

# **One-Year Master of Science Program (SM1)**

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The One-Year Master of Science Program (SM1) is an academic degree program designed for individuals with doctoral degrees in medicine, dentistry, or other health-related disciplines who are pursuing research careers and want to further develop their analytic and quantitative skills. The program is appropriate for students who plan to pursue health policy research and for students interested in domestic or international research questions.

## **Program Competencies**

Through coursework and supervised independent study, students in the SM1 program will be able to:

1. Demonstrate competencies in the core public health disciplines of biostatistics and epidemiology.
2. Discuss multidisciplinary perspectives in research methodology (e.g., influences from the social, behavioral and economic sciences; environmental health; and basic epidemiology/biostatistics).
3. Apply tools of microeconomic analysis to health care and public health problems.
4. Apply the theory and methods of quality improvement in health care.
5. Apply the technical methods and applications of decision analysis and cost-effectiveness analysis to research questions in health care technology assessment, medical decision-making and public health policy.
6. Design and produce a health policy analysis or research study that results in a manuscript of publishable quality

## **Program Requirements**

Students must take a minimum of 42.5 credits for graduation (at least 30 of which must be taken for ordinal credit), and fulfill the course requirements below. Please note that students may only take a total of 12.5 pass/fail credits while working towards their degree.

### ***A. School Academic Program Core Course Requirements***

1. ID 100: Foundations for Public Health

#### **1. Biostatistics**

*Biostatistics is the collection, storage, retrieval, analysis and interpretation of health data; design and analysis of health-related surveys and experiments; and concepts and practice of statistical data analysis.*

#### **Biostatistics Core Competencies**

- Demonstrate the roles biostatistics serve in the discipline of public health.
- Interpret graphical and descriptive techniques commonly used to summarize public health data.

- Describe basic concepts of probability, random variation, and commonly used statistical probability distributions.
- Apply common statistical methods for estimation and inference and use them appropriately according to underlying assumptions and type of study design.
- Interpret the results of statistical analyses to provide evidence within the context of public health, health care, biomedical, clinical and population-based studies and research.
- Develop basic skills for utilizing statistical computing software for performing data analyses.

**Biostatistics courses that fulfill the core requirement are:**

BST 201 [Fall]	Introduction to Statistical Methods	5.0 credits
	<b><i>Or</i></b>	
BST 202/203 [Summer]	Principles of Biostatistics I and II	5.0 credits

**2. Epidemiology**

*Epidemiology is the study of distributions and determinants of disease, disabilities and death in human populations; the characteristics and dynamics of human populations; and the natural history of disease and the biologic bases of health.*

**Epidemiology Core Competencies**

- Describe the role of epidemiology as a quantitative approach to address problems in clinical medicine and public health.
- Describe and apply the basic principles and methods of epidemiology, including: disease measures, association and causation, bias, confounding and effect modification and susceptibility.
- Interpret descriptive epidemiologic results in order to develop hypotheses of possible risk factors of a disease.
- Develop a foundation for designing valid and efficient epidemiologic studies to address public health problems, including: understanding the strengths and limitations of descriptive, observational and experimental studies.
- Become a critical reader of epidemiologic literature by analyzing the appropriateness of study design, quality of data, methodological strategies, and interpretation of results.

**Epidemiology courses that fulfill this requirement:**

EPI 500 [Summer 1]	Fundamentals of Epidemiology	2.5 credits
	<b><i>Or</i></b>	
EPI 201 [Fall 1] <b>and</b> EPI 202 [Fall 2]	Introduction to Epidemiology: Methods I Epidemiologic Methods 2: Elements of Epidemiologic Research	5.0 credits
	<b><i>Or</i></b>	
EPI 208 [Summer]	Introduction to Clinical Epidemiology	5.0 credits

## ***B. Departmental Requirements***

Students also must take an additional **10 credits** in the Department of Health Policy and Management, and complete an additional **5 credits** of supervised independent study under the direction of an HPM faculty member.

The 10 HPM course credits must include courses in each of the following subject areas: ***Economic Analysis; Quality of Care; and Health Decision Sciences***. Courses that fulfill these requirements are listed below.

### ***1. Economic Analysis***

HPM 206 [Fall]	Economic Analysis	5.0 credits
HPM 545 [Spring2]	Economics of Health Care	2.5 credits
GHP 230 [Fall1]	Introduction to Economics with Applications to Health and Development	2.5 credits

### ***2. Quality of Care***

HPM 253 [Summer2]	Improvement in Quality of Health Care	2.5 credits
HPM 516 [Spring2]	Health Care Quality and Safety	2.5 credits

### ***3. Health Decision Sciences***

RDS 280 [Fall 2]	Decision Analysis for Health and Medical Practices	2.5 credits
RDS 202 [Spring]	Decision Science for Public Health	2.5 credits
RDS 282 [Spring 2]	Economic Evaluation of Health Policy and Program Management	2.5 credits
RDS 284 [Fall]	Decision Theory	5.0 credits
RDS 285 [Spring 1]	Decision Analysis Methods in Public Health and Medicine	2.5 credits
RDS 286 [Summer 1]	Decision Analysis in Clinical Research	2.5 credits
RDS 288 [Summer 2]	Methods for Decision Making in Medicine	2.5 credits

Students may request to waive required courses in areas where they can demonstrate that they have attained the relevant competencies through prior coursework.

### ***4. Tutorial/Supervised Independent Study***

HPM 300 [Fall/Spring]	Independent Study/Tutorial	5.0 credits
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## Questions and More Information

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Any questions about the One-Year Master of Science Program may be directed to:

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