Health Services and Outcomes Research

Degree Offered

• Doctor of Philosophy (Major Code 8980)

What is Health Services and Outcomes Research?

The Health Services and Outcomes Research program emphasizes population-based, health services delivery and outcomes, and policy research.

Health services research examines how people get access to health care, how much care costs, and what happens to patients as a result of this care. The main goals of health services research are to identify the most effective ways to organize, manage, finance, and deliver high quality care; reduce medical errors; and improve patient safety. (AHRQ, 2002)

Outcomes research refers to the scientific design, data collection, and analysis of the end results of medical care. It focuses on quality, cost-effectiveness and the effect of treatment on quality of life in patients. Outcomes research evaluates the effectiveness of health interventions through changes in outcomes such as improvements in patient functional status, satisfaction with care, and mortality. Apart from traditional experimental and quasi-experimental designs, outcomes research methodology embraces epidemiological research designs (such as retrospective or prospective, longitudinal or cross-sectional, case-control or cohort study designs), or econometric modeling (such as decision-tree analysis, cost-benefit analysis, cost-effectiveness analysis), and survey research methods (such as quality of life measurements, satisfaction with care).

Why study Health Services and Outcomes Research?

With health care costs increasing five folds in the last two decades, there has been increasingly greater accountability demanded of health care systems and providers. There has been growing recognition that resources are limited, and health care interventions have to be cost-effective, and not just efficacious in clinical trials. Three particular factors have contributed to growing interest in determining effectiveness of health care interventions: (1) unexplained differences in quality of care or effectiveness by region, population, and type of systems; (2) the desire to control rising health care costs and spread the availability of services to those who do not currently have access; and (3) concern that cost-containment strategies and improving quality of health care are two competing goals.

These factors also led to the passage of the Patient Protection and Affordable Care Act in March 2010. The Affordable Care Act’s main focus is on providing more Americans with access to affordable health insurance, improving the quality of health care and health insurance, regulating the health insurance industry, and reducing health care spending in the US. The shift from fee-for-service to fee-for-value necessitates that healthcare providers and institutions optimize their operations and align costs with clinical outcomes.

How is Outcomes Research Used?

Data collected from outcomes research provide patients, physicians, and providers information about what does and does not work in real life settings. It provides other measures of effectiveness such as what treatment provides the best return on investment, and from a patient perspective, what is the most preferred or satisfying treatment option. Overall, outcomes research will lead to better use of limited resources, informed decision-making by patients, providers, and payers, development of guidelines for better disease management - especially for chronic diseases, and better health policy decisions.

What are the goals of the graduate program in Health Services and Outcomes Research?

The focus of Health Services and Outcomes Research is to prepare highly qualified graduate students for careers in academia, industry, government, and institutional settings through training in health outcomes and policy research. Areas of specialization include: pharmacoeconomics, health services research, pharmacoepidemiology, health behavior and risk.

What are the job opportunities for graduates of the program?

Job opportunities for those with PhD’s in this field are excellent and will continue to be so in the near future. Our students are trained to take jobs in Universities, the pharmaceutical industry, government agencies, clinical research organizations, and the managed care industry. Please visit our Alumni – Where are They Now? (http://pharmacy.hsc.wvu.edu/department-of-pharmaceutical-systems-and-policy/phd-program-in-health-services-and-outcomes-research/new-applicants/alumni-where-are-they-now) page to see where recent graduates of our program are employed.

Frequently Asked Questions

Does this program offer a Master's degree?

This program does not at this time have a terminal Master's degree. Students are only admitted into the PhD Program. Students with a Bachelor or Doctor of Pharmacy degree who are admitted to the program are required to complete a MS on the way to a PhD. Students with a non-thesis Master's degree (e.g. M.P.H.) are required to complete a research project and publish a manuscript by the end of the first year of their PhD studies. Students who already have a research (with thesis) Master's degree are admitted with no such stipulations. All students have to complete the PhD graduation
What role does TOEFL play in the admission process?

TOEFL (Test of English as a Foreign Language) is an important component in the admission process, especially for international students. It evaluates a student's proficiency in English, which is essential for academic success in an English-speaking environment.

GRE and GMAT scores are considered alongside TOEFL scores, with quantitative and analytical scores given more weight than verbal scores. Faculty participating in application reviews typically look for overall educational achievements, competitive GRE scores, extracurricular and leadership activities, and demonstrated interest in research in the chosen area of study.

How long does it take to finish a PhD degree in this field?

Typically, a student starting without a research Master's degree could take anywhere from 4 to 5 years to complete all of the degree requirements. Students who already have a research Master's degree take less time, about 3 to 4 years.

Is financial assistance available?

A limited number of teaching and research assistantships (with a stipend of $25,000 a year) and fellowships are available within the department. These include an annual stipend and full tuition waiver with the student required to perform 20 hours/week of assistantship duties. Students with assistantships have to pay approximately $625/semester towards the use of the recreation center, the public rapid transport system (PRT), and other such conveniences. The assistantships are available to students throughout the duration of their studies (typically 3 or 4 years) as long as they are performing well in their duties, and making satisfactory progress toward their degree objective. The stipends are sufficient for graduate students to live comfortably and devote sufficient time to their educational program and research training. These assistantships are awarded on a competitive basis each year with the highest ranked applicants given the first offer of available assistantships. Some qualified students may be also offered admission without an assistantship. These students are provided guidance to seeking other campus employment opportunities subject to Immigration and Naturalization Services’ regulations in case of foreign students.

Is BS in Pharmacy or Pharm.D. degree (or a pharmacy background) required for admission?

No. Generally, a professional degree in pharmacy, medicine, or a health-related discipline is preferred. Students with Masters Degrees in related fields such as epidemiology, economics, and public health are also encouraged to apply. Students with Master’s degree in marketing management, economics, psychology, or sociology with a demonstrated interest or experience in health care may also apply.

What is the entry date into the program?

Because of the sequence of core courses, students are admitted only in the Fall semester only, which typically begins in the middle or last week of August every year. In very rare instances, a student may be admitted in the Spring semester if they already have a research Master’s degree, and if the PSP faculty agree that the circumstances of his/her admission warrant special consideration.

What is the application deadline?

All application materials, transcripts, test scores, three letters of recommendation, curriculum vitae of educational qualifications and training and job experiences, and statement of purpose must be submitted to WVU Graduate Admissions (https://app.applyyourself.com/AYApplicantLogin/ fl_ApplicantConnectLogin.asp?id=wvugrad) by February 1st of the year for consideration of admission in the Fall semester of that year. It is best to start the admission process by September of the year before the Fall semester that you want to be considered to give yourself sufficient time to complete the process and not be affected by unexpected delays. Reviews are completed by the middle or end of March, and applicants are notified of acceptance or rejection with a signed acceptance from those offered an admission required no later than April 15.

How many applications do you receive each year?

The number of applications we receive vary from year to year but has shown a dramatic increase in the last few years. In recent years the numbers have ranged from 25 to 40.

How many students are accepted each year?

The number of students accepted each year vary depending on the number of students who have graduated in the preceding year. Typically, 3-4 students have been admitted per year in the recent past. A total number of 13-16 students are maintained in the program to enable close mentoring and training relationships with faculty advisors.

How is an application to the graduate program evaluated?

An application to the graduate program along with all supporting materials is reviewed by all members of the department graduate faculty. Each application is holistically reviewed first in terms of meeting the minimum academic (a ‘B’ average or a 3.0 GPA on 4.0 scale) and TOEFL (550 on the paper-based exam and 213 on the computer-based exam) criteria. Applications not meeting these criteria are immediately rejected. The subsequent reviews take place in a committee meeting in which all applications are discussed and ranked through a consensus process. While individual faculty may weigh each criteria slightly different, sustained academic excellence, good to outstanding GRE scores, past work or research experience in areas of interest, well written statement of purpose, leadership and extracurricular activities are all considered important and considered in a holistic way. Telephone or personal interview are typically required by the graduate faculty. Students ranked according to merit are offered admission with an assistantship in the order of listing until no more assistantships are available. A few additional students may be offered admission without an assistantship. A verbal offer by telephone is made to students who are offered admission with assistantships, and upon verbal acceptance of the offer, are sent formal letters of acceptance.

How are grades, GRE/GMAT scores considered in the overall admissions evaluation?

While sustained academic excellence is considered to be among the best predictors of academic performance, GRE scores are also important to compare students from different domestic and international education systems. For students from English speaking parts of the world, quantitative and analytical scores are given more weight than the verbal scores. Faculty participating in application reviews typically look for overall educational achievements, competitive GRE scores, extracurricular and leadership activities, and demonstrated interest in research in the chosen area of study.

What role does TOEFL play in the admission process?
Since all of the education process and research training is in English, students from non-English speaking parts of the world are required to provide TOEFL scores by the University with a score of 500 on the paper-based exam, 173 on the computer-based exam, 61 for TOEFL internet-based, and 60 for IELTS considered to be minimum University requirement. Once admitted, and if awarded a Teaching Assistantship, students are also required to pass a test of spoken English before they are allowed to teach in classes or labs.

Can TOEFL be waived?
Students who have received a high school, bachelor's or Master's degree in the United States need not submit TOEFL scores. Please contact the Office of International Students and Scholars (http://oiss.wvu.edu/students) to request a waiver.

What are acceptable GRE (or GMAT) scores?
Scores on the GRE (or GMAT) are reported in terms of percentiles. So, for example, if a student scores at the 65th percentile, this means that he or she scored at or better than 65 percent of the students who took that test. We obviously want the best students who apply.

If my GRE (or GMAT) or TOEFL scores are not good, should I retake these exams?
These tests are standardized tests, and typically, student scores do not change much on retaking of these exams. Make sure that you are familiar with the format of these tests and the time constraints for their completion. Practice books are available to familiarize yourself with the exam. If you take these exams and are not satisfied with your scores, you should retake them only if you feel certain that retaking them will help you improve your test scores. If you do retake them, Educational Testing Service will report the results of all attempts within the previous three years.

Are applicants interviewed?
All applicants are interviewed either by video-chats (Skype, or Go-to Meeting) or in person in Morgantown. International students are interviewed by video-chats.

Can I transfer graduate coursework from my current institution if I have not completed a Masters degree?
Yes, on admission to the graduate program and upon forming a PhD committee with an advisor, the committee will take into consideration whatever recent graduate coursework you have completed that can contribute to your plan of study given your educational goals and program needs. WVU allows up to 18 credit hours of coursework to be transferred that are not part of a degree program. See Application for Transfer of Graduate Credit to WVU

Are there examples of Master’s thesis and PhD dissertations completed by recent graduates to get a flavor of the type of research projects that graduate students do at WVU?
Yes, please visit Recent MS thesis and PhD dissertations (http://pharmacy.hsc.wvu.edu/department-of-pharmaceutical-systems-and-policy/phd-program-in-health-services-and-outcomes-research/new-applicants/recent-theses-and-dissertations) for titles completed by recent graduates.

What is it like to study at West Virginia University (WVU) and live in Morgantown?
West Virginia University, founded in 1867, is located in Morgantown, West Virginia, is one of only 46 public universities that serve their state as research and land-grant institutions. Through 15 colleges and schools, WVU offers 193 bachelors, master’s, doctoral and professional degree programs.

WVU is a Doctoral/ Research University - Extensive as classified by the Carnegie Classification of Institutions of Higher Education -- based on the complexity and breadth of the institution's mission. As West Virginia's major research and development center and only comprehensive doctoral-granting institution, WVU faculty conducts over $150 million in sponsored contracts and grants per year.

The WVU System spans the state, including 518 buildings on 15,880 acres (main campus 430 buildings/1,456 acres). Eleven main campus buildings are on the National Register of Historic Places, and WVU operates eight experimental farms and four forests throughout the state. The University's total operating budget is approximately $900 million. WVU’s student body is comprised of over 31,524 students with 28,776 on the Morgantown campus. These students hail from all West Virginia counties, nearly all 50 states, and close to 100 foreign nations. Chartered in 1873, the WVU Alumni Association is made up of more than 190,000 graduates worldwide in some 135 nations. For more information about West Virginia University and a virtual tour of the campus, visit: http://www.wvu.edu/.

Morgantown, W.Va., population 31,073 (US Census Bureau, 2014), was rated “No. 1 Small City in America” by BizJournals.com. Business Insider named Morgantown the ninth best college town in America. Within easy traveling distance of Washington, D.C., to the east, Pittsburgh, Pa., to the north, and Cleveland and Columbus, Ohio, to the northwest. Other recent rankings: Kiplinger.com included Morgantown in their 10 great places to live list; one of “Best Sports Cities” by Sporting News; 5th “Best Small Metro” by Forbes; 12th overall “Hottest Small City” by Inc.; one of “50 Smartest Places to Live” by Kiplinger’s; and the second-ranking “Best College Town for Jobs” by Forbes. WVU has divisional campuses in Charleston, Keyser, Martinsburg and Montgomery.

Monongalia County in which Morgantown is located is a community of about 80,000 people in the Appalachian Mountains on West Virginia's northern border. While the state is rural and the community quiet, Morgantown is within easy traveling distance from Pittsburgh, which is 75 miles (115 kilometers) north, and Baltimore and Washington, both of which are 200 miles (325 kilometers) east. Two major four-lane highways, Interstate 79 and Interstate 68, pass through Morgantown. U.S. 19 and U.S. 119 also pass through Morgantown.


What if I have more questions or concerns?
If your question is not addressed anywhere in the list of frequently asked questions…

- For questions about other programs, life at WVU, and other information for prospective students please visit Graduate Education at http://graduate.wvu.edu/.
- For questions about University policies on graduate programs at West Virginia University, please visit: Undergraduate, Graduate, and Health Sciences Center Catalogs (http://coursecatalog.wvu.edu).

For application related inquiries, status of application file, confirmation of materials, scores, received, admission status, etc., please contact:

Kimberly M. Kelly, Ph.D.
Associate Professor
HSOR Admissions Coordinator
Pharmaceutical Systems & Policy
Telephone: 304-293-1453
E-mail: kmkelly@hsc.wvu.edu

For specific Health Services and Outcomes Research graduate program related inquiries, please contact:

Usha Sambamoorthi, Ph.D.
Professor
HSOR Graduate Program Director
Pharmaceutical Systems & Policy
Telephone: 304-293-1451
Email: usambamoorthi@hsc.wvu.edu

For more details about the PhD program in HSOR go to: http://pharmacy.hsc.wvu.edu/department-of-pharmaceutical-systems-and-policy/phd-program-in-health-services-and-outcomes-research/

**Admission Requirements**

Applicants considered for admission to the doctoral program must meet the following minimum requirements.

- A professional degree in Pharmacy (Pharm.D.), Medicine (M.D.), or a Master's degree in pharmacy administration. Students with a Master's degree in related fields such as epidemiology, public health, health care administration, are also encouraged to apply. Students with a Master's degree in related fields such as marketing, management, economics, psychology, or sociology with a demonstrated interest or experience in health care may also apply.
- Outstanding students with a B.S. in pharmacy or pharmaceutical sciences may be considered for direct admission into the Doctoral program
- College transcript with a minimum of a B average (3.0 on a 4.0 scale)
- GRE or GMAT scores (International applicants must also take the TOEFL examination and score at least 550 on the paper exam, 213 on the computer-based exam, or 79-80 on the internet exam) evaluating potential for graduate studies
- Supportive letters of recommendation (at least three)
- Satisfactory personal or telephone interview (whenever possible)
- Statement (one page) of personal goals describing background, academic/ research interests and career objectives
- A resume or curriculum vitae listing educational and employment history
- Application deadline is February 1st of each year

**International Applicants**

International students should also be aware of the following:

- International applicants must present the Test of English as a Foreign Language or TOEFL (minimum of 550 on the paper-based exam, 79-80 on the internet exam, or 213 on the computer-based exam) if they are from a non-English speaking country or the official language of the country is not English. Applicants are urged to arrange for one of these tests well in advance of the desired enrollment period.
- International students who have completed a M.S. degree or any degree in the U.S. may request a waiver for submitting TOEFL results. They should contact the Office of International Students and Scholars (https://oiss.wvu.edu) for approval.
- International students should not plan to leave their country without a formal notification of admission from the Office of Admissions at WVU. International students admitted without an assistantship must submit a statement of financial status in order to be registered at WVU.
- International students admitted to the program must report to the Office of International Students and Scholars upon arrival at WVU. Students are responsible for making sure that they are in compliance with immigration requirements.

**Application Process (Major Code 8980)**
Deadline: February 1

Application to the Health Services and Outcomes Research PhD program is completed electronically at https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=wvu

Please choose Major Code: 8980.

West Virginia University requires the following information for application through the WVU online application portal. Please note that all materials are submitted through the portal. Do not send materials to the School of Pharmacy unless instructed to do so by the Office of Student Services.

1. One copy of official transcripts (original or certified; minimum of a B average or a 3.0 GPA on a 4.0 scale) in a sealed envelope from each college you have attended.
2. Original or certified copies of all degrees/diplomas/certificates received in the original language.
3. Translation of an applicant’s foreign transcripts and diplomas/certificates may be sent directly to a foreign transcript service for evaluation. If using a foreign transcript service, please have the evaluated documents submitted the WVU Office of Graduate Admissions.
4. Official GRE Scores and TOEFL or IELTS scores.
5. Statement of personal goals describing your background, academic interests, and career objectives.
6. A resume or curriculum vitae listing educational and employment history.
7. Three letters of recommendation from persons who are in a position to evaluate your potential for graduate school. At least one recommendation must be from a person at the last school you attended for full-time study, unless you have been out of school for five years or longer.

Direct admission related inquiries to:
Kimberly M. Kelly, Ph.D.
Associate Professor
HSOR Admissions Coordinator
Pharmaceutical Systems & Policy
Telephone: 304-293-1453
E-mail: kmkelly@hsc.wvu.edu

Direct program related inquiries to:
Usha Sambamoorthi, Ph.D.
Professor
HSOR Graduate Program Director
Pharmaceutical Systems & Policy
Telephone: 304-293-1451
Email: usambamoorthi@hsc.wvu.edu

Students considered for admission will participate in an interview and will be notified of their candidacy in the spring prior to admission.

- See more at: http://pharmacy.hsc.wvu.edu/department-of-pharmaceutical-systems-and-policy/phd-program-in-health-services-and-outcomes-research/

Curriculum Requirements

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**Electives**

**Quantitative Emphasis**
- BIOS 610: Intermediate Biostatistics 4
- BIOS 611: Data Management and Reporting 3
- BIOS 612: Public Health Statistical Inference 1 3
- BIOS 620: Applied Linear Models HS 3
- BIOS 621: Categorical Data Analysis HS 3
- PSYC 711: Seminar in Methodology 3

**Behavioral Emphasis**
- SBHS 613: Public Health Program Evaluation 3
- SBHS 614: Community-Based Participatory Research 3
- SBHS 615: Intervention Design 3
- SBHS 761: Qualitative Research Methods 3

**Health Policy Emphasis**
- HPML 601: Foundations of Health Policy 3
- HPML 622: Analytic Methods for Health Policy, Management and Leadership 3
- HPML 624: Policy Tools for Population Health 3
- HPML 670: Policy Analysis for Population Health 1 3
- HPML 671: Population Health Policy Analysis Informatics 1 3

**Epidemiology Emphasis**
- EPID 611: Concepts and Methods of Epidemiology 3
- EPID 664: Chronic Disease Epidemiology 3
- EPID 712: Quantitative Methods in Epidemiology 3
- EPID 761: Cardiovascular Epidemiology 3
- EPID 762: Cancer Epidemiology 3
- EPID 764: Mind-body Medicine 3

**Disease Emphasis**
- CHPR 380: Women and Health 3
- SBHS 634: Issues in Women's Health 3
- EPID 767: Maternal and Child Health Epidemiology 3
- SBHS 633: Women and Violence 3

**Health Care Administration**
- PUBA 671: Healthcare Organization and Operation 3
- PUBA 672: Healthcare Finance 3
- PUBA 673: Alternative Healthcare Delivery Systems 1
- PUBA 674: Rural Healthcare 1
- PUBA 675: Organization Performance Improvement 1
- PUBA 774: Healthcare Law and Ethics 1
- PUBA 770: Managed Care 1
- PUBA 775: Healthcare Policy 1
### Suggested Plan of Study

#### First Year

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Total credit hours: 71

### Major Learning Goals

The overall goals of the PhD program in Health Services and Outcomes Research are:

1. To educate and train highly qualified individuals to pursue independent research in health services and outcomes research (HSOR) within interdisciplinary teams, and to function and contribute as a member of a research team.
2. To prepare competent scientists able to contribute to health-related research, industrial research and development, pharmaceutical education, and scholarship.
3. To advance research in pharmaceutical and healthcare delivery.
4. To provide leadership for the pharmacy profession in research, graduate education, and health policy making.

The program is designed to prepare students to become independent researchers. Students will develop competencies in the scientific research process through didactic studies and conceptualizing, designing, conducting, and reporting original research.

### Didactic Studies

1. To learn basic principles and apply these principles to specific disciplines and related fields to cultivate a broad background of knowledge.
2. To develop research skills, including scientific communication and critical thinking/problem solving abilities by participating in seminars and designated research skill courses.

### Research Training

1. To acquire practical experience in conducting original research, including acquisition of background information (e.g. literature research), problem development, experimental design and experimentation, collecting primary data and using secondary data, and data analyses.
2. To foster research communication skills by writing abstracts for research presentations, manuscripts for publication, research grant proposals, and a thesis or dissertation.
3. To gain additional insight into research and scholarship by participating in scholarly exchanges with faculty and students in the WVU School of Pharmacy, the Health Sciences Center (HSC), as well as the national and international healthcare community.