

**Syllabus MPH2 Minors and Majors in Social and Behavioural sciences in Public Health track (SBSPH)**

Module #	Module title	Coordinator	Contents	ECTS	Teaching Week/year
208	<b>Minor A of the Social and behavioral sciences in public health track « Evaluation of public health programs »</b>	Martine BELLANGER	<p><b>Minor A « Evaluation of public health programs »</b>                      This course is designed to introduce students to major issues related to assessment of public health strategies, interventions and their impact. The course is recommended for students who have an interest in better understanding how evaluation of public health programs may be used as a tool to set priorities when resources are scarce in both developed and developing countries. These may cover a range of cases from prevention of vector-borne diseases to the introduction of a new drug or a technology as well as influenza vaccination, or improvement of quality of life for senior practicing physical activity.                      The course will introduce students to some basic measures and sources of data used to study population-based programs or sample-based interventions. The course will also explore some economic and statistic methods that are commonly used to evaluate such strategies and programs.</p> <p><b>Learning objectives:</b> at the end of the module, the students should be able to:</p> <ol style="list-style-type: none"> <li>1. Use the basic concepts that are used to evaluate strategies and programs. We will focus mainly on valuing health, quality of life, and how to use appropriate statistical techniques to answer empirical questions.</li> <li>2. Collect use and assess data, including survey data (Demographic and Health Surveys - DHS, OECD, WHO), how to access and use them.</li> <li>3. Use and interpret basic measures, including, cost benefit ratio, Quality adjusted life year (QALY), incremental cost effectiveness ratio (ICER).</li> <li>4. Identify contemporary social and contextual issues as they are covered in the press and on the internet (e.g. vaccination, prevention). Make connections between evaluation, social consequences and policy implications.</li> <li>5. Critically analyse research application carried out in terms of ethical issues</li> </ol> <p><b>Methods</b>                      Economic, social and ethical rationale for evaluation, concepts and purposes are presented in introduction.                      Part of the class is dedicated to research design purposes:</p> <ol style="list-style-type: none"> <li>1. Defining correctly the question/problem to be studied</li> <li>2. Identifying the relevant outcome measures.</li> <li>3. Understanding the mechanisms that underlie the question</li> <li>4. Identifying the needs for data and information.</li> </ol>	3	44-45 , 2011
209	<b>Minor B of the Social and behavioral sciences in public health track « Health promotion and health education»</b>	Eric Breton	<p><b>Minor B « Health promotion and health education»</b>                      This module is devoted to furthering a scientific understanding of social, environmental and individual determinants as they affect health status and quality of life. It also examines the processes of planning, implementing, managing, and assessing health education and promotion interventions. It encompasses empirical research, case studies, program evaluations, literature reviews, and discussions of theories of health behaviour and health status, as well as strategies to improve health interventions that could reduce disease or accident-related risks by modifying health care services, physical environments, health beliefs, attitudes, or behaviours.</p>	3	46, 2011

			<p><b>Learning objectives:</b> at the end of the module, the students should be able to:</p> <ol style="list-style-type: none"> <li>1. Identify basic theories, concepts and models from a range of social and behavioural disciplines that are used in health education and promotion.</li> <li>2. Describe steps and procedures for the planning, implementation and evaluation of health promotion and education programs and interventions.</li> <li>3. Specify multiple targets and levels of intervention for health promotion and education programs.</li> <li>4. Use evidence-based approaches in the development and evaluation of health promotion and education programs</li> </ol>		
220	<p><b>Major A of the Social and behavioral sciences in public health track: « Decision analysis in public health»</b></p>	<p><b>Mark Eckman</b></p>	<p><b>Major A Decision analysis in Public Health</b>  The course provides an introduction to methods and applications of decision analysis and cost-effectiveness in medical decision making. Both lectures and workshop/lab sessions will review basic principles of decision analysis and will be organized into a number of units including:</p> <ul style="list-style-type: none"> <li>•Fundamentals of Building Decision Models</li> <li>•Assessment of Patient Values and Quality of Life</li> <li>•Bayes' Rule and ROC Analysis</li> <li>•Deterministic Sensitivity Analysis</li> <li>•Fundamentals of Cost-Effectiveness Analysis</li> </ul> <p><b>Learning objectives:</b>  Through lectures, hands-on computer lab exercises, readings, discussions, and course projects participants will be able to:</p> <ol style="list-style-type: none"> <li>1. Demonstrate the ability to critically appraise and interpret decision and cost-effectiveness analyses published in the literature.</li> <li>2. Demonstrate knowledge of the symbolic notation used to develop decision simple decision tree models.</li> <li>3. Perform a "fold-back" of simple decision trees to calculate the expected utility of each strategy and explain which strategy is "best."</li> <li>4. Use decision analytic software and spreadsheets to calculate the base case results of decision models, perform sensitivity analyses, and interpret the meaning of these results.</li> <li>5. Apply knowledge of decision analysis fundamentals to develop decision analytic models capturing diagnostic and/or treatment issues in clinical medicine or within other relevant area of professional practice (e.g., environmental sciences, public health and policy).</li> <li>6. Apply the knowledge of probability theory and Bayes' Rule to interpret the meaning of diagnostic test results (e.g., true positives, false negatives, true negatives, false positives)</li> <li>7. Explain the value of diagnostic tests with regards to their ability to discriminate between patients with and without disease, and describe how the test characteristics of diagnostic tests are used to develop receiver operator characteristic (ROC) curves</li> <li>8. Explain the importance of area under the ROC curve in comparing different diagnostic tests.</li> <li>9. Describe the relationship between the positivity criterion (or cutoff) used to interpret a diagnostic test result and the operating point on the ROC curve.</li> <li>10. Use decision analytic framework to describe the optimal operating point on an ROC curve, with reference to the consequences of false positive and false negative test results, and the prevalence of disease</li> <li>11. Demonstrate ability to interpret one-way, two-way, and three-way deterministic sensitivity analyses.</li> <li>12. Explain the fundamental "Markovian Assumption."</li> <li>13. Describe the differences between types of Markov models, including Markov Chains, Markov Cohort Simulations, and First Order Monte Carlo Markov models</li> </ol> <p><b>Lab Sessions:</b> Computer-based exercises will be used during the workshops, using decision modeling software [Decision Maker for Windows - WinDM®], and Excel® spreadsheets. The sessions will be highly interactive and you are encouraged to bring your own clinical problems for discussion. Through lab sessions, each participant will develop a final project and a specific guideline will be provided.</p> <p><b>Methods of Instruction:</b>  This course is organized around 6 fundamental topics or units. The general format entails didactic sessions followed by hands-on laboratory sessions during which students are given the opportunity to gain a more concrete appreciation of the underlying concepts and the available software tools. Collaboration in small groups during the workshop sessions is highly encouraged. Readings and other course materials available in</p>	3	49, 2011

			both the spiral bound course booklet and Blackboard should be read as each unit is covered. Familiarizing yourself with the materials before lectures and workshops is highly encouraged. Students are also encouraged to continue working on laboratory/workshop exercises at home. A video recording (made in 2009) of every session is also available on blackboard should you miss a session.		
221	Major B of the Social and behavioral sciences in public health track: « Aging, long term care and chronic disease»	Blanche LE BIHAN et Martine BELLANGER	<p><b>Module 221 Major A « Aging, long term care and chronic disease»</b></p> <p>This module is based on evidence that chronic diseases have become a major public health concern not only in high income countries, but also in low and middle ones. In the developed countries, chronic diseases are frequently seen in association with aging. Although we recognize that efforts have been made to tackle this problem in terms of medical and social care, improvement is still needed in terms of life-long prevention. This course focuses on social, organisational and behavioural approaches and methods in order to provide a good understanding of the public health issues involved. Intersectorial actions and policies implemented by national and sub-national policy makers and planners are analysed and reviewed. A comprehensive and integrated approach in terms of the 'long term care model' forms the thread running through the course. Particular attention is given to interactions between various health and social professionals, between hospitals and nursing homes, as well as to interactions between informal resources and formal resources. Students will have the opportunity to study and assess a wide range of international policies and reforms and their impacts.</p> <p><b>Learning objectives:</b> <i>at the end of the module, the students should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Identify organizational and behavioural approaches involved in public health prevention, intervention &amp; programs for chronic diseases and LT care</li> <li>2. Discuss the role of different stakeholders in the planning and implementation of policies and programs tackling chronic and long term care issues</li> <li>3. Use advanced qualitative and quantitative methods to evaluate interventions related to people with chronic conditions such as Alzheimer disease and cancer</li> <li>4. Use 'long term care models' to provide interventions based on cooperation between professionals, services and informal caregivers.</li> <li>5. Conduct research that integrates models and appropriate methods for conducting practice in LT care and chronic settings</li> <li>6. Contribute to effective public health programs in the domain of aging, LT and chronic diseases</li> </ol>	3	2, 2012
222	Major C of the Social and behavioral sciences in public health track: « Innovation and advanced methods in evaluation of innovation»	William SHERLAW	<p><b>Module 222 Major C « Innovation and advanced methods in evaluation of innovation »</b></p> <p>Innovation may encompass a wide range of phenomena including ideas, knowledge, beliefs, social norms, products, services, technologies or processes and even cultures as long as they are perceived as being new. Within the health domain innovation thus may involve actual products, technologies, drugs, medical devices but also new management methods, ways of organisation, original therapeutic processes, techniques of health promotion, the advent of new scientific disciplines such as nanotechnology and pharmacogenomics. Classically innovation science, after Everett Rogers, is concerned with studying and understanding the social processes of diffusion (or non-diffusion) and adoption (or lack of adoption) of innovations as epitomised by the well known S-curve. Within this course combining workshops and problem based learning techniques we will study well-known technological examples from the health field such as drugs, non-invasive medical technologies such as medical imagery, but also look at management and organisational innovations such as DRGs. Much emphasis will be placed on achieving a good understanding of the multiple factors explaining the success and failure of innovation diffusion and adoption. To achieve this we will also make reference to complementary theoretical approaches such as Actor Network theory. Such approaches will allow the students to grasp how an interdisciplinary approach, involving both physical and social sciences, is necessary in order to understand what is at stake within the innovation process. The course aims to introduce students to what makes for successful innovation and diffusion, highlighting the role of different stakeholders in fostering successful innovation as well as favouring the avoidance of potential pitfalls. We believe within the health field this is of particular importance both from a human and economic perspective.</p> <p><b>Learning objectives:</b> <i>at the end of the module, the students should be able to:</i></p> <ol style="list-style-type: none"> <li>1 Define and describe innovation, diffusion and its different phases</li> <li>2 Identify the key factors explaining success or failure of innovation and diffusion through reference to theoretical models and practice within the health sector and beyond.</li> <li>3 Describe the role of different stakeholders involved in the innovation process within different areas of the health field.</li> </ol>	3	3, 2012

			4 Demonstrate how innovation and diffusion science can contribute to public health		
			5 Through applying a problem based learning approach to the study of a case of innovation come to achieve experiential insights into managing the introduction of innovation		
			6 Be able to carry out simple and appropriate evaluations of health technology innovations. (cf. Oliver, Healey, Donaldson 2002)		
			7 Conduct operational research for implementing new technologies		