PUBLIC HEALTH SCIENCES (EPID)

Not all courses will be offered in each academic year. Review the website of the Department of Public Health Sciences for the most current list of courses available and the term offered.

Credit units are listed in the course description.

EPID 801 Introduction to Epidemiology
This course provides foundational knowledge on how human evidence relevant to public health is created, assessed, and used, with a focus on epidemiologic methods. Topics include measures of health status; risk factors and associations with health outcomes; study design including descriptive, analytical, and intervention approaches; validity issues; critical appraisal; assessment of causation; ethics; and application of epidemiologic evidence in public health decisions. 3.0 credit units. Fall.

EPID 802 Foundations in Public Health
This course provides an overview of theoretical and conceptual foundations of public health. It examines the social determinants of health and population health approaches to promote and protect health. It instils in students an understanding of the historical achievements, core values and ethical frameworks that guide public health action. 3.0 credit units. Fall.

EPID 803 The Canadian Health System
The aim of this introductory course is to describe how health services are organized and delivered in Canada. Students who take the course will: 1) understand the inputs, delivery and outputs of the Canadian health system; 2) recognize and explain the factors that influence change in this system; and 3) consider current health policy issues in Canada. 3.0 credit units. Not offered 2024-25.

EPID 804 Intermediate Epidemiology
This course deals with advanced methods and issues in the design, conduct, analysis and interpretation of epidemiologic studies. The content focuses on observational study design and analysis and builds on epidemiologic principles presented in EPID 801. Data analysis will emphasize the application and interpretation of statistical concepts in epidemiologic research. 3.0 credit units. Winter. PREREQUISITE: EPID 801.

EPID 805 Leading Evidence Informed Action
This course applies health promotion theories to the analysis and development of evidence based public health actions. Approaches to leading change are applied at the levels of individuals, organizations, community, society. Examples are drawn from programmatic and functional areas of public health practice to exemplify development of a multilevel and “health in all policies” approach to complex problems. Three term- hours. Fall.

EPID 806 Applied Research Methods for Program Planning and Evaluation
This course provides an overview of social research methods and tools to assist students to complete the "evidence to action" program planning and evaluation cycle. Topics covered include defining the issue, using surveillance data, engaging the community, conducting a stakeholder analysis, survey methods, handling qualitative data, building logic models, choosing indicators, communicating the results, taking action. 3.0 credit units. Winter.

EPID 807 Economic Evaluation of Healthcare Programs
This course is designed to allow students to become familiar with different types of economic evaluations in healthcare and when to employ particular types of economic evaluation. Topics covered will include; cost-effectiveness, cost-utility, cost-benefit, budget impact analyses, and policy decision-making. No prior economics background is required. 3.0 credit units. Not offered 2024-25.

EPID 810 Controlled Clinical Trials
This course will cover material relevant to the design and conduct of controlled clinical trials. Design topics will include methods used to achieve unbiased results with improved precision, such as adequate sample size, randomization, blinding, pre- and post-stratification, cross-over designs, placebos and the counting of relevant events. Attention will be given to the problems of conducting multi-centre clinical trials. Topics covered will include drafting of protocols, design of data forms, logistics of data flow, methods of follow-up, data management and quality control, periodic reporting, final data analysis and the production of final reports. Ethical issues and the role of randomized trials in clinical investigation will be discussed. 3.0 credit units. Fall.

EPID 815 Independent Study
Open to research students only.

EPID 817 Foundations of Cancer Control
This course is intended for graduate students, clinical fellows and postdoctoral fellows who are engaged or interested in cancer research. The course will focus on concepts and methodological issues central to the conduct of epidemiologic studies of cancer etiology and control. Topics will include: an introduction to basic epidemiologic concepts; biologic and clinical concepts central to the investigation of cancer; study design; clinical epidemiology; molecular

epidemiology; and cancer control and prevention. 3.0 credit units. Not offered 2024-25.

EPID 819 Introduction to Clinical Epidemiology
This course will demonstrate the way in which epidemiological principles guide the practice of medicine and the design of clinical research. Topics include how to select and apply the correct design for a study addressing a clinical question, how to evaluate the quality of clinical publications and research proposals, how to prepare a clinical research proposal and how to synthesize clinical evidence. 3.0 credit units. Not offered 2024-25.
PREREQUISITES: EPID 801 and EPID 821 or permission of instructor

EPID 821 Essentials of Biostatistics
This course provides an overview of basic statistical concepts, principles, and techniques essential for public health and epidemiologic research. This course covers both descriptive and inferential statistics. Topics covered include measures of association, t-tests, regression, chi-square tests, analysis of variance, and some nonparametric methods. Emphasis is on understanding and interpreting fundamental statistical analyses from health research. 3.0 credit units. Fall.

EPID 822 Applied Regression Analysis
This course deals with the commonly used regression methods proven useful in health services research and the epidemiologic analysis of the relationship between traits, exposures or treatments, and diseases or other medical outcomes. The course emphasizes the statistical modeling approach with topics including multiple regression, analysis of variance and covariance, reliability of measurements, analysis of categorical data, logistic regression, Poisson regression and survival analysis. This course includes a compulsory SAS Programming component. 3.0 credit units. Not offered 2024-25.
PREREQUISITE: EPID 821 (or permission of instructor for Biostatistics students).

EPID 823 Advanced Methods in Biostatistics
An advanced course in the theoretical issues and analytical practices in epidemiology, and biostatistics. Topics may vary but major topics include analysis of longitudinal and survival data using various regression models; Techniques and strategies for regression modeling; Novel analytic approaches in epidemiology; multivariate analysis methods including discriminant analysis, principal components and factor analysis. 3.0 credit units. Winter.
PREREQUISITE: EPID 821 + knowledge of basic statistical modeling techniques deemed adequate by the Instructors.

EPID 824 Applied Statistical Learning for Health Data
This course is for students who are interested in learning about applied statistical learning methods and obtaining practical experience in the application of these method to real-world data. This course does not intend to discuss in-depth theoretical and mathematical materials. 3.0 credit units. Fall.
PREREQUISITE: EPID 821, EPID 822, EPID 825 and EPID 826 or equivalent with permission of the instructors.

EPID 825 Linear Regression
In this module, students will be introduced to statistical methods for general linear regressions. Description and inference for continuous data will be discussed. Topics include analysis of variance, correlation, linear regression, interaction, variable selection, analysis of covariance and mixed effects models. Using SAS to implement these methods and case studies will be discussed. SAS lab tutorials (optional to students) will be offered along with this module. 1.5 credit units. Winter.
PREREQUISITE: EPID 821 and pass EPID 821 SAS quiz. (NOTE: SAS quiz waived for M.Sc. Biostatistics students.)
EXCLUSION: EPID 822

EPID 826 Poisson Regression and Survival Analysis
In this module, students will be introduced to statistical methods for the count and time-to-event data. Topics covered in this module include person-years, incidence rates, Poisson model, types of censoring, life table analysis, Kaplan-Meier estimator, log-rank test, Cox regression analysis and competing risks. Using SAS to implement these methods and case studies will be discussed. 1.5 credit units. Winter.
PREREQUISITE: EPID 821 and pass EPID 821 SAS quiz. (NOTE: SAS quiz waived for M.Sc. Biostatistics students.)
Exclusion: EPID 822

EPID 828 Infectious Disease Epidemiology
This course provides a foundation in infectious disease epidemiology. Principles and methods related to infectious disease biology, outbreak detection and investigation, and the methodological, analytical, and diagnostic tools are covered. Specific infectious diseases that pose contemporary challenges in public health and/or have national or global public health impact are discussed. 3.0 credit units. Winter.
PREREQUISITE: EPID 801 or permission of the instructor.

EPID 829 Foundations of Global Health
Students will be exposed to various global health concepts and be trained to work through potential solutions in a public health context. The course will be taught through formal lecture, seminar and small group learning, and online modules. Topics may include health, public health, and development; Indigenous health; health systems and policies;

Canada's role in global health and social justice; and special populations. 3.0 credit units. Fall.

EPID 831 Chronic Disease Epidemiology
This course will provide an overview of the epidemiology of some of the leading non-infectious causes of morbidity and mortality in Canada and will highlight the key methodological considerations for the study of each disease or health problem. 3.0 credit units. Not offered 2024-25.
PREREQUISITES: EPID 801 & EPID 821 or equivalents with permission of course instructor.

EPID 832 Mental Health/Critical Inquiry
This course will provide students with in-depth substantive knowledge about the evolution of health issues that have shaped policy and mental health services. 3.0 credit units. Winter.
PREREQUISITES: EPID 801 or permission of course instructor

EPID 835 Environmental Public Health
This course provides students with a foundation for understanding, assessing and mediating environmental exposures. Methods for assessing and communicating about exposures, risks and standards in air, water, soil and food are introduced. Case studies of managing hazardous exposures are reviewed. Environmental health policy implications of global climate, energy use and disaster planning are explored. 3.0 credit units. Not offered 2024-25.
PREREQUISITE: EPID 801, EPID 821 or equivalent, or permission of instructor.

EPID 836 Qualitative Health Research Methods
This course provides foundational instruction in qualitative research methodology for students in the public health sciences, including theoretical basis, study design, research ethics, sampling and recruitment, data collection, data analysis, and disseminating research findings. Topical areas may include ethnography, grounded theory, phenomenology, participatory research, and other areas. 3.0 credit units. Winter.

EPID 837 Health Services Research
This course introduces health services research methods as they are applied to routinely collected health data. It covers methodologic approaches for assessing healthcare effectiveness, quality, and access. The course also provides an introduction to the Ontario ICES data holdings and the conduct of health services research using those data. 3.0 credit units. Fall.

EPID 838 Public Health Special Topics
This is an advanced course in epidemiology, biostatistics, and other public health sciences focusing on topics drawn from the instructor's area of expertise. May be offered by current faculty or visiting scholars. 3.0 credit units. Not offered 2024-25.
PREREQUISITE: EPID 801 or permission of the instructor.

EPID 839 Systematic Reviews in Health
This course provides students with background knowledge, methodological skills, and guidance through all steps involved in conducting systematic reviews and meta-analyses, with a focus on interventional research. Topics include developing a research question, literature searching, managing references, selecting studies for inclusion in the review, risk of bias assessment, data extraction, synthesizing evidence, heterogeneity, and interpretation and grading of the evidence. 3.0 credit units. Winter.
PREREQUISITE: EPID 801 and EPID 821.

EPID 851 Medically Relevant Microbiology in Infection Prevention and Control
This course provides foundational and applied information to support learners' development of infection prevention and control (IPAC) practices within various healthcare and public health settings. Students will gain an understanding of the basics of medical microbiology and how they relate to core competencies for IPAC. 3.0 credit units. Winter.

EPID 852 Fundamentals of Infection Prevention and Control and Environments of Care
This course provides foundational and applied information to support learners' development of infection prevention and control (IPAC) practices within various healthcare and public health settings. Students will gain an understanding of the core competencies for IPAC. Diverse principles and practices associated with routine practices, additional precautions, program evaluation, surveillance and outbreak management, occupational health, emergency management, disinfection concepts, preprocessing, construction/renovation and principles of adult learning will be explored as the foundational concepts of an IPAC program. Students will be able to apply these IPAC skills and concepts to a broad environment of care and its overall impact on public health. 3.0 credit units. Fall.

EPID 853 Healthcare Quality, Safety and Risk
This course provides foundational and applied information and activities to support learners' development of quality, risk and safety principles and practices within Public Health settings. Learners will gain an understanding of the integration of improvement science within the public health setting with a particular focus on the area of infection prevention and control (IPAC). Principles and practices associated with policy, change management, leadership, communication, collaboration, and safety culture will be examined to explore ways to provide optimal health

outcomes for individuals and communities while adhering to the principals of IPAC. 3.0 credit units. Summer (on-line).

EPID 861 Health Systems in Canada
Systems involved in health care delivery are dynamic. This course introduces students to the elements of the WHO Health System Building Blocks framework through detailed examination of health systems within Canada, with emphasis on the interrelatedness and complexity of the elements. 1.5 credit units. Winter.
EXCLUSION: EPID 803

EPID 862 Health and Public Policy in Canada
This course introduces students to the social, economic, and political forces that shape health policy; the institutions that are responsible for policy design and implementation; and the areas for influence within the policy development cycle. By the end of the course, students will have experience using policy analysis tools and developing policy briefs with the intention of influencing the political process. 1.5 credit units. Winter
PREREQUISITE: EPID 861 or permission of the instructor.
EXCLUSIONS: EPID 803; MPA 836

EPID 868 Behavioural Epidemiology
Behavioral epidemiology is a branch of research that studies the distribution and etiology of health-related behaviors in populations. Unhealthy behaviours contribute to numerous physical, mental, and social health outcomes. In this module, students will gain an in-depth understanding of the behavioural epidemiology framework. This framework outlines a general sequence of research studies about any health-related behaviour that leads to evidence-based public health interventions. 1.5 credit units. Not offered 2024-25.
PREREQUISITE: EPID 801 or equivalent with permission of the instructor.

EPID 869 Cancer Epidemiology
The course will focus on concepts and methodological issues central to the conduct of epidemiologic studies of cancer etiology and control. This course is intended for graduate students, clinical fellows and postdoctoral fellows who are engaged or interested in cancer research. (1.5 credit units). Fall.
PREREQUISITES: EPID 301 (Introduction to Epidemiology) and EPID 401 (Biostatistical Data Analysis) or equivalent, or permission of instructor
EXCLUSION: EPID 817 (Foundations in Cancer Control)

EPID 886 Public Health Professional Development
This course assists students to lay the foundation for continuing professional development in public health practice. Students are introduced to the personal learning portfolio and coached to chart their progress in developing skills and competencies through a combination of workshops, seminars, and online learning modules. 1.5 term hours per term. Fall and Winter terms.

EPID 887 Practicum Placement
The 400 – hour practicum placement provides MPH students with an opportunity to work in the public health field and contribute to evidence-informed public health practice. Through the practicum students demonstrate and enhance the knowledge, skills and attitudes they have learned from course work as well as reflect on and advance their career development. Placement activities and roles will vary according to the needs and interests of both host organization and the student. 6.0 credit units. This course is graded on a PASS/FALL basis. Summer term.
PREREQUISITES: EPID 801, EPID 802, EPID 803, EPID 806, EPID 821, and EPID 886 (16-month students only), or approval of the Practicum Coordinator.

EPID 888 Master's Practicum
Under the guidance of the supervisor, students will carry out a practicum project in a health research group/site and practice bio statistical methods and data analysis or conduct methodology research in a bio statistical project. Students will summarize the results of the project in a written report that will be reviewed and orally defended.

EPID 899 Master's Thesis Research

EPID 901 Advanced Epidemiology
This course provides in-depth integration of advanced concepts in epidemiology, with theory and examples, including causation and causal inference, study design and conduct, alternate designs, confounding, effect modification, internal and external validity, misclassification, source populations, statistical power and sample size, epidemiologic data analysis and interpretation, meta-analysis and selected specific research areas. This is an advanced course intended primarily for Ph.D. students. Sessions consist of lectures, seminars, student presentations and discussions. 3.0 credit units.Fall.
PREREQUISITES: PREREQUISITE: EPID 801, EPID 804, EPID 821, EPID 825 and EPID 826 or equivalent from other institutions.

EPID 902 Advanced Public Health Research
This course provides a conceptual and historic view of the Public Health Sciences, as well as a look at contemporary issues in Public Health research ethics, research methodology and knowledge translation. Guided each year by student interests and advanced training needs, the course delves into specific substantive public health research areas including for example: chronic disease, environmental health, infectious disease, injury and disability, maternal and child health,

occupational health, humanitarian contexts, Indigenous health and/or health services research. This is an advanced course intended primarily for Ph.D. students. Second year MSc students may enroll with the permission of the instructor. 3.0 credit units. Fall.

EPID 999 Ph.D. Thesis Research