

HEALTH SERVICES AND OUTCOMES RESEARCH

Degree Types: MS, Certificate

The Master of Science in Health Services and Outcomes Research (<https://www.feinberg.northwestern.edu/sites/cehs/our-programs/health-services-outcomes-research/>) (HSOR) provides training in research methods and the substantive field of health services and outcomes research. Health services and outcomes research can play a critical role in informing the healthcare policymaking process; developing clinical practice improvements; reducing healthcare disparities; and shaping the future organization and delivery of healthcare.

The Master of Science program is designed to prepare graduates for academic faculty positions or leadership positions in research organizations in the public or private sector. After completing the program, students will possess the knowledge and skills to:

- Conduct methodologically sound health services and outcomes research,
- Create new knowledge aimed at improving health services and outcomes, and
- Pursue funding opportunities to support their research.

The program's courses follow an executive format that can accommodate the professional schedules of graduate medical trainees and medical faculty. Master's students are admitted each Summer. Students may complete the degree in either one year of full-time study or by taking courses part-time over two years.

The program emphasizes interdisciplinary and experiential-based training and allows students to tailor assignments and class work to their professional backgrounds and research interests. The curriculum focuses on the following topics:

- Biostatistics
- Quantitative methods in health services and outcomes research
- Qualitative methods and analysis
- Writing and peer review for publication
- Ethical issues in health services research
- Health economics and healthcare financing
- Grant writing

The master's degree program also includes a capstone course sequence in which the student develops and completes a culminating research project.

In addition to the MS degree, the Health Services and Outcomes Research (HSOR) program offers graduate certificates in HSOR Methodology (<https://www.feinberg.northwestern.edu/sites/hsor/curriculum/methodology-certificate.html>) and Contemporary Issues in HSOR (<https://www.feinberg.northwestern.edu/sites/hsor/curriculum/contemporary-issues-certificate.html>).

Additional resources:

- Department website (<https://www.feinberg.northwestern.edu/sites/cehs/our-programs/health-services-outcomes-research/>)
- Program handbook(s)

Degree and Certificates Offered

- Contemporary Issues in Health Services Outcomes Research Certificate (<https://catalogs.northwestern.edu/tgs/health-services-outcomes-research/contemporary-issues-health-services-outcomes-research-cert/>)
- Health Services and Outcomes Research Methodology Certificate (<https://catalogs.northwestern.edu/tgs/health-services-outcomes-research/health-services-outcomes-research-methodology-cert/>)
- Health Services and Outcomes Research MS (<https://catalogs.northwestern.edu/tgs/health-services-outcomes-research/health-services-outcomes-research-ms/>)

Learning objective(s)/Students should be able to...

- Conduct methodologically sound research
- Create and disseminate new knowledge aimed at improving health services and outcomes
- Secure grant funding to support their research

Health Services and Outcomes Research Courses

HSR 302-0 Introduction to Biostatistics (1 Unit)

This is an introductory course to general concepts and fundamentals in the practice of biostatistics as commonly used in medical research. This will form the foundation for more advanced topics to come in later courses. Through this course you will gain knowledge of the basic statistical tests and when to use them. You will also learn how to incorporate statistical analysis plans into the larger study design and research question formation.

HSR 421-0 Intermediate Biostatistics (1 Unit)

This course builds upon the material learned in Introduction to Biostatistics and Introduction to Epidemiology. Specifically, the course will focus on multivariable methods of analysis for epidemiologic and clinical studies including correlation, linear regression, logistic regression, and Cox proportional hazards regression.

HSR 425-0 Introduction to Quantitative Methods in Health Services & Outcomes Research (1 Unit)

This course introduces descriptive and analytic epidemiology and how to apply these methods to the study of health services and outcomes research. Key epidemiological concepts such as association, bias and confounding will be covered, as well as the main epidemiologic study designs. Topics include overview of research design, basic measurement of health services data, defining and measuring appropriate health outcomes, constructing research questions, conducting univariate analyses, and interpreting results.

HSR 433-0 Health Economics and Healthcare Financing (1 Unit)

This course examines selected topics in health economics that have major implications for healthcare delivery, healthcare financing and clinical and public health research. Essential economic theories and methods for exploring each topic will be discussed along with examples drawn from the existing research literature on the application of these theories and methods.

HSR 456-0 Applied Qualitative Methods and Analysis for Health Researchers (1 Unit)

This course focuses on the qualitative research methods and analytic approaches that are often used in health services research, including in-depth and semi-structured interviews, focus groups, and participant observation. This course prepares the researcher to choose appropriate

applications of qualitative methods, to conduct a variety of qualitative studies, and to interpret the meaning of events from the participant's point of view, using multiple methods.

HSR 460-0 Applied Ethical Issues in Health Services Research (0.5 Unit)

This seminar provides an overview of core ethical concepts relevant to scientists conducting health services research. Ethical research topics include: working with large data sets, obtaining Institutional Review Board approval, quality improvement vs. research projects, vulnerable populations and community-based participatory research, informed consent, conflicts of interest, patient safety, using electronic health records as a data source and research misconduct and authorship dilemmas.

HSR 461-0 Topics in Health Services Research: Methods & Measurement (0.5 Unit)

This course provides an overview of methods for conducting health services and outcomes research. It is intended to complement students' training in epidemiology and biostatistics, and help prepare students to conduct independent research. Topics include: identifying appropriate conceptual models, conducting systematic literature reviews, basic survey design and implementation, approaches to using mixed methods, and navigating popular data sets.

HSR 462-0 Topics in Health Services Research: Grant Writing (0.5 Unit)

This course will provide students with an overview of the grant writing process and practical strategies for writing successful grant proposals. The course includes online lectures, faculty-led writing workshops, guest lectures and discussions, and a mock study section in which students critically evaluate grant proposals.

HSR 465-0 Intermediate Quantitative Methods in Health Services & Outcomes Research (1 Unit)

This course provides the student with an opportunity to learn and practice more advanced epidemiologic methods in the context of health services and outcomes research. Topics include: epidemiologic research strategies and how to apply these to various research questions, review of univariate analysis (e.g., odds ratios, chi-sq tests), issues in effect estimation (precision, selection bias, misclassification bias), methods for dealing with covariates (stratified analysis, effective modification, confounding), introduction to multivariate analysis, and interpreting research findings to guide decision-making. Includes practical computer-lab sessions in Stata.

HSR 470-0 Federal Policy Making and Health Care Reform (1 Unit)

This course has three major objectives: (1) to introduce students to the policy making process and the roles of various policy actors, (2) to improve students' knowledge of current health policy issues, and (3) to prepare students to participate in the policy process.

HSR 498-0 Independent Study (0.5 Unit)

With guidance from a faculty member, the student develops a course of study that advances his or her knowledge in a particular area related to health services or outcomes research. The student must identify a faculty member who is willing to sponsor and oversee the independent study course.

HSR 499-0 Independent Study (1 Unit)

With guidance from a faculty member, the student develops a course of study that advances his or her knowledge in a particular area related to health services or outcomes research. The student must identify a faculty member who is willing to sponsor and oversee the independent study course.

HSR 500-0 Capstone Project (1 Unit)

The Capstone Project serves as a culminating experience and summative product of students' experiences in the Master's program. By completing

the Capstone Project, students will: (1) develop, conduct, and complete an original and independent health services and/or outcomes research study, and (2) report the results in a completed manuscript that is ready to submit for publication.