

Health Research Methodology Program

Department of Clinical Epidemiology and Biostatistics

Greetings

The Health Research Methodology (HRM) program celebrates 40 years of excellence and innovation in the training of clinical epidemiologists and health systems researchers. Those of you who are newly acquainted with the HRM program can use this brochure to discover the unique opportunities for MSc and PhD graduate training available under the mentorship of world leaders in clinical and health research. Others who are familiar with us, can catch up on our growth and development and share this news with colleagues and students.

We began in 1972 as the Design, Measurement and Evaluation (DME) program in the Department of Clinical Epidemiology and Biostatistics (CE&B). In 1997, the DME Program was renamed the Health Research Methodology (HRM) Program. An innovative, interdisciplinary PhD program was established shortly after to provide opportunities for students wishing to pursue advanced graduate training beyond an MSc degree. Our faculty span the full range of clinical and health systems disciplines. Their research accomplishments are recognized globally and emphasize collaboration and interdisciplinary teamwork. Their research programs and publications are included on both the HRM and CE&B websites: fhs.mcmaster.ca/hrm; fhs.mcmaster.ca/ceb;

The year 2007 marked more important changes for the program. Fields of specialization in clinical epidemiology, biostatistics, health services research, population and public health and health technology assessment have been established to complement the original HRM classic training. At the same time, graduate expansion initiatives by the Government of Ontario have enabled us to increase the size of our program and provide more opportunities for qualified applicants to enroll in our MSc and PhD programs. Other new initiatives include e-HRM distance learning.

Read on to learn more about HRM opportunities, how to apply, scholarship opportunities and application deadlines. Contact us with your questions or comments at askhrm@mcmaster.ca. If you are an alumnus let us know your whereabouts! We look forward to hearing from you!

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How to Apply

Deadlines: Applications for MSc training are due November 1 (round 1) and February 15 (round 2). For prospective PhD students, the application deadline is February 1.

Procedures: All applications must be completed online and also submitted in hard copy. Admission criteria include quality of academic record and candidate's statement of graduate training objectives, references, availability of a faculty supervisor and suitable funding arrangements. Detailed application instructions are available at: fhs.mcmaster.ca/hrm



HRM PROGRAM

Program Objectives

The Health Research Methodology (HRM) Program provides training at the MSc and PhD level. Graduates possess advanced research methods skills that enable them to push the boundaries of knowledge relevant to improving clinical practice (including medical education research), strengthening health systems and enhancing population health.

HRM at the MSc level aims to develop and refine critical and scholarly skills in the methodologic aspects of applied clinical and health systems research. The specific skill domains include research synthesis, research design, selection and development of measurement tools, data gathering, data-analysis and interpretation, knowledge translation and communication of research results. Students may opt for the thesis-based or course-based MSc degree. Individuals from a wide range of professional backgrounds and disciplines are eligible for admission. Health care professionals who enrol in the program are expected to become independent clinician - investigators able to conduct high quality research and advance the methodology of applied research in health and health care. Students who enter the MSc program from non-clinical backgrounds may: i) continue their studies at the PhD level (in the HRM PhD program or elsewhere) with the goal of assuming positions in academia, industry or government; or ii) pursue careers as MSc trained professionals, for example, research associates in university, industry or government settings or government positions where research methodology skills are a requirement or an asset.

HRM at the PhD level aims to prepare students for independent scholarly work that results in the creation of new knowledge relevant to enhancing the health of Canadians. Graduates possess advanced methodological skills that enable them to engage in a broad range of research investigations relevant to applied clinical and/or health systems issues. Program objectives are achieved through a combination of formal course work, a comprehensive examination, close interaction and collaboration with faculty members in different research environments and independent research leading to a thesis. In their dissertation work, students undertake scholarly inquiry with particular emphasis on methodologic issues. Students are expected to either: i) develop new health research methods and/or analytic frameworks; or ii) apply existing ones to health care problems in a unique way. PhD graduates are expected to assume leadership positions in health research methodology within academia as well as in the public and private sectors, and to contribute to the solution of clinical and health system problems nationally and beyond.

Fields of Specialization

Following the 2005 successful review by the Ontario Council on Graduate Studies (OCGS), the HRM program now offers students the opportunity to specialize in one of five fields: Clinical Epidemiology, Biostatistics, Health Services Research, Population and Public Health, and Health Technology Assessment. All fields are offered at the MSc and PhD level except for Biostatistics, which is offered at the PhD level. The training goals and career foci for each field are described in the next section.



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Highlights

- **Interdisciplinary Educational Model**
We draw on faculty members from numerous departments in the faculties of Health Sciences, Science and Social Sciences (clinical epidemiology, biostatistics, health economics, health policy analysis, health services research, geography, psychology, sociology, anthropology and political science).
- **Broad and Diverse Student Body**
Eligible academic backgrounds for prospective applicants include medicine, nursing, rehabilitation sciences, social work, economics, math/stats, political science, sociology, geography, psychology, and others.
- **Research Methodology Focus**
HRM aims to promote the integration of health relevant disciplinary perspectives to create innovative evaluative strategies and frameworks.
- **Experiential Learning**
Training emphasizes active student participation and apprenticeship in interdisciplinary research teams.
- **Small Classes**
Students work with an expert faculty member using small group, problem-based learning strategies complemented by guest lectures and large group presentations.
- **Train with World-renowned Health Researchers**
Student work with faculty mentors who lead major studies based in numerous sites in Canada and around the world.

Fields of Specialization

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Clinical Epidemiology

Field Leader | PJ Devereaux
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Clinical epidemiology employs sound research principles, tempered with practicality, to find the best answers to “real world” questions about clinical practice and health care. Individuals training in this field (who usually have a clinical background) acquire the skills required to undertake research that addresses fundamental questions about the effectiveness of clinical therapies, usefulness of screening and diagnostic tools, prognosis and disease causation. Issues related to research synthesis and knowledge translation may also be a focus. Individuals training in clinical epidemiology work alongside world leading clinical epidemiologists who are conducting their research in multiple sites around the world and changing the way medicine is practiced globally. The field of clinical epidemiology in the Health Research Methodology Program offers a unique opportunity to learn and work with the best clinical epidemiologists in the world, thus enabling graduates to make profound contributions to the practice of clinical medicine through research.

Biostatistics

Field Leader | Eleanor Pullenayegum
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The HRM Biostatistics PhD field is specially designed for applicants with an MSc in Mathematics and/or Statistics who wish to pursue doctoral work in Biostatistics. The program aims to provide trainees with the skills they need to conduct independent research into biostatistical topics, provide leadership as biostatistical collaborators in clinical, health systems and population health investigations, and effectively teach biostatistics from introductory through to advanced levels. Graduates will possess the following skills: ability to apply biostatistical concepts, techniques and data-analytic strategies across the full spectrum of research questions and study designs; ability to contribute to grant proposals in the areas of research design, data analysis and interpretation; ability to teach biostatistical concepts to research colleagues who are not biostatisticians; and ability to adapt existing statistical techniques or to develop new techniques to solve research design and analytical programs. Graduates may pursue career opportunities in academia, government or private industry.

Health Services Research

Field Leader | Marko Simunovic
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Health services research focuses on questions about the most effective ways to organize, manage, finance, and deliver high quality clinical and health care, reduce medical errors and improve patient safety. The research domains utilized by health services researchers may include individuals, families, organizations, institutions, communities, and populations. Graduates acquire a broad range of skills in research synthesis, research design, data analysis and writing for publication that enable them to conduct rigorous research in numerous areas including: patterns of care/process of care, small area practice variation studies, appropriateness of care, knowledge translation, economic analysis of health care, service and system organization, patient experience, theoretical underpinnings of health services organization, management, and financing and delivery. The curriculum emphasizes mixed methods approaches that utilize skills in both quantitative and qualitative research.





Population & Public Health

Field Leader | Joseph Beyene
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Canada faces many public health challenges, including emerging and existing infectious diseases and alarming increases in many chronic diseases. Research to address the determinants of these health problems is of paramount importance to maintaining a healthy population. The field of population and public health provides students with the methodological expertise needed to conduct cutting edge research, including investigations into the biological, economic, and social factors that protect, precipitate or perpetuate disability and disease, and to improve public health. Graduates will acquire the following skills: ability to critically appraise and interpret research evidence, formulate research questions, justify research and analysis methods and understand ethical issues involved in research in this field; ability to conduct research into biological, social, cultural, and environmental determinants of health; ability to conduct basic or applied research in public health aimed at improving the health of individuals, communities and populations; and ability to apply population and public health methods across a range of disease conditions.



Health Technology Assessment

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Health Technology Assessment (HTA) is defined as the evaluation of the clinical effectiveness, cost-effectiveness, and broader impact of drugs, medical technologies, and health systems, both on patient health and the health care system. HTA has gained increasing importance in health care decision making locally and around the world and over the last decade there have been numerous important methodological advances in the techniques of HTA. As a result there is a growing gap between the need for HTA and the availability of skilled researchers to conduct HTAs. The goal of the HTA field of specialization is to train individuals who, upon graduation, will have the necessary skills to be actively involved in independent and collaborative research in the field of HTA. Graduates will possess the following skills: a strong foundation in the basic principles of HTA; advanced decision analysis; ability to apply research methods derived from health economics; understand and use basic and advanced biostatistics; and utilize health services research and health policy analysis concepts and methods.



HRM Classic

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Students who don't wish to declare a field of specialization should enroll in HRM Classic. The advantage centres on the high level of flexibility HRM Classic offers, enabling students to tailor their educational plan to their own unique needs and interests. Students pursue a general methods degree, or explore other exciting emerging fields. For example, applicants interested in medical and health sciences education research can work with faculty in the Program for Educational Research and Development on research related to the evaluation of clinical competence. Alternatively, students in HRM Classic might work on medical informatics and knowledge translation research topics, investigating the use of evidence by different professional groups such as health care providers, health systems administrators and government policy-makers, and contributing to an improved understanding of the behavioural and contextual factors that determine effective knowledge uptake. Many other areas, including health ethics, can be selected as the focus of study.



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