Pathologists Assistant

pa-info@hsc.wvu.edu

Cheryl Germain, MHS, PA (ASCP), Program Director
Justin Falcon, MHS, PA (ASCP), Clinical Coordinator
Jen Iacobucci, Program Specialist

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 in the same manner as physicians’ assistants. The addition of pathologists’ assistants to the pathology team can reduce cost, increase revenue, and improve workflow in the anatomic pathology lab. In practice, pathologists’ assistants (PAs) 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 for pathologists’ assistants 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 twenty-four 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 several of the program’s affiliated medical laboratories including the following:

• Ruby Memorial/West Virginia University Hospital and Medical Examiner’s Office, Morgantown, WV
• Allegheny General Hospital, Pittsburgh, PA
• UPMC Health System including Magee-Womens Hospital, UPMC Presbyterian, UPMC Shadyside and Children’s Hospital, Pittsburgh, PA
• University of Pittsburgh Health Sciences Tissue Bank at UPMC Shadyside, Pittsburgh, PA
• Thomas Memorial Hospital, Charleston, WV
• St. Francis Hospital, South Charleston, WV
• St. Clair Hospital, Upper St. Clair, PA

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).

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.

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.

1. 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.
2. Candidates’ diagnostic skills will also be lessened without the functional use of the sense of equilibrium, smell, and taste.
3. Additionally, they must have sufficient motor function to permit them to carry out the activities described in the sections that follow.
4. 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.

5. 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 disabilities in certain 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.

- **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.

- **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.

- **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.

- **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.

- **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 the following 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 healthcare 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?

---

**FACULTY**

**PROGRAM DIRECTOR AND ASSISTANT PROFESSOR**
- Cheryl Germain - M.H.S. (Quinnipiac University)

**MEDICAL DIRECTOR AND ASSISTANT PROFESSOR**
- Vernard Adams - M.D.

**CLINICAL COORDINATOR**
- Justin Falcon - M.H.S.

**CLINICAL INSTRUCTORS**
- Carie Coffindaffer - M.H.S. (West Virginia University)
- Michelle Costas - M.H.S. (Quinnipiac University)
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 prerequisite coursework in mathematics and sciences
• A GPA (cumulative and pre-requisite courses) of at least 3.0 on a 4.0 scale is preferred
• Submit two letters of recommendation (electronic submission only as part of the application process)
• Complete a shadowing experience with a certified PA in Pathology or have equivalent work experience
• Complete an interview with the Admissions Committee
• Submit an electronic admissions packet including the application form, personal statement, essential functions form, shadowing statement, and official transcripts from all colleges and universities attended (Paper admissions application forms are not accepted, except for Direct Admit candidates from the WVU MLS programs.)

REQUIREMENT

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Prep</td>
<td>Baccalaureate Degree*</td>
</tr>
<tr>
<td>Pre-requisite Courses</td>
<td>8 Hr. Biology with laboratory</td>
</tr>
<tr>
<td>Pre-requisite Courses</td>
<td>8 Hr. College Chemistry with lab</td>
</tr>
<tr>
<td>Pre-requisite Courses</td>
<td>4 Hr. CHEM 231, Organic Chemistry: Brief course or 4 Hr.</td>
</tr>
<tr>
<td>Pre-requisite Courses</td>
<td>Biochemistry with laboratory or equivalent</td>
</tr>
<tr>
<td>Pre-requisite Courses</td>
<td>4 Hr. Microbiology with laboratory</td>
</tr>
<tr>
<td>Grade Point Average</td>
<td>3.0 cumulative</td>
</tr>
<tr>
<td>Grade Point Average</td>
<td>3.0 in the pre-requisite courses</td>
</tr>
<tr>
<td>Recommendations**</td>
<td>Two letters of recommendation</td>
</tr>
<tr>
<td>Interview**</td>
<td>A personal interview with the Pathologists’ Assistant Program Admission Committee</td>
</tr>
</tbody>
</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.

Admissions Classifications

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 with an emphasis in either clinical laboratory science or histotechnology who have a cumulative GPA of 3.25 may apply to the Master of Health 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 at West Virginia University.
• Regular Decision: a student applies in the admission cycle during their senior year.

Typically, applications will be submitted in the application period which extends from January 1 to May 31 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. Applications for admission to the program are available between January 1 and May 31 for the class beginning the following January. The application fee is sixty dollars. Each applicant must arrange for transcripts to be sent directly from all undergraduate institutions attended to the Office of Admissions. When the application is complete, the file is sent to the Pathologists’ Assistant Admissions Committee. A complete admissions packet contains the following: completed application form and personal statement, official transcripts, two references**, and the essential functions form. Please note that the Office of Admissions 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). An interview will be granted to qualified applicants after a review of the application packets.
SUGGESTED PLAN OF STUDY

First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATH 610</td>
<td>1</td>
<td>PATH 603</td>
<td>6</td>
<td>PATH 801</td>
<td>11</td>
</tr>
<tr>
<td>MICB 702</td>
<td>5 PATH 625</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSIO 743</td>
<td>5 PATH 728</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PATH 620</td>
<td>2 FIS 493B</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PATH 465</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PATH 605</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATH 629</td>
<td>7 PATH 627</td>
<td>9 PATH 628</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PATH 631</td>
<td>2 PATH 630</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Total credit hours: 75

GRADUATION REQUIREMENTS

Students are required to maintain an overall GPA of at least 3.0 as a graduate student while enrolled in the pathologists’ assistant program. A minimum 3.0 GPA is required to graduate from the program.

COURSES

PATH 100. Medical Laboratory Science. 1 Hour.
Introduction to the profession of medical laboratory science and medical laboratory specialties. (Pass/Fail grading only).

PATH 101. Medical Laboratory Science 2. 1 Hour.
Continuation of PATH 100. (Pass/Fail grading only).

PATH 200. Medical Terminology. 3 Hours.
General medical terminology with emphasis on clinical and anatomic pathology terminology.

PATH 201. Basic Medical Lab Science. 1 Hour.
Basic techniques for the medical science laboratory and current issues related to the medical laboratory science profession. (Pass/Fail grading only).

PATH 300. Introduction to Pathology. 3 Hours.
A study of principles and processes of pathology from cellular to system, including etiology, pathogenesis, and clinical features of representative or commonly occurring disorders and diseases.

PATH 301. Basic Pathology. 2 Hours.
PR: Enrollment in dental hygiene or physical therapy, or consent. A study of the basic pathologic processes in man.

PATH 302. Oral Pathology. 3 Hours.
PR: PATH 301, and dental hygiene major, or consent. Application of fundamental knowledge of general pathology to pathological conditions that occur in the oral cavity.

PATH 303. Clinical Lab Applications. 2 Hours.
Lectures and laboratory experience on laboratory safety, measurement, use and maintenance of laboratory equipment, preparation, and storage of reagents and solutions, and basic laboratory techniques.

PATH 304. Histotechnology Microanatomy. 3 Hours.
Microscopic identification of the morphology of human cells, tissues and organ systems with relationship to structure and function.

PATH 305. Staining Techniques 1. 4 Hours.
A lecture and laboratory course focusing on the theory and methodology of routine and special staining and the basic principles, components and use of instruments in the histopathology laboratory.

PATH 306. Histotechnique 1. 3 Hours.
A lecture and laboratory course focusing on the principles and theories of routine histologic techniques and the basic principles, components and use of instruments in the histopathology laboratory.

PATH 310. Clinical Laboratory Mycology. 1 Hour.
How to isolate and identify the more commonly encountered pathogenic fungi as well as those fungi frequently seen as laboratory contaminants. The course will include basic taxonomy, isolation procedures, and identifying characteristics.
PATH 320. Basic Clinical Biochemistry. 3 Hours.
Introduction to basic biochemistry and human metabolism of amino acids, proteins, enzymes, carbohydrates, liquids, and nucleotides. Molecular biology and applications to the clinical laboratory are included.

PATH 323. Medical Microbiology Lab. 2 Hours.
PR: MICB 200. (For medical laboratory science students; other students with consent.) Emphasis is on clinical laboratory techniques and laboratory identification of pathogenic microorganisms.

PATH 329. Clinical Chemistry 1. 2 Hours.
Lectures in clinical chemistry analysis, clinical significance, clinical instrumentation, and implications of diagnosis.

PATH 340. Introduction to Hematology. 3 Hours.
Lectures and laboratory sessions to cover structure, morphology, and function of the cells of the blood, bone marrow and body fluids, with an overview of hemato logic abnormalities.

PATH 380. Introduction to Immunology. 1 Hour.
Lectures in basic immunology, with emphasis on its structure and function. Antigens, antibodies, and complement will be discussed and related to immune disorders and simple immunological tests.

PATH 381. Research/Educational Methodology. 2 Hours.
Lectures in ethics, techniques of research, and techniques of educational methodology for medical laboratory science students.

PATH 401. Phlebotomy. 1 Hour.
PR: PATH 303. Clinical laboratory practice, including venipuncture, finger sticks, and heel sticks; isolation, universal precautions and other safety techniques are included.

PATH 403. Community Service Practicum. 1 Hour.
PR: Senior year in medical laboratory science. Students will participate in approved community service activities. (Grading will be pass /fail.)

PATH 405. Staining Techniques 2. 4 Hours.
PR: PATH 305. A lecture and laboratory course focusing on the theory and methodology of immunohistochemistry.

PATH 406. Histotechnique 2. 3 Hours.
PR: PATH 306. A lecture and laboratory course focusing on the principles and theories of routine and advanced histologic techniques and the basic principles, components and use of instruments in the histopathology laboratory.

PATH 407. Histology Laboratory. 8 Hours.
This course consists of rotations in clinical and research histopathology. (Grading will be Pass/Fail).

PATH 408. Histotechnologist Practicum. 10 Hours.
Students will utilize their knowledge in routine and advanced histological techniques in a clinical setting.

PATH 420. Immunology and Blood Banking. 3 Hours.
Lectures on immunohematology and blood banking theory and practice.

PATH 421. Immunohematolgy/Blood Bank Lab. 3 Hours.
Clinical laboratory practice in blood banking procedures. Emphasis on procedures required for collection and preparation of blood and blood components for transfusion, special techniques, antibody studies, and problem solving.

PATH 430. Clinical Chemistry 2. 3 Hours.
PR: MTEC 329 or PATH 329. Continuation of PATH 329, includes laboratory practice in methods of measurement.

PATH 431. Clinical Chemistry Laboratory. 3 Hours.
PR: PATH 329 and PATH 420. Application of clinical chemistry principles to laboratory medicine, to include routine and specialized procedures, specimen and result evaluation, and problem solving.

PATH 440. Clinical Hematology. 3 Hours.
Lectures in hematologic theory and practice, including coagulation and body fluids laboratory.

PATH 441. Clinical Hematology Laboratory. 3 Hours.
Application of hematological principles to laboratory medicine, including coagulation, urinalysis, and body fluids. Emphasis on routine and specialized procedures, evaluations, and problem solving.

PATH 450. Clinical Microbiology. 3 Hours.
Presentation and discussion of methodologies employed in the processing of clinical microbiology specimens, isolation, and identification of clinically significant microorganisms, and determination of antimicrobial susceptibilities with laboratory.

PATH 451. Clinical Microbiology Lab. 3 Hours.
Practice in the clinical microbiology laboratory to include isolation and identification of microorganisms, processing of specimens and antibiograms.

PATH 465. Medical Laboratory Management. 2 Hours.
Laboratory organization and principles of laboratory management.

PATH 470. Clinical Microscopy. 1 Hour.
The analysis of body fluids (urine, fluids, etc.) for abnormalities.
PATH 472. Urinalysis and Body Fluids Lab. 1 Hour.
PR OR CONC: PATH 470 or Consent. Clinical Laboratory principles and procedures used in analysis of urine and body fluids.

PATH 475. Medical Relevance - Capstone. 3 Hours.
Case studies of pathologic entities encountered in the medical laboratory and a review of medical laboratory science. Student will complete and give an oral presentation of the Capstone experience and pass a comprehensive examination.

PATH 480. Clinical Immunology. 2 Hours.
PR: Open only to MLS majors. Lectures in principles of immunological and serological procedures, immunological diseases, and significance of laboratory methods for diagnosis.

PATH 481. Clinical Immunology Laboratory. 1 Hour.
Clinical laboratory practice in immunological procedures. Emphasis on basic serological techniques, protein analysis, molecular methods, and tissue typing.

PATH 490. Teaching Practicum. 1-3 Hours.
PR: Consent. Teaching practice as a tutor or assistant.

PATH 491. Professional Field Experience. 1-18 Hours.
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.

PATH 493A-Z. Special Topics. 1-6 Hours.
PR: Consent. Investigation of topics not covered in regularly scheduled courses.

PATH 494A-Z. Seminar. 1-3 Hours.
PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

PATH 495. Independent Study. 1-6 Hours.
Faculty supervised study of topics not available through regular course offerings.

PATH 496. Senior Thesis. 1 Hour.
PR: Consent.

PATH 498A-Z. Honors. 1-3 Hours.
PR: Students in the Honors Program and consent by the honors director. Independent reading, study, or research.

PATH 520. Seminars-Molecular Diagnostics. 1 Hour.
This course provides an overview of molecular diagnostic theory and procedures.

PATH 601. Special Studies:Oral Pathology. 1-3 Hours.
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 & Anatomy. 6 Hours.
This course will cover gross and microscopic human anatomy including embryology, histology and microanatomy lab.

PATH 605. Advanced Microanatomy. 2 Hours.
Microanatomy of disease states including clinical correlations for students in the pathologists assistant program.

PATH 610. Pathology Assistant Educ Mthds. 1 Hour.
Techniques in educational methodology for pathologist’s assistants.

PATH 620. Clinical Pathology Seminar. 2 Hours.
This course presents a review of clinical pathology, including pertinent forensic molecular, toxicologic and radiologic diagnostics.

PATH 625. Anatomical Pathology Techniques. 4 Hours.
This course will cover standard techniques in surgical and autopsy dissection, preparation of reports, basic forensic, investigation techniques, and basic histological and immunological staining techniques.

PATH 627. Pathology Assistant Practicum 1. 9 Hours.
Rotations in surgical and autopsy pathology to include forensics and pediatrics.

PATH 628. Pathology Assistant Practicum 2. 9 Hours.
Rotations in surgical and autopsy pathology to include forensics and pediatrics.

PATH 629. Pathologist Assistant Practcm 3. 7 Hours.
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 Hours.
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 Hours.
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 693A-Z. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

PATH 728. General Pathology. 5 Hours.
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 Hours.

PATH 753. Oral Pathology 2. 2 Hours.
PR: PATH 738 or consent. Continuation of PATH 738.

PATH 755. Clinico-Pathologic Correlation Conf. 1 Hour.
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. Oral Histopathology. 1,2 Hour.
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 Hours.
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 P/F.).

PATH 791A-Z. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PATH 792A-Z. Directed Study. 1-6 Hours.
Directed study, reading, and/or research.

PATH 793A-Z. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

PATH 794A-Z. Seminar. 1-6 Hours.
Special seminars arranged for advanced graduate students.

PATH 795. Independent Study. 1-9 Hours.
Faculty supervised study of topics not available through regular course offerings.

PATH 796. Graduate Seminar. 1 Hour.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

PATH 797. Research. 1-15 Hours.
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. 1-6 Hours.
PR: Consent. This is an optional course for programs that wish to provide formal supervision during the writing of student reports (698), or dissertations (798). Grading is normal.

PATH 799. Graduate Colloquium. 1-6 Hours.
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 P/F; 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.

PATH 801. Mechanisms of Human Disease. 11 Hours.
Integrated study of disease using structure-function relationships. This course includes the structural, biochemical, and functional changes in cells, tissues, and organs that underlie disease.