. This course introduces healthcare providers to the clinical aspects of toxicology, including the evaluation and treatment of individuals and populations with potential toxic exposures.

PUBH 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of public health. Note: this course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

PUBH 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PUBH 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

PUBH 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PUBH 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

PUBH 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

Public Relations (PR)

PR 512. Fund Raising and Foundation Management. 3 Hr. PR: Journalism graduate student or senior standing. Seminar. Studies in fund raising, alumni relations, and foundation management.

PR 522. Public Relations Case Studies. 3 Hr. Graduate seminar based on in-depth studies of public relations programs developed and applied in support of our institutions. Primary emphasis on successful campaigns, but unsuccessful efforts also will be examined for causes of failure.

PR 559. Public Relations Campaigns. 3 Hr. Intensive seminar based on in-depth analysis of public relations plans/programs. Primary emphasis on developing successful campaigns for actual clients. Students research the abstract/theoretical sides of public relations to appreciate how it fuels the economy.

PR 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PR 593 A-Z. Special Topics. 1-3 Hr. PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PR 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
PR 698. Thesis. 2-4 Hr. PR: Consent Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

PR 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the university’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her departments graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Reading (RDNG)
RDNG 573. Professional Development. 1-6 Hr.

RDNG 583. Special Workshop in Reading. 1-6 Hr. For elementary and secondary students in pre-service education programs, as well as elementary and secondary teachers in in-service education.

RDNG 621. Reading and Writing Instruction in Elementary Schools. 3 Hr. Examines processes of reading and writing at the elementary school level. Explores instructional practices associated with those processes.

RDNG 622. Content Area Literacy Instruction. 3 Hr. Presents essential content area literacy skills and examines ways in which they may be developed in various subject-matter areas.

RDNG 623. Literacy and the Young Child. 3 Hr. Focus is on perspectives of young children’s reading and writing development and approaches for fostering this development in school and home settings.

RDNG 624. Foundations of Literacy. 3 Hr. Inquiry into the historical, psychological, and linguistic foundations underpinning literacy instruction. Students will also consider the interdisciplinary nature of the study of literacy.

RDNG 627. Developing Reading Interests. 3 Hr. Emphasis on methods and techniques for developing reading habits, interests, and tastes and on motivating individuals to read. Special attention is given to instructional practices that support the pursuit of independent reading.

RDNG 630. Teaching the Language Arts. 3 Hr. Explores the interrelationship of the language arts - writing, reading, speaking, and listening. Special attention is given to understanding instructional practices, organizing language arts programs, and selecting materials.

RDNG 631. Selection and Evaluation of Reading Materials. 3 Hr. PR: RDNG 621. Survey of critical reading skills, techniques, and procedures with emphasis on the selection of supplementary materials needed for effective development and remedial reading programs.

RDNG 640. Instructing Students Who Have Reading Difficulties 3 Hr. PR: RDNG 621 and (RDNG 624 or RDNG 622). A methods course that emphasizes ways to intervene when students face reading difficulties. Course focuses on methods that can be used by classroom teachers, reading specialists, and other special teachers of reading and language arts.

RDNG 641. Problems in Reading. 3 Hr. PR: RDNG 640. A laboratory course in the university reading clinic. Major emphasis on tutoring children who have reading problems.
RDNG 642. Teaching Reading to Children Who Have Profound Reading Problems. 3 Hr. Basic course on reading intervention methods. Intended for learning disabilities majors. Emphasis on practicum experience.

RDNG 680. Seminar. 1-6 Hr. PR: Consent. Seminar for master's degree students stressing special topics concerned with the education and sociological and psychological aspects of language arts instruction.

RDNG 681. Special Topics. 1-6 Hr. PR: Consent. Special topics or research in reading and language arts for master's degree students in reading.

RDNG 681A. Independent Research in Literacy. 3 Hr. A program elective, this course offers possibilities for graduate students to pursue independent study and research in literacy. Students study a specific literacy area, theme, or question under the approval and advising of a faculty member.

RDNG 682. Assessment of Reading Ability. 3 Hr. Focuses on methods and issues related to the assessment of reading ability. Students acquire reading specialist level knowledge and implementation skill of format and informal reading assessment and consider related issues of classroom and clinic application.

RDNG 685. Practicum. 1-12 Hr. PR: Consent. Practicum type course for master's degree student teaching, and reading administration and supervision practicum experience can be pursued.

RDNG 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

RDNG 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

RDNG 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

RDNG 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

RDNG 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

RDNG 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

RDNG 725. Survey of Reading Research. 3 Hr. A research course in which each student will complete an individual problem in an area of special interest.

RDNG 726. Literacy Leadership. 3 Hr. PR: 18 Hr. of M.A. requirements. Roles, responsibilities, and practices of reading specialists, administrators, and classroom teachers in organizing literacy programs from early childhood through college.

RDNG 732. Survey of Major Problems in the Language Arts. 3 Hr. PR: RDNG 630 or consent. An advanced course covering major problems of the teacher or supervisor of language arts instruction. A research course in which the student completes an individual problem.

RDNG 743. Instructional Intervention for Reading Difficulties. 3 Hr. PR: Consent. Advanced course focusing on ways to assess and instruct students who have reading difficulties. Explores theories, issues, and methodology.
RDNG 744. Advanced Clinical Reading. 3 Hr. PR: RDNG 641. Laboratory course in remedial reading. Emphasis on diagnosis and treatment of reading difficulties.

RDNG 780. Seminar. 1-6 Hr. PR: Consent. The interrelationships among the language arts: mental, physical, and psychological deterrents to language arts; and similar topics.

RDNG 781. Special Topics. 1-6 Hr. PR: Admission to doctoral program in reading and consent. Advanced seminar. Weaknesses and strengths in current reading programs, needed research in reading, and suggestions for improving reading instruction at elementary, secondary, and college levels. and college levels.

RDNG 785. Practicum. 1-12 Hr. PR: Consent. Practical application of reading theory to organizing and conducting developmental and remedial reading programs.

RDNG 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of reading. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

RDNG 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

RDNG 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

RDNG 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

RDNG 794. Seminars. 1-6 Hr. Seminars arranged for advanced graduate students.

RDNG 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

RDNG 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

RDNG 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

RDNG 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

RDNG 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

RDNG 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.
RDNG 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) These tuition waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

**Recreation Parks and Tourism Resources (RPTR)**

RPTR 570. Meanings of Place. 3 Hr. Study of place as a psychological and social phenomenon with implications for community development, historic preservation, interpretation design, management, natural and cultural sustainability, and human well-being. (Equivalent to LARC 570.)

RPTR 608. Recreation and Park Management Practicum. 2-4 Hr. PR: Consent. Field experience and conference in the study, analysis, and solution of management problems in private, commercial and governmental recreation and park organizations.

RPTR 680. Non-Personal Interpretation. 3 Hr. This course focuses on the theoretical underpinnings and application of non-personal communication methods. This is a project-based course about interpreting historical, cultural, and natural resources.

RPTR 685. Personal Interpretation. 3 Hr. This course focuses on the theoretical underpinnings and applications of personal communication methods. This is a project-based course about interpreting historical, cultural, and natural resources.

RPTR 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

RPTR 693 A-Z. Special Topics. 1-6 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field.

RPTR 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

RPTR 714. Outdoor Recreation Behavior. 3 Hr. This course explores the biophysical, psychological, social psychological, and sociological constructs that contribute to a contemporary, interdisciplinary understanding of outdoor recreation behavior. These concepts will be related to recreation resource management.

RPTR 715. Leisure and Recreation. 3 Hr. PR: Consent. Study of leisure as a social phenomenon and its implications for recreation.

RPTR 718. Participatory Approaches NRM. 3 Hr. This seminar-style class focuses on the adoption of more participatory approaches to managing natural resources. Specific topics will include the use of advisory committees, mediating conflicts, facilitation skills, management partnerships and public participation plans.

RPTR 738. Tourism Planning. 3 Hr. Use of natural settings; integration of tourism development with respect to environmental protection concerns. (Field trip required; some transportation and food costs.)

RPTR 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of recreation, parks, and tourism resources. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

RPTR 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.
RPTR 792 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

RPTR 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

RPTR 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

RPTR 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

RPTR 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

RPTR 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

RPTR 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

RPTR 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Rehabilitation Counseling (REHB)

REHB 600. Introduction to Rehabilitation Services. 3 Hr. PR: Consent. Introduction to comprehensive rehabilitation, its history and development as a philosophy, process, and professional area. Professional and ethical issues in rehabilitation counseling. Other services involved in various rehabilitation settings.

REHB 610. Medical Aspects of Rehabilitation. 3 Hr. PR: Consent. An overview of medical aspects and implications of disability for the handicapped person in the rehabilitation process. Studies of the more common severe disabilities and their remediation also will be included.

REHB 612. Disability Across the Lifespan. 3 Hr. A study of the psychological adjustment of disability across the lifespan, using a model of understanding stages of human development including cultural, interpersonal, and interpersonal factors. Includes information on appropriate interventions.

REHB 620. Career Development and Job Placement. 3 Hr. PR: Consent and graduate standing in social sciences or education. Principles and methods involved in the vocational counseling and placement of disabled persons. The use of occupational and educational information. Theories of career development, occupational analysis, and job placement in rehabilitation.

REHB 621. Vocational Evaluation Systems and Techniques. 3 Hr. PR: REHB 600. An introduction to vocational evaluation. Formal and informal vocational evaluation systems and procedures will be explored with the goal of preliminary development of individualized evaluation plans.
REHB 622. Advanced Vocational Evaluation Techniques. 3 Hr. PR: REHB 621. Advanced vocational evaluation systems including empirically based and informal systems will be studied. Emphasis will be on administration, scoring and interpretation, particularly as it relates to handicapped populations with specific evaluation problems.

REHB 623. Seminar in Vocational Evaluation Services. 3 Hr. PR: REHB 621 and Consent. Supervisory and professional issues in vocational evaluation services with an emphasis on standards, methods, procedures and resources for developing and maintaining vocational evaluation services.

REHB 624. Rehabilitation Client Services. 3 Hr. PR: REHB 620. The planning and management of client services focusing on serving the public and private sectors. The Human Service and Rehabilitation Service Systems will be explored considering both career and independent living issues.

REHB 672. Counseling Practicum. 1-4 Hr. PR: Graduate standing, Liability insurance, and Consent. Supervised experience in the application of counseling techniques in the rehabilitation process. Demonstration of high professional standards, counseling skills, and personal characteristics appropriate to the counseling relationship are essential.

REHB 675. Clinical Practice. 1-15 Hr. PR: Consent. Clinical practice (internship) in selected agencies, rehabilitation centers, clinics, or hospitals conducting an organized program of services for the physically, mentally, emotionally, or socially handicapped. Practice will be under direct supervision of faculty and agency personnel.

REHB 680. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

REHB 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of human resources and education. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

REHB 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

REHB 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

REHB 693 A-Z. Special Topics. 1-6 Hr. PR: Consent. A study of contemporary topics selected from recent developments in the field.

REHB 694. Seminar. I, II, S. 1-6 Hr. Seminars arranged for advanced graduate students.

REHB 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

REHB 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

REHB 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

REHB 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, and dissertations. (Grading may be S/U.)
REHB 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of dully enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s program.)

**Religious Studies (RELG)**

RELG 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of religion. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

RELG 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

RELG 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

RELG 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

RELG 594. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

RELG 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

RELG 596. Graduate Seminar. 1 Hr.

RELG 597. Advanced Study. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

RELG 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

RELG 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

RELG 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of dully enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s program.)

**Resource Management (RESM)**

RESM 575. Spatial Analysis for Resource Management. 3 Hr. This interdisciplinary course develops and applies advanced Geography Information System (GIS) and spatial analysis skills for natural resource and environmental management. (Previous GIS experience helpful.)

RESM 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.
RESM 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in the college teaching of resource management. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

RESM 691 A-Z. Advanced Topics. 1-6 hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

RESM 692. Directed Study. 1-6 Hr. Directed study, reading and/or research.

RESM 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

RESM 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

RESM 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

RESM 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

RESM 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

RESM 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

RESM 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Russian (RUSS)
RUSS 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

RUSS 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

RUSS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Safety Management (SAFM)
SAFM 501. Safety Management Integration. 3 Hr. Consideration of integrated arrangements, staff roles, management theory, staff liaison, project improvement, effectiveness, audits, and collaboration needed to assure success of the safety function.

SAFM 502. Controlling Environmental and Personnel Hazards. 3 Hr. Investigation of hazard control principles relating to environmental facilities and equipment including control procedures recommended by authorities from the fields of engineering, medicine, and public health as well as from the field of safety.
SAFM 505. Safety Legislation and Compliance. 3 Hr. Comprehensive study and analysis of federal and state legislation that mandates compliance with certain safety conditions and practices related to work performed in occupational and comparable settings.

SAFM 528. Economic Aspects of Safety. 3 Hr. PR: Graduate standing. An overview of economic factors that must be considered when justifying the development and implementation of safety initiatives, including examining published research, cost estimating, ROI, risk assessment, benefit-cost analysis, and project planning.

SAFM 533. Disaster Preparedness. 3 Hr. Major elements involved in disasters and emergencies, preparedness planning, systems utilization, and attention to essential human services, with emphasis on community action.

SAFM 534. Fire Safety Management. 3 Hr. Analysis of fire services usually provided under safety manager jurisdiction, with special attention to legal bases, organizational structure, services rendered, training needs, and management techniques.

SAFM 539. Security Management. 3 Hr. Safety manager responsibilities for security of persons and property including organizational patterns, personnel competencies expected, surveillance and monitoring methods, and occupational problems among security personnel.

SAFM 550. Loss Control and Recovery. 3 Hr. Identifying and elimination areas of loss or recovering from losses of people, property, and efficacy via management practices, insurance and worker’s compensation, and other management techniques and resources effective in controlling those losses.

SAFM 552. Safety & Health Training. 3 Hr. Analysis of safety and health performance discrepancies, developing and conducting training programs to eliminate those discrepancies and the evaluation of program effectiveness in terms of cost effectiveness and organizational impact.

SAFM 578. Substance Abuse in the Workplace. 3 Hr. The problem, nature, and effects of alcohol and drug use in the workplace; approaches for treatment and avoidance such as EAP's, community programs, and testing; development of management approaches and programs.

SAFM 580. Fundamentals of Environmental Management. 3 Hr. An introductory but comprehensive overview of topics related to environmental technology as it applies to safety management. Focuses on regulation and technology relative to environmental management. Includes field trip.

SAFM 642. Biomechanics of Safety Management. 3 Hr. Applying the laws of physics to describe the abilities and limitations of the human body biomechanically and physiologically in order to maintain safety, quality, and productivity objectives; based on safety management principles.

SAFM 689. Professional Field Experience. 1-18 Hr. PR: Must have completed 12 hours in SAFM and Consent. Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

SAFM 691 A-Z. Advanced Topics. 1-6 Hr. Investigation of advanced topics not covered in regularly scheduled courses.

SAFM 692 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SAFM 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
SAFM 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SAFM 697. Research. 1-6 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading will be S/U.)

SAFM 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U.) colloquium credit may not be counted against credit requirements for master’s programs.

SAFM 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of safety and environmental management. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

SAFM 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SAFM 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SAFM 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SAFM 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SAFM 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SAFM 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SAFM 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SAFM 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

Social and Cultural Foundations (SCFD)
SCFD 600. Sociology of Education. 3 Hr. Education as a social institution; cultural and class influences on education; social roles and career patterns in the school system; the school and problems of the community. (Also listed as SOCA 332.)

SCFD 615. Qualitative Research Methods. 3 Hr. An introduction to the nature of qualitative research and to techniques of interviewing, observation, and the analysis of documents and other cultural artifacts. Includes guided experience in designing and implementing a qualitative research study.

SCFD 620. Philosophy of Education. 3 Hr. Examines different systems of educational philosophies focusing on aims, values, and criteria of education. Stresses the application of philosophic thinking to educational language, issues, methods, and subject matter.
SCFD 640. History of American Education. 3 Hr. Major forces affecting U.S. educational developments at all school levels are examined in political, social, economic, and cultural context. Major historical periods include colonial, early national, pre/post civil war, and late nineteenth to mid-twentieth century.

SCFD 650. Comparative Education. 3 Hr. PR: Graduate standing. Compares educational systems in selected foreign countries with the United States. Examines formal and informal educational influences in historical and contemporary contexts and in socioeconomic, political, and philosophical perspectives.

SCFD 685. Practicum. 1-12 Hr. PR: Consent.

SCFD 693. Special Topics. 1-6 Hr. PR: Consent.

SCFD 694. Seminar. 1-6 Hr. Selected topics in historical, sociological, and philosophical foundations of education. (Titles to be announced each semester.)

SCFD 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SCFD 700. John Dewey Studies. 3 Hr. This seminar focuses on the work of John Dewey. Students examine secondary and primary works. The course traces the influence of Dewey’s life and thought from 1859 to present.

SCFD 715. Advanced Qualitative Research. 3 Hr. PR: SCFD 615. Advanced exploration of methodological issues related to qualitative research; including basic interpretive, case study, grounded theory, phenomenological, and mixed-methods dissertations and research projects. The course also provides a service course for doctoral students in other colleges.

SCFD 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of SCFD. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

SCFD 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SCFD 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SCFD 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SCFD 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SCFD 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SCFD 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SCFD 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
SCFD 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

SCFD 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Social Work (SOWK)

SOWK 513. Social Work Research Methods. 3 Hr. (Research course.) Basic concepts in social research methods. Emphasis on conceptualization of social work problems for research, role of social science theories in research, measurement options in research design, and analysis of data.

SOWK 520. Human Behavior in the Social Environment. 3 Hr. PR: Admission to the MSW program. Study of theoretical concepts underlying human behavior using a systems model and including the major systems in society with a primary focus on the impact of human diversity on human behavior and social interactions.

SOWK 531. Social Welfare Policy and Services. 3 Hr. (Policy course.) Introduction to the history, development, and implementation of social policy in the United States. Special emphasis is given to those policies that have the greatest impact on non-metropolitan areas and the Appalachian region.

SOWK 540. Generalist Social Work Practice. 3 Hr. PR: Admission to the MSW program. Focuses on developing the basic framework of social work practice theory and professional values for working with individuals, groups, families, and communities.

SOWK 547. Multicultural Social Work Practice. 3 Hr. Understanding and appreciating human differences as encountered in professional practice. Practicing with sensitivity to influences such differences may present to the social worker.

SOWK 572. Contemporary Issues in Aging. 3 Hr. Intended for students who have an interest in health and aging. The opportunity to attend a broad array of workshops on current issues and skills related to practice with older adults and their families.

SOWK 581. Generalist Field Experience. 1-14 Hr. PR or CONC: SOWK 513 and SOWK 520 and SOWK 531, and SOWK 540 and Consent. Graduate foundation field instruction in selected settings under the general direction of the faculty.

SOWK 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SOWK 616. Evaluation Research in Social Work. 3 Hr. (Research course.) PR: SOWK 513 or consent. Methods of collecting, analyzing, and interpreting data on the need for implementation and effects of social interventions. Examination of the effects of political, ethical, and resource variables on the research process.

SOWK 618. Personal Practice Assessment. 3 Hr. PR: SOWK 513 or consent. the use of single-system evaluation methods to assess the effectiveness of social work interventions, with an emphasis on using these tools to guide practice decision making.
SOWK 619. Social Work in Vietnam and Cambodia. 3 Hr. PR: SOWK 520 and SOWK 540 and SOWK 513 and SOWK 531 and SOWK 621 and SOWK 633. Travel course that examines issues related to assessment and intervention in community health/mental health in Vietnam and Cambodia.

SOWK 621. Human Behavior/Diversity and Social Justice. 3 Hr. PR: SOWK 540 and SOWK 540 or advanced standing. Advanced content on human behavior in the social environment with special emphasis on vulnerable populations and social justice issues of concern to social workers.

SOWK 633. Social Policy Analysis. 3 Hr. (Policy course.) PR: SOWK 531 or consent. Skill development in techniques of social policy analysis. Selection of analytical methods and issues offered in different sections.

SOWK 641. Social Work with Groups. 3 Hr. PR: SOWK 621 or consent. Theory and skills for working with a variety of groups and settings. Focus on dynamics and roles of social workers and group members.

SOWK 643. Psychopathology and Social Work Practice. 3 Hr. (Practice course,) PR: SOWK 540 or consent. Nature, presenting characteristics, and intervention with the major forms of mental and emotional maladjustment that impact social functioning, adaptation, and life satisfaction from the perspective of the social work profession.

SOWK 644. Brief Therapy. 3 Hr. Solution Focus Therapy and how is applied to working with individuals, couples and families. Content: Assessment, stages, goal setting, conducting sessions, interventions, tailoring therapy to address problems, family preservation, abuse, neglect, substance abuse and divorce.

SOWK 645. Supervision in Social Work. 3 Hr. (Practice course.) PR: SOWK 621 or Consent. Functions, conflicts, and dynamics of supervision of professionals, and the relationship of ethical and value principles.

SOWK 649. Advanced Practice with Individuals and Families. 3 Hr. (Practice course,) PR: SOWK 540 or consent. Theories, concepts, and value issues associated with providing direct/clinical social work services to individuals. Students will also be involved with skill building exercises through classroom activities.

SOWK 651. Community Organization Theory and Practice. 3 Hr. PR: SOWK 513 and SOWK 520 and SOWK 531 and SOWK 540. Practice issues in skill development and community organization and development with special emphasis on rural communities.

SOWK 653. End Of Life Care. 3 Hr. Online course focused on social work with those who are dying and bereaved by death. Elective course to prepare the student for social work practice with clients coping with terminal illness, loss and grief.

SOWK 654. Social Agency and Program Administration. 3 Hr. (Practice course,) PR: SOWK 540 or consent. Practice issues and skill development in programming, budgeting, staffing, organization, and control of social agencies and programs.

SOWK 655. Non-Profit Management and the Third Sector. 3 Hr. Understanding the role and place of the third sector in post-industrial society.

SOWK 656. Non-profit Financial Management. 3 Hr. PR: SOWK 531 or Consent. Intensive examination of the current state-of-the-art of non-profit financial management, with attention to accountability, budgeting, cost measurement, and related topics.
SOWK 657. Grant Development. 3 Hr. Course offers broad overview of external funding for social service agencies, emphasis on nonprofit sector. Students will have opportunity to find funding sources, develop grant proposals write, edit, prepare to submit a request for funding.

SOWK 673. Legal Issues in Social Work. 3 Hr. This course will explore in detail the legal and ethical obligations of social workers in practice. Review of common legal issues in social work practice and legal issues clients may face.

SOWK 674. Community Mental Health. 3 Hr. (Field of practice course.) PR: SOWK 621 and ((SOWK 643 and SOWK 649) OR (SOWK 651 and SOWK 654)). An overview of the field of mental health that addresses major policy, program, practice, theory, and research issues. Current federal and state issues are examined.

SOWK 675. Substance Abuse. The course explores issues pertaining to substance abuse and treatment by the social work professional. Introduction to terminology, pharmacological, cultural and social issues in substance abuse with sociopolitical and historical aspects of substance abuse.

SOWK 677. SW Practice Children/Families. 3 Hr. CoReq: SOWK 682. Analyzes the population at risk, examines family theory, major programs, services and policies. Examines family theory, major programs, services and policies. Examines gaps in services and major styles of family intervention in social work roles.

SOWK 678. Family Victimology. 3 Hr. (Practice course.) PR: SOWK 621 or consent. The interface of social work practice in family victimology, with emphasis on victim welfare policy and service, victim compensation programs, and victim prevention. Social concern for physical and sexual abuse, domestic violence, and related topics.

SOWK 679. Social Work with Couples/Families. 3 Hr. (Practice course.) PR: SOWK 621 or consent. This course explores social work practice focused on couples or families as a unit. Emphasis on intervention models oriented to couple and family relationship counseling and on clinical social work techniques.

SOWK 680. Child Welfare Continuum. 3 Hr. PR: SOWK 621 or Consent. Exploration of policy and service issues in child welfare practice includes family preservation and home-based services, adoption, foster and residential care, community-based practice and intervention in rural and cross-cultural contexts.

SOWK 681. Social Work in Health Settings. 3 Hr. PR: SOWK 621 and ((SOWK 643 and SOWK 649) OR (SOWK 651 and SOWK 654)). Comprehensive strategies for serving clients, including the aged, with physical and/or emotional problems and their families with an emphasis on direct practice approaches. Practice in traditional and nontraditional settings is examined.

SOWK 682. Advanced Field Experience. 1-14 Hr. PR: (SOWK 621 and SOWK 633 and SOWK 643) or (SOWK 651 and SOWK 649) or SOWK 654 and consent. Graduate advanced field instruction in selected settings under the general direction of the faculty.

SOWK 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SOWK 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SOWK 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SOWK 695. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.
SOWK 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SOWK 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SOWK 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their students’ reports, thesis, or dissertations. (Grading may be S/U.)

SOWK 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her departments graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

SOWK 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

**Sociology and Anthropology (SOCA)**

SOCA 510. Principles of Research Design. 3 Hr. Foundation skills central to research process: identify research topics, develop research questions, review literature, refine concepts, make design decisions, data collection and analysis decisions, critique published articles, prepare and orally defend research proposals.

SOCA 511. Survey Research Methods. 3 Hr. PR: Intended for majors only. Provides students with an overview of survey research including problem definition, research design, sampling, measurement, instrument construction, project management, ethical considerations, and report writing.

SOCA 513. Qualitative Methods. 3 Hr. PR: Intended for majors only. Provides students with supervised field experiences in interviewing, participant observation, and other methods of qualitative data gathering, analysis, and presentation.

SOCA 515. Comparative Research Methods. 3 Hr.

SOCA 517. Data Analysis. 3 Hr. PR: STAT 211 or equivalent. Using social science survey data, this course integrates statistics, computer usage, and social science theory to examine alternative methods of analyzing social science data. Makes extensive use of SPSS software package.

SOCA 518. Data Analysis. 3 Hr. PR: SOCA 517. Continuation of SOCA 517.


SOCA 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.
SOCA 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SOCA 689. Field Work. 1-6 Hr. PR: Departmental consent. Supervised field work.

SOCA 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of sociology and anthropology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

SOCA 691. Advanced study. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SOCA 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SOCA 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SOCA 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SOCA 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SOCA 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SOCA 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SOCA 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

SOCA 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Software Engineering (SENG)

SENG 510. Software Project Management. 3 Hr. Techniques and tools for managing the software development process for large development projects.

SENG 520. Software Analysis and Design. 3 Hr. Defining software requirements and an introduction to the principles and concepts relevant to the design of large programs and software systems.

SENG 530. Validation and Verification. 3 Hr. Tools and techniques for applied verification and validation of computer software including requirements, design, and code relevant to several development lifecycle models.
SENG 540. Software Evolution. 3 Hr. Software process and the Capability Maturity Model (CMM), software maintenance and evolution, program understanding, reengineering, software configuration management, and software tools related to these issues.

SENG 550. Object Oriented Design. 3 Hr. Highlights contemporary design and analysis techniques with a strong emphasis on the Unified Modeling Language (UML). The class focuses on problem space analysis utilizing object oriented techniques to produce real world design solutions in UML.

SENG 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SENG 610. Advanced Software Project Management. 3 Hr. PR: SENG 510. Presents best practices for managing software development projects. Addresses leadership, teamwork, issues in modern system development, complexity and its influence on projects, estimating project effort and duration, development of software-intensive systems and systems-of-systems.

SENG 630. Requirements Engineering. 3 Hr. PR: SENG 520 or Consent. Study of the requirements engineering phase of the software development process. Techniques for building strong requirements, including management, analysis, risk mitigation, validation, customer signoff, and change control.

SENG 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SENG 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SENG 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Spanish (SPAN)

SPAN 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of Spanish. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

SPAN 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SPAN 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SPAN 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SPAN 594 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SPAN 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SPAN 611. Literary Criticism. 3 Hr. Introduction to the main tendencies of contemporary literary theory as applied to Spanish literature; literary theory and practice. Review and evaluation of the main critical approaches from a practical standpoint.
SPAN 630. Latin American Culture. 3 Hr. A study of history, culture, politics, economics, and development of the Latin American continent.

SPAN 631. Latin American Short Story. 3 Hr.

SPAN 632. Latin American Novel to 1960. 3 Hr.

SPAN 633. Latin American Novel Since 1960. 3 Hr.

SPAN 634. Latin American Poetry. 3 Hr.

SPAN 635. Latin American Theatre. 3 Hr.

SPAN 636. Latin American Nobel Prize Winners. 3 Hr.

SPAN 643. Contemporary Spanish Narrative. 3 Hr.

SPAN 650. Spanish Civilization. 3 Hr. Diachronic study of Spanish civilization with particular attention to literary and artistic movements and their relation to the sociopolitical sphere. (Course taught in Spanish.)

SPAN 651. Medieval and Golden Age. 3 Hr. In-depth reading in Spanish literature of the Middle Ages Renaissance, and Baroque periods, in narrative, drama, and poetry, within its historical context. Non-canonical works will also be included and studied.

SPAN 652. Cervantes. 3 Hr. PR: 24 Hr. of Spanish or consent.

SPAN 653. 18th and 19th Century Literature. 3 Hr. Introduction to the major tendencies, authors, and works of the 18th and 19th Centuries Spanish Peninsular Literature; presentation and analysis of the main literary movements of the period, from the Enlightenment to Naturalism.

SPAN 654. Spanish Literature 1898-1936. 3 Hr. Survey of the major trends and representative authors and works of the Modernist period in Spain.

SPAN 655. Spanish Literature 1936-1975. 3 Hr. In-depth study of Spanish literature published between 1936, the outbreak of the Spanish Civil War, and 1975, the end of the Franco dictatorship. Focus on all genres and their historical context.

SPAN 656. Spanish Literature after 1975. 3 Hr. Survey of the major trends and representative authors and works of Spanish literature since the end of the Franco dictatorship.

SPAN 671. Latin American Women Writers. 3 Hr.

SPAN 672. Spanish Women Writers. 3 Hr.

SPAN 673. Hispanic Literature and Film. 3 Hr.

SPAN 674. Afrohispanic Literature. 3 Hr. The reading, discussion, and analysis of literature written by Hispanic authors of African descent.

SPAN 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of Spanish. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)
SPAN 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SPAN 692 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SPAN 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SPAN 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SPAN 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SPAN 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SPAN 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper, or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SPAN 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

SPAN 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

SPAN 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SPAN 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g.; education, community health, geology). These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

**Special Education (SPED)**

SPED 500. Legal/Educational Foundations: Special Education. 3 Hr. Comprehensive overview of legal requirements and educational practices related to exceptionalities that require special education.

SPED 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SPED 600. Instructional/Assistive Technology. 3 Hr. Characteristics and functions of instructional and assistive technologies; selection, design and implementation of devices for mobility, manipulation, environmental control communication, and learning; and legal mandates, ethical issues and policy initiatives in technology adoption and utilization.
SPED 601. Academic Interventions for Special Needs. 3 Hr. Curriculum development and instructional programming across academic content areas for students with mild/moderate disabilities.

SPED 602. School-Based Assessment for Special Needs. 3 Hr. Development of expertise in various forms of cognitive and effective assessment techniques, understanding psychoeducational needs of exceptional learners, and designing appropriate educational prescriptions from assessment protocols.

SPED 603. Classroom/Behavior Management for Special Needs. 3 Hr. Theory and classroom application of procedures to implement behavior changes in children with mild/moderate disabilities and/or problems; effective group and individual behavior management.

SPED 604. Characteristics/Educational Adaptations: Developmental Disabilities. 3 Hr. Characteristics and educational implications of physical, neurological, and sensory impairments; management strategies, adaptive equipment and assistive technology; and functional skills training programs for infants, toddlers and preschoolers with special needs and persons with severe disabilities.

SPED 605. Family/Professional Collaboration: Developmental Disabilities. 3 Hr. Strategies and interpersonal skills for needs assessment, conferencing and training; parental involvement; interdisciplinary teaming interagency collaboration in educational programs for infants, toddlers, and preschooers with special needs and persons with severe disabilities.

SPED 606. Communication and Literacy Intervention: Developmental Disabilities. 3 Hr. Design and implementation of assessment, instruction and augmentative communication devices to promote learning of communication, oral language and early literacy skills by infants, toddlers and preschoolers with special needs and persons with severe disabilities.

SPED 607. Formal and Informal Assessment: Developmental Disabilities 3 Hr. Principles and practices of assessment, legal and ethical issues in assessment, and using assessment results to plan individualized educational programs for infants, toddlers, and preschoolers with special needs and persons with severe disabilities.

SPED 609. Technology Applications for Special Needs. 3 Hr. Implementing computer-assisted and online instruction in the special education programs; technology tools for student learning and collaboration as well as teacher design and management of instruction.

SPED 610. Typical/Atypical Development: Early Intervention. 3 Hr. Characteristics of atypically developing children from birth through age six; causes and correlates of developmental delays and disabilities and at risk conditions during the prenatal, prenatal and postnatal periods; and strategies for promoting child development in early intervention programs.

SPED 611. Early Learning Curriculum: Early Intervention. 3 Hr Design and evaluation of developmental and pre-academic curricula based on early learning standards and individualized family service or education plans for infants toddlers, and preschoolers with special needs.

SPED 612. Responsive Intervention: Early Intervention. 3 Hr. Design, delivery and evaluation of individualized instruction for infants, toddlers, and preschoolers with special needs using relationships and routines-based interventions to promote early development, parent-child interactions, and acquisition of pre-academic skills.

SPED 616. Behavior Guidance/Support: Early Intervention. 3 Hr. Development guidance and positive behavior support for infants, toddlers and preschoolers with special needs in home-and center-based programs to foster emotion development social skills and appropriate behavior.


SPED 621. Culminating Practicum: SMD. 3 Hr. PR: Consent. Internship or advanced student teaching in this area of specialization: Severe/multiple disabilities.

SPED 622. Instructional Programming: Severe Disabilities. 3 Hr. Design, delivery and evaluation of individualized instruction for children and adults with severe disabilities to promote access to the general education curriculum and develop academic, social and functional skills in inclusive school and community environments.

SPED 625. Secondary/Adult Programs: Severe Disabilities. 3 Hr Education and habilitation in secondary and post-secondary programs for children and adults with severe disabilities in functional academics, vocational training, independent living, productive employment, community participation, recreation/leisure skills, and sexuality and aging.


SPED 630. Intro Low Vision/Blindness. 3 Hr. Vision impairments and their impact on development and learning; psychosocial aspects of vision loss for individual and family; functional vision assessment; legal and educational foundations of programs for individuals with low vision/blindness.

SPED 631. Introduction to Braille. 3 Hr. Fundamentals of Braille code, employing Braille code for reading and writing, implements for production of Braille code, and uses of Braille code by individuals with low vision/blindness.

SPED 632. Braille Reading and Literacy Development. 3 Hr. PR: SPED 631. Assessment of literacy skills; teaching of reading and writing, using print enhancements, assistive technologies and Braille; teaching Braille readiness and Braille reading and writing skills; development of literacy in individuals with low vision/blindness.

SPED 633. Nemeth Code and Mathematics Development. 3 Hr. PR: SPED 631. Assessment of mathematics skills; teaching of computation and problem solving using print enhancements, assistive technologies and Nemeth code; teaching Nemeth code for mathematics and other areas; development of numeracy in individuals with low vision/blindness.


SPED 635. Teaching Students With Low Vision/Blindness. 3 Hr. Classroom and itinerant teaching models; design and delivery of instruction in academic and functional skills and selection of methods, materials and environments to promote learning by individuals with low vision/blindness.
SPED 636. Teaching Students With Vision/Multiple Impairments. 3 Hr. Service delivery models; design and delivery of instruction in academic and functional skills and selection of methods, materials and environments to promote learning by individuals with multiple impairments (vision impairments plus other impairments).

SPED 637. Basic Orientation & Mobility Skills. 3 Hr. Environmental cues, environmental arrangement, travel skills and mobility aids as well as strategies for teaching individuals with low vision/blindness orientation and mobility skills for safety and independence.

SPED 639. Culminating Practicum: LVB. 3 Hr. Internship or advanced student teaching in this area of specialization: Low vision/blindness.

SPED 644. Character and Methods: Behavior Disorders. 3 Hr. Educational implications of behavior disorders and current best practices in curriculum design, instructional methods/materials, and transition planning.


SPED 652. Edl Interventions: Autism. 3 Hr. PR: SPED 650. Design, delivery and evaluation of instruction for individuals with autism spectrum disorders, use of assistive technology and augmentative communication and implementation of functional behavior assessment and positive behavior support for children and adults.

SPED 659. Culminating Practicum: ASD. 3 Hr. PR: Consent. Internship or advanced student teaching in this area of specialization: Autism spectrum disorders.

SPED 663. Collaborative-Consultative Inclusion Strategies. 3 Hr. Strategies for building and maintaining effective collaborative teams for the inclusive environment. Communication, decision making, group dynamics, and conflict resolution will be discussed.

SPED 664. Characteristics/Methods: Mental Impairments. 3 Hr. Educational implications of mild/moderate mental impairments and current best practices in curriculum design, instructional methods/materials, and transition planning.

SPED 665. Mathematics for Special Needs. 3 Hr. Comprehensive approach to mathematics instruction for students with mild/moderate disabilities, curriculum design and modifications, curriculum-based assessment of individual needs and learning outcomes, and research-based strategies to address special needs in mathematics.

SPED 666. Reading for Special Needs. 3 Hr. Comprehensive approach to reading instruction for students with mild/moderate disabilities, curriculum design and modifications, curriculum-based assessment of individual needs and learning outcomes, and research-based strategies to address special needs in reading.

SPED 667. Elementary Content Methods. 3 Hr. Elementary programs for students with mild/moderate disabilities, planning and delivering research-based intervention in reading, mathematics and written expression to address content standards and learning needs, and academic study survival skills.

SPED 668. Secondary Content Methods. 3 Hr. Secondary and post-secondary programs for students with mild/moderate disabilities, planning and delivering research-based intervention in core content areas to address content standards and learning needs and development and implementation of transition plans.
SPED 669. Culminating Practicum: MSE. 3 Hr. PR: Department approval. Internship, advanced student teaching in this area of specialization: Multicategorical special education.

SPED 670. Introduction to Gifted Education. 3 Hr. Introductory course concerning characteristics of gifted and talented children and implications these factors have for education. Definition, characteristics, history and philosophy of special programs, identification procedures, and development of program prototypes.

SPED 672. Teaching Strategies: Gifted Education. 3 Hr. Development of qualitatively different educational experiences for gifted students. Models of differentiation in contents, process, and product in academic areas.

SPED 674. Support For Special Populations in Gifted Education. 3 Hr. Emotional and social needs of students who are gifted and talented, strategies for designing instructional programs to foster emotional maturity and social relationships, and considerations for working with special populations of gifted and talented individuals.

SPED 675. Research to Practice. 3 Hr. Identification of special education issues and action research strategies for investigating issues in educational practice.

SPED 676. Critical Thinking/Creativity in Gifted Education. 3 Hr. Definition and rationale for promoting critical thinking and creativity skills in students who are gifted and talented; design of instructional activities to teach reasoning, problem solving, decision making, brainstorming, and creative problem solving.

SPED 679. Culminating Practicum: GE. 3 Hr. PR: Consent. Internship or advanced student teaching in this area of specialization: Gifted education.

SPED 680. Culminating Project. 3 Hr. PR: EDP 612 or consent and all special education core requirements with the exception of practicum. Completion of master’s program; projects in applied research, curriculum development, or program design, culminating project serves as the final course in the special education sequence. (3 hr. lec.)

SPED 685. Problem in Special Education. 3 Hr. Research for master's degree in special education.

SPED 689 A-Z. Teaching Practicum: Severe/Multiple Disabilities. 1-6 Hr. PR: Consent. Internship, advanced student teaching in each certification area; administration and supervision practicum.

SPED 690 A-Z. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in the college teaching of special education. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

SPED 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SPED 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SPED 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SPED 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)
SPED 770. Policy Analysis and Development. 3 Hr. Advanced foundations of special education and disability services; historical trends and philosophical perspectives; policy review, analysis, research, and formulation; and advocacy roles and activities related to policy development.

SPED 771. Personnel Preparation Strategies. 3 Hr. Design, delivery and evaluation of preparation programs in special education and disability services; observation, supervision and evaluation of student teaching and practicum experiences; issues and trends in special education personnel preparation.

SPED 772. Professional Writing and Grant Writing. 3 Hr. Writing for professional publication in special education and disability services; review and editing of the written works of others; grant writing and review for private foundations or state and federal agencies.

SPED 773. Professional Development Models. 3 Hr. Design, implement, and evaluate professional development for practitioners in special education and disability services, including induction and mentoring programs, peer and consultant coaching, in-service training for individuals and groups, and communities practice.

SPED 774. Analysis and Design of Research. 3 Hr. Research literature in special education and disability services; integrative reviews and research critiques; formulation of research questions; translation of questions into appropriate research designs for participants with exceptionalities; preparation of research proposals.

SPED 775. Program Administration and Supervision. 3 Hr. Planning/implementing service delivery for eligibility, placement, program planning, and assessment; developing/managing budgets with multiple funding sources; staffing practices for hiring and monitoring personnel; communication and interaction skills for collaborative activities.

SPED 776. Leadership for System Change. 3 Hr. Theories of leadership; current and evolving legislative mandates and service paradigms in special education and disability services; planning, implementing and evaluating systems change; collaborative, team building and conflict resolution during innovation.

SPED 779. Contemporary Issues and Trends. 3 Hr. Analysis, discussion and research review of contemporary issues and trends in special education and disability services; selecting and defending a position on a variety of legal, ethical, social and programmatic issues.

SPED 781. Orientation to Doctoral Study. 1 Hr. Introduction to doctoral study in special education; University, college, department and program option requirements; leadership roles/responsibilities for teacher education faculty or special education administrators/ supervisors; planning for committee selection and program of study preparation.

SPED 782. Professional Practice in Systems Advocacy. 1 Hr. Supervised experience in advocating for change in current emerging areas of state and federal policy as it applies to special education or disability services.

SPED 783. Professional Practice in College Instruction. 1 Hr. Supervised experience in design, delivery and evaluation of a college or university course in special education or disability services.

SPED 784. Professional Practice in Clinical Supervision. 1 Hr. Supervised experiences in observing, supervising and evaluating student or practicing educator performance in a practicum setting in special education or disability services.

SPED 785. Professional Practice in Empirical Research. 1 Hr. Supervised experience in designing, conducting and reporting empirical research using quantitative and/or qualitative methods in special education or disability services.
SPED 786. Professional Practice in Service Activities. 1 Hr. Supervised experiences in planning, implementing and evaluating service activities at local, state and/or national levels in special education or disability services.

SPED 787. Professional Practice in Program Administration. 1 Hr. Supervised experiences in operation and management of programs and services related to special education in school systems and/or disability services in community agencies.

SPED 788. Professional Practice in Personnel Support. 1 Hr. Supervised experiences in instructional supervision and personnel evaluation in programs related to special education in school systems and/or disability services in community agencies.

SPED 789. Professional Practice in Evaluation Practices. 1 Hr. Supervised experiences in needs assessment and program evaluations related to special education in school systems and/or disability services in community agencies.

SPED 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of special education. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

SPED 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SPED 792. Directed Study. 1-6 Hr. Directed study of contemporary topics selected from recent developments in the field.

SPED 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SPED 794 Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SPED 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SPED 796. Graduate Seminar. 1 Hr. PR: Consent. Designed to permit graduate students an opportunity to present research to the assembled faculty and graduate student body. (Graded as S/U.)

SPED 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or the equivalent scholarly project, or a dissertation (Grading may be S/U.)

SPED 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

SPED 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)
SPED 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

SPED 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

**Speech Pathology and Audiology (SPA)**

SPA 602. Communication Disorders. 3 Hr. Survey of normal processes and communication disorders of speech, language, hearing in children and adults; professions of speech-language pathology and audiology; job opportunities, designed for students not majoring in speech pathology and audiology.

SPA 604. Seminars Clinical Practice 1. 1 Hr. PR: Consent. Includes topics necessary for successful completion of clinical practicum.

SPA 606. Seminars Clinical Practice 2. 1 Hr. PR: Consent. Includes topics to enhance clinical skills of the beginning clinician.

SPA 608. Hearing-Impaired School Child. 2 Hr. Audiology in the public school classroom; remediation for the hearing-impaired child.

SPA 610. Advanced Practice/SLP 1. 2 Hr. PR: Consent. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with speech-language disorders.

SPA 611. Advanced Practice/Audiology 1. 2 Hr. PR: Consent. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with hearing disorders.

SPA 612. Advanced Practice/SLP 2. 3 Hr. PR: SPA 610 or Consent. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with speech-language disorders.

SPA 613. Advanced Practice/Audiology 2. 3 Hr. PR: SPA 611 or Consent. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with speech-language disorders.

SPA 614. Advanced Practice/SLP 3. 4 Hr. PR: SPA 612 or Consent. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with speech-language disorders.

SPA 615. Advanced Practice/Audiology 3. 4 Hr. PR: SPA 613 or Consent. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with hearing disorders.

SPA 616. Advanced Practice/SLP 4. 4 Hr. PR: SPA 614 or Consent. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with speech-language disorders.

SPA 617. Advanced Practice/Audiology 4. 4 Hr. PR: SPA 615 or Consent. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with hearing disorders.
SPA 620. Neurophysics of Speech and Language. 3 Hr. PR: SPA 320 and SPA 424 or consent. General and typographic anatomy and physiology of CNS, with special attention to motor and sensory systems as they apply to speech, hearing, and language.

SPA 622. Advanced Voice Disorders. 3 Hr. PR: SPA 422 or Consent. Advanced study of the vocal and respiratory mechanisms; epidemiology, classification, etiology, symptomatology, assessment, prevention, and remediation of voice disorders.


SPA 626. Experimental Phonetics. 3 Hr. PR: SPA 320 and SPA 340 or Consent. Discussion of contemporary topics in the speech and hearing sciences, including acoustic, physiological, and perceptual phonetics.

SPA 628. Advanced Stuttering Disorders. 3 Hr. PR: SPA 422 or Consent. Advanced study of the symptomatology, epidemiology, etiology, research findings, assessment, prevention, and remediation of stuttering and related fluency disorders.

SPA 630. Adult Neurogenic Communication Disorders. 3 Hr. PR: SPA 620. Explores normal adult language processes and the effect of normal aging on communication. Advanced investigation of the etiology, diagnosis, nature, and therapeutic approaches of aphasia, agnosia, apraxia, dysarthria, dementia, right hemisphere impairment, and traumatic brain injury.

SPA 632. Advanced Study: Cleft Palate. 2 Hr. PR: SPA 326 or consent. Investigation of the etiology, diagnosis, nature, and therapy approaches of communicative disorders in persons with cleft palate.

SPA 634. Language Disorders in Children: Assessment. 2 Hr. PR: SPA 324. Assessment procedures utilized to identify children with language disorders. Standardized tests and non-standardized analysis procedures are introduced.

SPA 635. Language Disorders in Children: Treatment. 2Hr. PR: SPA 634 or consent. Treatment procedures for children with language disorders are presented. Clinician-oriented and client-oriented approaches are emphasized.

SPA 636. Augmentative/Alternative Communication. 2 Hr. Discussion of augmentative/alternative communication options for persons who are unable to meet their daily needs through natural modes of verbal, manual, or written communication. Demographics, assessment, and treatment of candidates for AAC interventions.

SPA 638. Professional Issues. 2 Hr. PR: EDP 612 or consent. Discussion of contemporary professional issues in speech-language pathology and audiology.


SPA 646. Advanced Study: Aural Rehabilitation. 3 Hr. Identification of candidates for aural rehabilitation; evaluating degree of handicap; introduction to speech, language, education, and academic achievement of hearing impaired children; auditory, visual, and combined methods of rehabilitation; aural rehabilitation counseling.

SPA 648. Central Auditory Disorders. 3 Hr. PR: SPA 642 or consent. Pathology and audiometric site-of-lesion testing of the central auditory nervous system.

SPA 650. Industrial and Environmental Audiology. 3 Hr. A study of various noise parameters, instrumentation for noise measurement, and measurement techniques. Effects of noise on man and industrial hearing conservation procedures discussed.


SPA 654. Pediatric Audiology. 3 Hr. A study of the development of the auditory response and hearing problems of early childhood. Students will learn the construction and application of specialized assessment techniques suitable for the pediatric patient.

SPA 656. Pathologies of the Auditory System. 3 Hr. PR: Consent. Investigation of the nature and etiology of auditory system pathologies from the external ear to the auditory cortex and their audiological manifestation.

SPA 658. Auditory Processing Disorders. 3 Hr. PR: Consent. A transdisciplinary approach to evaluation and management of auditory processing disorders in children and adults is presented. This course is for graduate students in speech-language pathology and audiology and professional speech-language pathologists and audiologists.

SPA 660. Neuropathology of Speech and Language. 2 Hr. PR: SPA 620. Explores methods of identifying and treating speech and language problems associated with non-progressive and progressive neurological disorders.

SPA 662. Dysphagia. 3 Hr. PR: Must be SPA major. Assessment and treatment of feeding and swallowing disorders in children and adults.

SPA 664. Diagnostics in Speech Language Pathology. 3 Hr. PR: Consent. Discussion of issues related to the diagnosis of speech and language disorders, including interviewing, etiological factors, and the assessment process. Supervised clinical practicum that concerns the diagnosis of speech and language disorders.

SPA 666. Updating Trends in AAC. 2 Hr. Recent research in augmentative and alternative communication assessment and intervention.

SPA 668. Clinical Experience in AAC. 2 Hr. Hands on AAC and AAC assessment and intervention experience at Camp Gizmo in Romney, West Virginia.

SPA 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SPA 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SPA 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SPA 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.
SPA 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SPA 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SPA 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SPA 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs the believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

SPA 702. Anatomy/Physiology of the Ear. 3 Hr. PR: Consent. Detailed study of the anatomy and physiology of the auditory and vestibular systems, and detailed investigation of physiological aspects of auditory and vestibular sensitivity.

SPA 704. Instrumentation in Audiology. 3 Hr. PR: Consent. A study of instrumentation utilized in the evaluation of hearing disorders, including, calibration, maintenance, minor repair, and use of such instrumentation. The course includes foundational study of electricity and electrical components.

SPA 706. Advanced Audiological Assessment 1. 4 Hr. PR: SPA 440 or consent. Audiological test procedures utilized in the evaluation of hearing loss including differential diagnosis, test administration and interpretation.

SPA 710. Psychoacoustics. 3 Hr. PR: Consent. Advanced study of the psychology of hearing.

SPA 711. Audiological Assessment 2. 4 Hr. PR: SPA 706. An advanced study of evaluation procedures utilized in the evaluation of hearing disorders, including adaptation of test procedures for varying clinical populations.

SPA 713. Advanced Audiological Rehabilitation. 3 Hr. PR: SPA 442 or Consent. Identification of candidates for aural rehabilitation; evaluating degree of handicap; introduction to speech, language, education, and academic achievement of hearing impaired children; auditory, visual, and combined methods of rehabilitation; aural rehabilitation counseling.

SPA 714. Neuroanatomy and Physiology. 3 Hr. PR: SPA 702. Advanced study of the structures of the auditory system and their function.

SPA 715. Amplification 1. 3 Hr. PR: SPA 706 and Coreq: SPA 716. A study of amplification systems including assistive listening devices, hearing aid evaluation procedures, and outcome measures.

SPA 716. Amplification Lab 1. 1 Hr. PR: SPA 706 and Coreq: SPA 715. Demonstration and introductory experience selecting, fitting and servicing basic hearing aids for individuals with hearing impairment.

SPA 717. Pathology of the Auditory System. 3 Hr. PR: SPA 702. Detailed study of the nature and etiology of auditory system pathologies from the external ear to the auditory cortex and their audiological manifestation.

SPA 718. Externship in Speech Pathology/Audiology. 1-9 Hr. Supervised clinical practicum experience in selected work settings to provide students with a concentrated orientation to the professional work place. Coordination and evaluation is under the direction of faculty.
SPA 719. Audiologic Communication Skills. 3 Hr. PR: SPA 711 or consent. Introduction to communicating within the discipline of audiology. Emphasis is placed on treating special needs of individuals with hearing/balance disorders and their families/caregivers. Indicators that suggest formal counseling are also covered.

SPA 721. Amplification 2. 3 Hr. PR: SPA 715 and Coreq: SPA 722. Advanced study of the structures of the operation, selection, fitting, and use of amplification systems for individuals with hearing disability.

SPA 722. Amplification Lab 2. 1 Hr. PR: SPA 715 and SPA 716 and Coreq: SPA 721. Demonstrations and introductory experience selecting and fitting amplification systems for individuals with hearing impairment.

SPA 723. Pediatric Audiology. 3 Hr. PR: SPA 706 or consent. A study of the development of the auditory response and hearing problems of early childhood. Students will learn the construction and application of specialized assessment techniques suitable for the pediatric patient.

SPA 725. Physiological Measures. 3 Hr. PR: SPA 702 and SPA 711 and SPA 714 and Coreq: SPA 726. Advanced study of the principles, methods and applications of otoacoustic emission and evoked potential measurements of auditory function.

SPA 726. Physiological Measures Lab. 1 Hr. PR: SPA 711 and SPA 714 and Coreq: SPA 725. Demonstration and introductory experience with otoacoustic emissions and evoked potential test procedures.

SPA 729. Audiology Clinic 1. 2 Hr. PR: Consent. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with hearing disorders.

SPA 734. Auditory Processing Disorders. 3 Hr. PR: SPA 725. A study of auditory processing disorders, including evaluation methods and procedures, remediation theories and practices, as well as collaboration with other professions in management of the disorders.

SPA 736. Vestibular Evaluation and Rehabilitation. 3 Hr. PR: SPA 702 and SPA 714 and Coreq: SPA 737. Advanced study of balance system function and dysfunction, the principles and methods of evaluating balance, and rehabilitating techniques.

SPA 737. Vestibular Evaluation and Rehabilitation Lab. 1 Hr. PR: SPA 702 and SPA 714 and Coreq: SPA 736. Demonstration and introductory experience performing balance system evaluation and rehabilitation techniques.

SPA 739. Audiology Clinic 2. 2 Hr. PR: SPA 729. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with hearing disorders.

SPA 743. Industrial Audiology. 3 Hr. PR: SPA 704. A study of various noise parameters and measurement techniques. Industrial hearing conversation procedures and the effects of noise on man.

SPA 745. Clinic Supervision Seminar. 2 Hr. An investigation into methods and techniques for clinical supervision in audiology.

SPA 747. Cochlear and Brainstem Implants. 3 Hr. PR: SPA 711 and SPA 722. Admission to the audiology program. This course includes information related to the role and responsibilities of the audiologist on the cochlear and auditory brainstem implants team, including theoretical principles, pre-implant assessments, programming, implant orientation and troubleshooting, and other follow-up services.
SPA 749. Audiology Clinic 3. 3 Hr. PR: SPA 739. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with speech-language disorders.

SPA 759. Audiology Clinic 4. 4 Hr. PR: SPA 749. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with hearing disorders.

SPA 769. Audiology Clinic 5. 4 Hr. PR: SPA 759. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with hearing disorders.

SPA 779. Audiology Clinical Externship. 6 Hr. PR: SPA 769. Supervised clinical practicum that concerns the evaluation and treatment of children and adults with hearing disorders.

SPA 789. Audiology Residency. 6 - 9 Hr. PR: SPA 779. A semester placement in a clinical facility supervised by a certified audiologist, performing all aspects of audiology as applicable to the facility.

SPA 794 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SPA 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SPA 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SPA 799. Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to retain all the rights and privileges of duly enrolled students. Enrollment entitles students to consult with graduate faculty, use the University’s facilities, and participate in its academic and cultural programs. Colloquium credits may not be counted toward master’s degree requirements. (Grading is S/U.)

SPA 900. Professional Development. 1-6 Hr. Courses intended for professional development and require students to possess a bachelor’s degree, but the course does not count toward graduation and is not applicable toward attaining a graduate degree. (Grading is S/U.)

SPA 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology.) These tuition-waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

**Sport Management (SM)**

SM 616. Sport Marketing Research Methods. 3 Hr. PR: Graduate standing or consent. Application of the scientific method to sport marketing; emphasis on evaluating and conducting survey research in sport marketing; marketing project includes consumer behavior research in sport settings.

SM 621. Sport Publicity/Public Relations. 3 Hr. The course provides an in-depth understanding of effective public relations and publicity in the sport organizational context. In particular, the course focuses on the communication modalities for sport information through public mediums.

SM 627. Legal Issues in Sport Administration. 3 Hr. The NCAA, its rules, and its regulations: In-depth study of professional sport leagues, their constitution, by laws, regulations, collective bargaining agreements, standard player contracts; legal issues involving sport agents.

SM 630. Sport Sponsorship and Sales Management. 3 Hr. The project-based course develops an in-depth understanding of sport sponsorship and sales management processes including strategic communication, direct and indirect selling protocols, and brand development.
SM 635. Sport Management Processes. 3 Hr. PR: Consent. Analysis of management processes utilized in sport businesses. A focus is on the planning, organization, leading, and evaluation processes that are unique to the sport industry. Discussion, debate, and position papers on these four management processes.

SM 640. International Sport Governance. 3 Hr. This course is focused on ways in which sport is organized and managed internationally, aims to foster critical thinking, research, exchange of ideas, writing about governance.

SM 646. Sport Marketing. 3 Hr. PR: Graduate standing. Advanced analysis of marketing sport enterprises; the marketing planning process, and marketing information systems.

SM 650. Paciolan Computer Systems. 3 Hr. Computer Laboratory; emphasis on general ledger (budgeting), support group (fund raising), and ticketing software of the PSI sport computer system.

SM 660. NCAA Compliance and Current Issues. 3 Hr. PR: Graduate standing. An in-depth analysis of compliance issues impacting collegiate administrators and the NCAA.

SM 670. Sport Finance. 3 Hr. PR: Graduate standing or consent. Financial operations and economic impact of scholastic, intercollegiate, and professional sport administration; concepts of budgeting, auditing, reporting, and computer use; current developments in the field.

SM 675. Fund-Raising. 3 Hr. Provides information to raise money through sales and other financial means. Addresses needs at all sporting levels, from independent team fund-raising to fund-raising at the professional level.

SM 680. History and Philosophy of Sport. 3 Hr. This course is designed to acquaint students with philosophical issues related to sport and sport management and with individuals and events that helped shape the history of sport.

SM 685. Internship in Sport Management. 1-6 Hr. Sport management on-site working relationship with a sport organization to gain practical “hands-on” experience in a collegiate athletic organization, professional sport franchise, or variety of sport-related businesses.

SM 686. Facility Planning and Management. 3 Hr. Acquaint students with the basic concepts in the areas of sport facilities: planning, design and construction, management, marketing, advertising and public relations and event operations.

SM 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of sport studies. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

SM 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SM 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SM 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SM 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SM 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.
SM 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SM 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SM 698. Thesis. 2-4 Hr. PR: Consent. This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis and dissertations. (Grading may be S/U.)

SM 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively in coursework or research are entitled, through enrollment in his/her departments graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

SM 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of sport studies. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

SM 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SM 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SM 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SM 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SM 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SM 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SM 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SM 798. Dissertation. 2-4 Hr PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)
SM 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her departments graduate colloquium, to consult with graduate faculty, participated both formal and informal academic activities sponsored by his/her program, and retain all of the right and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

**Sport Studies (SS)**

SS 615. Research Methodology in Physical Education. 3 Hr. PR: Graduate standing or consent. Application of historical, descriptive, and experimental research strategies and designs to physical education. (Also listed as PET 615.)

SS 616. Sport Marketing Research Methods. 3 Hr. PR: Graduate standing or consent. Application of the scientific method to sport marketing; emphasis on evaluating and conducting survey research in sport marketing; marketing project includes consumer behavior research in sport settings.

SS 620. Individual Interaction in Sport and Physical Activity. 3 Hr. PR: SS 615. Designed to acquaint the student with the reciprocal relationships between sport and physical activity and the societies and culture from which sport emerges.

SS 627. Legal Issues in Sport Administration. 3 Hr. The NCAA, its rules, and its regulations: In-depth study of professional sport leagues, their constitution, by-laws, regulations, collective bargaining agreements, standard player contracts; legal issues involving sport agents.

SS 635. Sport Management Processes. 3 Hr. PR: Consent. Analysis of management processes utilized in sport businesses. A focus is on the planning, organization, leading, and evaluation processes that are unique to the sport industry. Discussion, debate, and position papers on these four management processes.

SS 640. Psychology of Sport and Physical Activity. 3 Hr. PR: SS 615. Psychological effects and implications of participation in sport and physical activity. Emphasis is on the personality and behavior and motivational dynamics of sport involvement.

SS 646. Sport Marketing. 3 Hr. PR: Graduate standing. Advanced analysis of marketing sport enterprises; the marketing planning process, and marketing information systems.

SS 650. Paciolan Computer Systems. 3 Hr. Computer laboratory; emphasis on general ledger (budgeting), support group (fund raising), and ticketing software of the PSI sport computer system.

SS 660. NCAA Compliance and Current Issues. 3 Hr. PR: Graduate standing. An in-depth analysis of compliance issues impacting Collegiate Administrators and the NCAA.

SS 670. Sport Finance. 3 Hr. PR: Graduate standing or consent. Financial operations and economic impact of scholastic, intercollegiate, and professional sport administration; concepts of budgeting, auditing, reporting, and computer use; current developments in the field.

SS 680. History and Philosophy of Sport. 3 Hr. This course is designed to acquaint students with philosophical issues related to sport and sport management and with individuals and events that helped shape the history of sport.

SS 685. Internship-Sport Management. 1-6 Hr. Sport management on-site working relationship with a sport organization to gain practical “hands-on” experience in a collegiate athletic organization, professional sport franchise, or variety of sport-related businesses.
SS 686. Internship-Sport Behavior. 1-6 Hr. Sport behavior supervised experience in various aspects of sport psychology teaching, research, and/or practice at on-campus or off-campus sites.

SS 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of sport studies. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

SS 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SS 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SS 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SS 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SS 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SS 698. Thesis. 2-4 Hr. PR: Consent. This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis and dissertations. (Grading may be S/U.)

SS 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her departments graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

SS 719. Group Influences in Sport. 3 Hr. PR: SS 640. An examination of how and why behavior and performance affected by interactions with others in sport. An emphasis is placed upon group functioning.

SS 720. Psychological Sport Performance Enhancement. 3 Hr. An in-depth examination of commonly used interventions designed to maximize the performance of individual athletes and teams.

SS 721. Counseling College Student-Athletes. 3 Hr. An exploration of psycho-social aspects of college student-athletes' life experiences and common counseling concerns to include individual and systems intervention used to assist this at-risk group.

SS 722. Exercise and Health Psychology. 3 Hr. Major theories and techniques of health behavior change and health behavior assessment especially with respect to exercise.
SS 723. Psychological Aspects of Sport Injury. 3 Hr. Explores the psychosocial antecedents to athletic injury and factors related to the psychological experience and treatment of the injured athlete.


SS 726. Advanced Measurement and Research in Physical Education. 3 Hr. PR: SS 615. Extension and application of basic concepts of measurement and statistical evaluation to physical education.

SS 765. Dissertation and Thesis Seminar. 3 Hr. PR: Graduate standing. Critical analysis of the graduate student’s dissertation or research proposal. (Required for all doctoral students.)

SS 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of sport studies. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

SS 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SS 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SS 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SS 795. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.

SS 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SS 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SS 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

SS 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate student not actively involved in coursework or research are entitled, through enrollment in his/her departments graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Sport and Exercise Psychology (SEP)
SEP 615. Research Methodology in Physical Education. 3 Hr. PR: Graduate standing or consent. Application of historical, descriptive, and experimental research strategies and designs to physical education. (Also listed as PET 615.)

SEP 620. Individual Interaction in Sport and Physical Activity. 3 Hr. PR: SEP 615. Designed to acquaint the student with the reciprocal relationships between sport and physical activity and the societies and culture from which sport emerges.
SEP 640. Psychology of Sport and Physical Activity. 3 Hr. PR: SEP 615. Psychological effects and implications of participation in sport and physical activity. Emphasis is on the personality and behavior and motivational dynamics of sport involvement.

SEP 647. Supervision Sport Psychology. 1-6 Hr. Supervision of graduate-level applied sport psychology consultation.

SEP 686. Internship in Sport Behavior. 1-6 Hr. Sport behavior supervised experience in various aspects of sport psychology teaching, research, and/or practice at on-campus or off-campus sites.

SEP 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of sport studies. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

SEP 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SEP 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SEP 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SEP 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SEP 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

SEP 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SEP 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SEP 698. Thesis. 2-4 Hr. PR: Consent. This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis and dissertations. (Grading may be S/U.)

SEP 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students nor actively involved in coursework or research are entitled, through enrollment in his/her departments graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

SEP 719. Group Influences in Sport. 3 Hr. PR: SS 640. An examination of how and why behavior and performance affected by interactions with others in sport. An emphasis is placed upon group functioning.

SEP 720. Psychological Sport Performance Enhancement. 3 Hr. An in-depth examination of commonly used interventions designed to maximize the performance of individual athletes and teams.
SEP 721. Counseling College Student-Athletes. 3 Hr. An exploration of psycho-social aspects of college student-athletes’ life experiences and common counseling concerns to include individual and systems intervention used to assist this at-risk group.

SEP 722. Exercise and Healthy Psychology. 3 Hr. Major theories and techniques of health behavior change and health behavior assessment especially with respect to exercise.

SEP 723. Psychological Aspects of Sport Injury. 3 Hr. Explores the psychosocial antecedents to athletic injury and factors related to the psychological experience and treatment of the injured athlete.

SEP 726. Advanced Measurement and Research in Physical Education. 3 Hr. PR: SS 615. Extension and application of basic concepts of measurement and statistical evaluation to physical education.

SEP 727. Ethical/Legal Issues in Sport Psychology. 3 Hr. Graduate-level seminar on ethical and legal aspects of research, teaching and practice in sport and exercise psychology.

SEP 765. Dissertation and Thesis Seminar. 3 Hr. PR: Graduate standing. Critical analysis of the graduate student’s dissertation or research proposal. (Required for all doctoral students.)

SEP 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SEP 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

SEP 793. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

SEP 794. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

SEP 795. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.

SEP 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

SEP 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SEP 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)
SEP 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her/departments graduate colloquium, to consult with graduate faculty, participate in both formal, and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Statistics (STAT)
STAT 505. Foundations of Probability and Statistics. 3 Hr. PR: MATH 156 or consent. Probability, random variables, discrete and continuous probability distributions, point and interval estimation, chi-square tests, linear regression, and correlation.

STAT 511. Statistical Methods 1. 3 Hr. PR: MATH 126. Statistical models, distributions, probability, random variables, tests of hypotheses, confidence intervals, regression, correlation, transformations, F and Chi-square distributions, analysis of variance and multiple comparisons. (Equivalent to EDP 613 and PSYC 511.)

STAT 512. Statistical Methods 2. 3 Hr. PR: STAT 511 or equivalent. Completely random, randomized complete block, Latin square, and split-plot experimental designs. Unplanned and planned multiple and orthogonal comparisons for qualitative and quantitative treatments and factorial arrangements. Multiple linear regression and covariance analysis. (Equivalent to EDP 614 and PSYC 512.)

STAT 513. Design of Experiments. 3 Hr. PR: STAT 512 or equivalent. Expected mean squares, power of tests and relative efficiency for various experimental designs. Fixed, random, and mixed models. Use of sub-sampling, covariance, and confounding to increase power and efficiency.


STAT 521. Advanced SAS Programming. 3 Hr. PR: STAT 511 or equivalent; any computer programming language. Advanced topics in Statistical Analysis System (SAS). Students will perform statistical data analyses, data modifications, file operations, statistical report writing.

SPED 523. Statistical Computing. 3 Hr. PR: STAT 512. Monte Carlo methods; randomization, partitioning, and the bootstrap; identifying data structures, estimating functions, including density functions; statistical models of dependencies. R programming.

STAT 525. Statistical Graphics. 3 Hr. PR: STAT 512. Introduction to R graphics; traditional graphs; the grid graphics model; lattice graphics; developing new graphics functions and objects in R. Visualizing large data sets.

STAT 540. Introduction to Exploratory Data Analysis. 3 Hr. PR: An introductory statistics course. Basic ways in which observations given in counted and measured form are approached. Pictorial and arithmetic techniques of display and discovery. Methods employed are robust, graphical, and informal. Applications to social and natural sciences. (Alternate years.)

STAT 541. Applied Multivariate Analysis. 3 Hr. PR: STAT 511 or equivalent. Introduction to Euclidean geometry and matrix algebra; multiple and multivariate regression including multiple and canonical correlation; the k-sample problem including discriminate and canonical analysis; and structuring data by factor analysis, cluster analysis, and multi-dimensional scaling.
STAT 543. Microarray Data Analysis. 3 Hr. PR: STAT 512. Statistical analyses of genomic experiments using data visualization, clustering, multiple testing, and ensemble classification methods. Data preprocessing, including background adjustment, etc. Case studies.

STAT 545. Applied Regression Analysis. 3 Hr. PR: STAT 512 or equivalent. Matrix approach to linear and multiple regression, selecting the “best” regression equation, model building, and the linear models approach to analysis of variance and analysis of covariance.

STAT 547. Survival Analysis. 3 Hr. PR: STAT 512. Survival model methodology, including model selection for incomplete data with censored, truncated, and interval censored observations. Applications to many real life problems using R.

STAT 551. Nonparametric Statistics. 3 Hr. PR: STAT 511 or equivalent. Distribution-free procedures of statistical inference. Location and scale tests for homogeneity with two or more samples (related or independent); tests against general alternatives. (Alternate years.)

STAT 555. Categorical Data Analysis. 3 Hr. PR: STAT 215 or equiv. Bivariate association for ordinal and nominal variables, models for categorical or continuous responses as a special case of generalized linear models, methods for repeated measurement data, exact small-sample procedures.

STAT 561. Theory of Statistics 1. 3 Hr. PR: MATH 251. Probability and random variables, univariate and multivariate distributions, expectations, generating functions, marginal and conditional distributions, independence, correlation, functions of random variables, including order statistics, limiting distributions, and stochastic convergence.

STAT 562. Theory of Statistics 2. 3 Hr. PR: STAT 561. Techniques of point and interval estimation; properties of estimates including bias, consistency, efficiency, and sufficiency; hypothesis testing including likelihood ratio tests and Neyman-Pearson Lemma; Bayesian procedures; analysis of variance and nonparametrics.

STAT 590. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of statistics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

STAT 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation in advanced topics not covered in regularly scheduled courses.

STAT 593. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

STAT 631. Sampling Theory and Methods. 3 Hr. PR: STAT 511 or equiv. Survey components, methods of sampling for finite and infinite populations, single and multi-stage procedures, confidence limits for estimating population parameters; sample size determination, area sampling, sources of survey error, a “hands-on” project in survey sampling is included.

STAT 641. Multivariate Statistical Theory. 3 Hr. PR: STAT 541, and STAT 561 or consent. Euclidean vector space theory and matrix algebra, multivariate normal sampling theory, the theory of the multivariate general linear hypothesis including multivariate regression, MANOVA, and MANCOVA, and the theory of factor analysis.

STAT 645. Linear Models. 3 Hr. PR: STAT 545 and STAT 362 or consent. Multivariate normal distribution, distribution of quadratic forms, linear models, general linear hypotheses, experimental design models, components of variance for random effects models.
STAT 682. Analysis of Experiments. 1 Hr. PR: Consent. Statistical consulting and data analysis.

STAT 689. Professional Field Experience. 1-6 Hr. PR: Consent. (May be repeated up to a maximum of 18 hours). Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

STAT 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of statistics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading may be S/U.)

STAT 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

STAT 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

STAT 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

STAT 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

STAT 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

STAT 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

STAT 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

STAT 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

STAT 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

STAT 745. Data Mining. 3 Hr. PR: STAT 545 or equivalent. Development of predictive models for large data sets, including logistic and linear models, regression and classification trees, and neural networks. Data preparation, including imputation and filtering.

STAT 763. Stochastic Processes. 3 Hr. PR: STAT 561. Modeling of random phenomenon, occurring over time, space, or time and space simultaneously. Modern techniques, such as the martingale decomposition, are applied to different statistical models.

STAT 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

Surgery (SURG)
SURG 741. Clinical Clerkship in Surgery. (Third year.) PR: Required of third-year medical students. Clinical clerks are assigned responsibility for hospitalized surgical patients under supervision of house staff and attending surgeons. Students are an integral part of the team providing diagnostic and treatment services and are expected to take histories, perform physical examinations, and participate in ward and laboratory procedures. A course of surgical lectures, designed to outline surgical core curriculum, is given concurrently. The student is expected to attend the daily rounds and conferences arranged by the department.

SURG 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

SURG 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

SURG 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Television Journalism (TVJ)
TVJ 517. Contemporary Issues in Broadcast News. 3 Hr. Open to graduate journalism students and to journalism seniors with a 3.0 grade point average, consent. In-depth study of contemporary issues in broadcast journalism; role of television news in society, fairness and objectivity in news presentation, economic and organizational influences, criticism of television news formats. Individual papers on selected topics.

TVJ 586. Broadcasting Bureau Reporting. 3 Hr. Students work with KDKA producers and news directors to develop, report and shoot stories to air on KDKA-TV. Graduate students will act as bureau chief or assume other leadership roles.

TVJ 587. Advanced TV Reporting and Producing. 3 Hr. Reporting, writing and producing television news stories using advanced production techniques; producing stories for cable or broadcast television. Additional theoretical research and writing into the organizational structures of broadcasting. (Lab fees.)

TVJ 590. Teaching Practicum. 1-3 Hr. Supervised practice in college teaching of Broadcasting. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Course may be graded S/U.)

TV 591. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

TVJ 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

TVJ 593 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
TVJ 594. Special Seminars. 1-6 Hr. Seminars arranged for advanced graduate students.

TVJ 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

TVJ 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.


TVJ 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student's reports, thesis, or dissertations. (Grading may be S/U.)

TVJ 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department's graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master's programs.)

Theatre (THET)

THET 520. Principles of Stage Lighting. 2 Hr. An exploration of lighting as a creative tool with emphasis on design development and equipment.

THET 540. Graduate Vocal Techniques. 2 Hr. In-depth vocal work, with special care taken to address each actor's individual qualities, beginning with breath, alignment, and release of habitual tension. Open resonance and free articulation to support the actor's voice.

THET 541. Graduate Voice Techniques. 2 Hr. PR: THET 540. Continue the work introduced in THET 540 with text exploration. Introduce the International Phonetic Alphabet (IPA) and structure.

THET 542. Graduate Stage Movement 1. 2 Hr. Study of human movement in performance, including basic body awareness and anatomy, as well as Viewpoints and Suzuki training.

THET 543. Graduate Stage Movement 2. 1 Hr. PR: THET 542. Continuation of THET 542 through work on directed projects; special topics in issues related to physicality in performance.

THET 544. Graduate Acting Studio 1. 3 Hr. Foundation of the craft of acting including sensory elements ensemble building, environment, personalization, imagination, communication, conflict, and audition skills. Concentration is on modern and contemporary theatre.

THET 545. Graduate Acting 2. 3 Hr. PR: THET 544. Exploration of acting techniques applicable to late 19th century, early 20th century European playwrights.

THET 546. Graduate Scene Study 1. 1 Hr. The presentation of scenes before a panel of acting, voice and movement faculty for critique. May be repeated four times for credit.

THET 547. Graduate Scene Studio 2. 1 Hr. PR: THET 546. The presentation of scenes chosen from Shakespeare and other plays of heightened text, before a panel of acting, voice, and movement faculty for critique.
THET 590. Teaching Practicum. 1-3 Hr.

THET 591 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses. Study may be independent or through specially scheduled lectures.

THET 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

THET 593. Special Topics. 1-6 Hr. Investigation of topics not covered in regularly scheduled courses.

THET 594 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

THET 595. Independent Study. 1-6 Hr. Faculty-supervised study of topics not available through regular course offerings.

THET 600. Graduate Production Practicum. 1 Hr. PR: Consent. (May be repeated for a maximum of 6 credit hours.) Participation in assigned performance or production projects.

THET 610. Research Methods. I. 3 Hr. Methods of production research for graduate students in acting and design, with particular emphasis on writing, library use, and manuscript preparation.

THET 613. Stage Management. 3 Hr. An exploration of stage managers’ techniques, skills, and responsibilities through exercises, research into the profession, and experience stage managing an actual production.

THET 621. Graduate Theatre Make-up. 2 Hr. PR: Consent. Lecture/laboratory course exploring practical and physical applications of a stage character with makeup. In-depth study of facial anatomy and potential alterations through two- and three-dimensional appliances.

THET 622. Graduate Scene Design. 3 Hr. Graduate-level study of scenic design including conceptualization, mechanical perspective, drafting, model building, and color rendering. Emphasis placed on translating the script into a visual design.

THET 623. Advanced Graduate Scene Design. 3 Hr. PR: THET 622. Continued study of conceptualization and techniques of presentation used in the creation of scenic environments. Emphasis on alternative forms including opera, ballet, display, and industrial venues. (May be repeated for a maximum of 9 credit hours.)

THET 624. Graduate Costume Design 1. 3 Hr. Intensive study of basic design elements as applied to costume design. Script analysis leading to conceptualization and communication through visual language. Experience in practical organization skills, paperwork, and budgeting. Studio/rendering work.

THET 625. Graduate Lighting Design. 3 Hr. PR: THET 427 or consent. (May be repeated for a maximum of 9 credit hours.) Lecture/studio; intensive practical experience of lighting design for the theatre. Emphasis is placed on conceptualization, drafting, and rendering techniques related to the development and presentation of lighting design.

THET 626. Graduate Costume Design 2. 3 Hr. PR: THET 624. Intensive studio/practical study of costume design. Exploring conceptual process of design for text, movement, dance, opera, and puppetry. Emphasis on rendering, composition, and fabric applications. (May be repeated for maximum of 6 credit hours.)

THET 627. Graduate Costume & Decor 1. 3 Hr. A historical survey of clothing, artistic style, and decoration from ancient Egypt to 1750. Emphasis on how stage designers employ period style in the design of costumes, scenery, and properties. (Field trip required.)
THET 628. Graduate Costume & Decor. 3 Hr. A historical survey of clothing, artistic style, and decoration from 1750 to the present. Emphasis on how stage designers employ style in the design of costumes, scenery, and properties. (Field trip required.)

THET 629. Graduate CAD Seminar. 3 Hr. PR: THET 631 and THET 622 or consent. Advanced study of the computer-assisted graphic design for the stage.

THET 630. Graduate Rendering Techniques. 3 Hr. This course allows the graduate student to explore and develop rendering techniques for scenic, costume and lighting designs. Students will work in watercolor, acrylic, marker, and other media.

THET 631. Graduate Sceno-Graphic Techniques. 3 Hr. Advanced techniques in drafting in accordance with current graphic standards for stage design and technology. Refinement of technique and graphic style through projects and exercises.

THET 633. Graduate Stage Properties. 3 Hr. An advanced studio course on the creation and organization of properties for the stage covering materials and construction techniques as well as research methods and keeping accurate paperwork.

THET 635. Graduate Scene Painting. 3 Hr. Course will provide scene painting skills needed in the execution of any kind of scene design and art skills that crossover into rendering and design. Scene painting skill enhances the artistic range and marketability of scene designers and technicians.

THET 640. Advanced Graduate Vocal Techniques. 2 Hr. PR: THET 541 or consent. Intensive vocal exploration with Shakespearean text, character choices, and dialect work.

THET 641. Advanced Graduate Vocal Techniques 2. 2 Hr. PR: THET 640 or Consent. Continuation of THET 640 with emphasis on period style texts, vocalization during emotionally intense scenes and fights. Includes technical analysis of text with attention to screaming, crying, and other moments of emotional intensity.

THET 642. Advanced Graduate Stage Movement. 2 Hr. PR: THET 543 or Consent. Advanced study of movement techniques for character work, including rhythms of basic language/movement connections and period styles of movement.

THET 643. Advanced Graduate Stage Movement 2. 1 Hr. PR: THET 642 or Consent. Continuation of THET 642 through work on directed projects; special topics in issues related to physicality in performance.

THET 644. Advanced Graduate Acting Studio 1. 3 Hr. PR: THET 545. Continued exploration of the acting process focusing on heightened text and issues of period and style using the works of William Shakespeare.

THET 645. Advanced Acting Studio. 3 Hr. PR: THET 644. Exploration of acting techniques specific to comedy, comedy of manners, physical comedy and sketch comedy.

THET 650. Graduate Study in Musical Theatre. 2 Hr. PR: THET 645. Advanced musical theatre performance study with solos and scenes focusing on Stanislavski principles of objective and action along with interpretation choices within music composition.

THET 680. Dramatic Theory and Criticism. 3 Hr. A survey of the major documents addressing the theories of drama and theatre from the ancient Greeks to the present.
THET 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of theatre. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

THET 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses. Study may be independent or through specially scheduled lectures.

THET 692. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

THET 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

THET 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

THET 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

THET 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her department.

THET 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

THET 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their students’ reports, thesis, or dissertations. (Grading may be S/U.)

THET 699. Graduate Colloquium. 1-6 hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department, graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

THET 720. Seminar in Production Research. 3 Hr. PR: THET 610 and THET 622 or THET 626 or THET 625. Seminar approach to individual design projects with oral and written presentations of research materials. Intensive critique within class by faculty and peers.

THET 721. Professional Aspects of Design. 3 Hr. PR: THET 622 and THET 624 and THET 625. An in-depth work in the packaging and presentation of the design portfolio, resume writing, and job opportunities. Emphasis is placed on methods of making a successful transition from an academic environment into the performance industry.

THET 725. Portfolio Development. 1 Hr. Independent studio work supervised by faculty mentor to prepare the designer portfolio for professional presentations and interviews.

THET 740. Advanced Graduate Vocal Technique 3. 2 Hr. PR: THET 640. The student will focus on more advanced dialect and vocal techniques to refine and ready the student’s skills for the professional world. Microphone techniques will be introduced as well as development of voiceover techniques and copy.
THET 744. Tour Development 1. 4 Hr. PR: Consent. This class is the first half of a two-course sequence. This class creates a touring theatre company, including an organization structure, scripts, and educational workshops to be offered in conjunction with the productions.

THET 745. Tour Development 2. 4 Hr. PR: Consent. This class is the second half of a two-course sequence. The class rehearses and tours scripts and workshops developed in Tour Development 1.

THET 750. Graduate Showcase 1. 1 Hr. PR: THET 645. Preliminary preparation for Graduate Actor’s Showcase. The showcase gives the graduating MFA actor the opportunity to demonstrate his/her skills for an audience of professional agents, casting directors, producers, and directors.

THET 751. Showcase Development. 2 Hr. PR: THET 624. Using of skills learned in monologue and scene work, students will develop a performance of selected works, develop a mailing list of professional agents, and perform two showcases.

THET 771. Contemporary Theatre Organizations. 3 Hr. PR: THET 610. This course studies the philosophical and organizational structure of modern and contemporary theatres (1898-present). The class will function as a graduate seminar.

THET 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of theatre. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

THET 791 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation in advanced topics not covered in regularly scheduled courses. Study may be independent or through specially scheduled lectures.

THET 792. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

THET 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

THET 794 A-Z. Seminar. 3-9 Hr. (May be repeated for max. 9 hr. credit.) PR: Consent. Selected fields of study in theatre.

THET 795. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

THET 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

THET 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

THET 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their students’ reports, thesis, or dissertations. (Grading may be S/U.)
THET 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department, graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

THET 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). The continuing education courses are graded on a satisfactory/unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

THET 930. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). These tuition waived continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Veterinary Science (VETS)
VETS 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

VETS 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

Visual Journalism (VISJ)
VISJ 531. Multimedia Reporting. 3 Hr. PR: JRL 220 or consent. Reporting/production for online media. Ethics and role of visual journalist. Software basics and use of audio, video and still photography in online reporting.

VISJ 540. Visual Storytelling. 3 Hr. Development of advanced analytical skills in digital photojournalism, photo editing and cross-media design. Graduate students connect the theoretical and technical realms of the visual story to appreciate its broader scope.

Wildlife and Fisheries Management (WMAN)
WMAN 512. Advanced Wildlife Population Ecology. 3 hr. PR: WMAN 313 or equivalent, or Consent. Case history approach to wildlife population ecology with emphasis on ungulates, gallinaceous birds, large predators; forest invertebrates and their vertebrate predators; endangered species; genetics and conservation of wildlife populations. Emphasis on current and historical literature. (3 hr. lec.)

WMAN 534. Ecology and Management of Upland Wildlife. 4 Hr. PR: Consent. Ecology and management of upland game birds and mammals with emphasis on recent literature. (Offered in fall of even years.)


WMAN 547. Applied Wetlands Ecology and Management. 3 Hr. The management and ecology of wetland vegetation, soils, hydrology, and wildlife. (Cross listed as CE 547 and PLSC 547.)
WMAN 550. Fish Ecology. 3 Hr. PR: WMAN 445. Study of the interrelations between fish and the biotic and abiotic environment and the influence of these interactions upon fisheries. Includes trophic dynamics, reproductive ecology, predatory-prey interactions, and anthropogenic factors.

WMAN 633. Quantitative Ecology. 3 Hr. PR: STAT 511 or equivalent, and WMAN 313 or equivalent. A survey of techniques and strategies for the quantitative analysis of complex ecological data sets.

WMAN 639. Conservation Biology. 3 Hr. Discussion of current topics in conservation biology, the applied science of maintaining earth’s biological diversity. Emphasis is on current literature with some guest lectures by topic experts.

WMAN 640. Fish Physiology. 3 Hr. This course will cover all the physiological systems in fish. Included are sensory, digestive, circulatory, nervous and endocrine, feeding, osmoregulation, movement, reproduction and development systems.

WMAN 641. Aquatic Toxicology. 3 Hr. Class will cover toxicity testing, the environmental fate of contaminants and toxicological assessment. The class will emphasize fish toxicity.

WMAN 642. Advanced Fish Management. 3 Hr. Class covers important topics in fisheries assessment and management. Primary area discussed include fish sampling, indices, and exploitation and harvest regulations.

WMAN 643. Advanced Ichthyology. 3 Hr. An in-depth study of fishes, with emphasis on ecology, morphology, systematics, and zoogeography. Identification of fishes within the Appalachian region is emphasized through lab and field study.

WMAN 644. Wildlife Data Analysis 1. 3 Hr. This course will cover data interpretations, statistical power, data techniques, use of correct data methods and alternatives and interpretation of results.

WMAN 645. Wildlife Data Analysis 2. 3 Hr. PR: WMAN 644. This course will cover statistical power and sample size, selection of proper methods, identify assumptions of methods and use of proper alternatives, and identify results.

WMAN 691. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

WMAN 692 A-Z. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

WMAN 693 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

WMAN 694 A-Z. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

WMAN 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

WMAN 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

WMAN 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

WMAN 770. Wildlife Seminar. 1 Hr. per semester; (4 hr. max.) PR: Consent. Discussion of current developments in wildlife management.
WMAN 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in the college teaching of wildlife and fisheries management. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

WMAN 791. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

WMAN 792. Directed Study. 1-6 Hr. Directed study, reading and/or research.

WMAN 793 A-Z. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

WMAN 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

WMAN 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

WMAN 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

WMAN 900. Professional Development. 1-6 Hr. Professional development courses provide skill renewal or enhancement in a professional field or content area (e.g., education, community health, geology). The continuing education courses are graded on a satisfactory or unsatisfactory grading scale and do not apply as graduate credit toward a degree program.

Womens Studies (WMST)

WMST 592. Directed Study. 1-6 Hr. Directed study, reading, and/or research.

WMST 595. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

WMST 630. Feminist Theories. 3 Hr. Explores feminist theory through works of diverse scholars, focusing on questions of essentialism, difference, sexuality, bodies, language, power, economic and ecological justice; intersections of race, class, and gender, and global social justice struggles.

WMST 790. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in college teaching of women’s studies. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

WMST 791. Advanced Topics. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.

WMST 792 A-Z. Directed Study. 1-6 Hr. PR: Consent. Directed study, reading and/or research.
WMST 793 A-Z. Special Topics. I, II, S. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.

WMST 794 A-Z. Seminar. 1-6 Hr. PR: Consent. Seminars arranged for advanced graduate students.

WMST 795. Independent Study. 1-6 Hr. PR: Consent. Faculty supervised study of topics not available through regular course offerings.

WMST 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of her/his program.

WMST 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

WMST 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U).

WMST 799. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities, and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in her/his department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by her/his program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

Wood Science (WDSC)
WDSC 540. Advanced Physical Behavior of Wood. 3 hr. PR: WDSC 340 or equivalent or consent. Physical relationships of water and wood; fluid flow through wood; thermal, electrical, and acoustical behavior of wood. Theories of wood drying and their application.

WDSC 555. Computer Applications in Forest Resource Management. 3 Hr. Computer programming/system modeling in forest resource management. Emphasis on basic programming/modeling skills and application examples in forest operations, management, and engineering.


WDSC 690. Teaching Practicum. 1-3 Hr. PR: Consent. Supervised practice in the college teaching of wood science. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.)

WDSC 691 A-Z. Advanced Topics. 1-6 Hr. PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

WDSC 692. Directed Study. 1-6 Hr. Directed study, reading and/or research.

WDSC 693. Special Topics. 1-6 Hr. A study of contemporary topics selected from recent developments in the field.
WDSC 694. Seminar. 1-6 Hr. Seminars arranged for advanced graduate students.

WDSC 695. Independent Study. 1-6 Hr. Faculty supervised study of topics not available through regular course offerings.

WDSC 696. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

WDSC 697. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

WDSC 698. Thesis. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)

WDSC 699. Graduate Colloquium. 1-6 Hr. PR: Consent. For graduate students not seeking coursework credit but who wish to meet residence requirements, use the University’s facilities and participate in its academic and cultural programs. Note: Graduate students not actively involved in coursework or research are entitled, through enrollment in his/her department’s graduate colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by his/her program, and retain all of the rights and privileges of duly enrolled students. (Grading is S/U; colloquium credit may not be counted against credit requirements for master’s programs.)

WDSC 796. Graduate Seminar. 1 Hr. PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

WDSC 797. Research. 1-15 Hr. PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.)

WDSC 798. Dissertation. 2-4 Hr. PR: Consent. Note: This is an optional course for programs that believe that this level of control and supervision is needed during the writing of their student’s reports, thesis, or dissertations. (Grading may be S/U.)