

Short description of the EPI track (EPI)

Module #	Module title	Coordinator	Contents	ECTS #	Teaching Week/year
210	« Infectious Disease Epidemiology»	Tiffany Harris	<p>« Infectious Disease Epidemiology»</p> <p>Infectious disease epidemiology studies the occurrence of infectious diseases; factors leading to infection by an organism; factors affecting transmission of an organism; and factors associated with clinically recognizable disease among those who are infected. It requires the use of traditional epidemiologic methods as well as methods unique to infectious disease epidemiology, such as mathematical modeling. In addition to knowing epidemiologic methods, infectious disease epidemiologists need to be familiar with the biological features and clinical manifestations of important pathogens as well as laboratory techniques for the identification and quantification of infectious organisms. This course is designed to provide an introduction to infectious disease epidemiology. It will focus on the tools and methods used in identifying, preventing, and controlling infectious diseases to improve public health. Case studies based on the literature and the work of faculty members will be used to illustrate the real-world application of these tools and methods to address public health problems.</p> <p>Learning objectives: <i>at the end of the module, the students should be able to:</i></p> <ol style="list-style-type: none"> 1. Discuss the key concepts of infectious disease transmission and control, and the differences with non-infectious diseases 2. Apply biological principles to development and implementation of disease prevention, control or management programs 3. Specify the role of the immune system in population health 4. Apply epidemiologic tools and methodologies to understand the transmission dynamics and control of infectious diseases <p>Critically appraise and interpret the findings of infectious disease epidemiology papers</p>	3	47, 2019
211	« Epidemiology of chronic disease »	Olivier Grimaud	<p>« Epidemiology of chronic disease»</p> <p>This minor will provide a more detailed overview of design, method, substantive and analytical issues pertaining to infectious disease epidemiology. It will cover: Infectious causes versus chronic slow causes Implications for causal thinking and analysis Issues of time And the epidemiology of risk factors. Specific issues will also be covered ,such as Epidemiology of cancer: breast cancer risk among women; computation of risk; population versus individual risk; cancers in the western world; cancers and diet; trends in cancer; risk factors for cancer; Epidemiology of Cardiovascular diseases (CVD); CVD trends ; CVD in the world; CVD and diet; risk factors</p> <p>Learning objectives: <i>at the end of the module, the students should be able to:</i></p> <ol style="list-style-type: none"> 1. Discuss the key concepts of chronic diseases and identify their related risk factors 2. Specify the role of the genetic approach for chronic diseases 3. Apply epidemiologic tools and methodologies for chronic diseases, such as cancers and CVD 4. Identify key steps for implementing meta analysis and systematic reviews 5. Apply pharmaco epidemiology tools to chronic conditions and treatment 6. Critically assess and interpret the findings of chronic disease epidemiology papers 	3	46, 2019
238	« Perinatal and pediatric epidemiology »	Florence Bodeau-Livinec	<p>« Perinatal and pediatric epidemiology »</p>	3	2, 2020

			<p>Perinatal and pediatric epidemiology's goal is to monitor pregnancy and children's health and to study determinants for poor outcomes in childhood. This course is designed to provide an introduction to perinatal and pediatric epidemiology focusing on several areas important in this field: preterm birth, infectious diseases, developing countries, international comparisons of care and practices, birth defects, nutrition, childhood development and deficiencies. A broad overview of the field will be given discussing tools used during pregnancy and childhood.</p> <p>Learning objectives</p> <ol style="list-style-type: none"> 1. Discuss the key concepts in perinatal and pediatric epidemiology 2. Apply epidemiologic tools and methodologies to understand determinants of perinatal and pediatric health 3. Critically appraise and interpret the findings of perinatal and pediatric epidemiology papers <p>Prerequisite Introduction to Epidemiology</p>		
223	« Concepts, methods and design in Epidemiology »	Parisa Tehranifar	<p>« Concepts, methods and design in Epidemiology »</p> <p>As a basic science of public health, epidemiology is responsible for the identification of causes of disease that can guide the development of rational public health policies. The accuracy of the information provided by epidemiologic studies is therefore of central concern. Epidemiologic methods are the tools we use to make valid causal arguments. The primary objective is to provide students with the basic tools necessary to design, carry out, and interpret the results from observational epidemiologic studies</p> <p>Learning objectives: <i>at the end of the module, the students should be able to:</i></p> <ul style="list-style-type: none"> • Articulate and apply causal ideas • Develop testable research hypotheses from a causal theory • Articulate the principles of basic observational study designs • Choose study designs that can test research hypotheses • Select basic statistical tests appropriate for the study design and research hypotheses • Identify sources of, and methods to avoid, invalidity in epidemiologic research • Test research hypotheses using basic statistical techniques • Draw and "read" a simple Directed Acyclic Graph • Recognize and explain the effects of non-comparability • Identify the ethical principles in conducting and disseminating epidemiologic research <p>Each session will be accompanied by a lab exercise to reinforce the concepts discussed during the lecture. The grade for the course is based on two homework assignments (20% each) and a final exam which covers all the material covered in the course (60%).</p> <p>Note also that students will complete a questionnaire that assesses their own and their teammates' contributions to group work. All team members will receive the same grade except if it is clear that a student has not participated effectively (attended and contributed to meetings; made timely, helpful contributions; been constructive, etc.). In that case, the student's grade will be lowered accordingly</p> <p>Prerequisite: Advanced core in Biostatistics and Advanced core in Epidemiology</p>	3	43, 2019

224- (1)	« Analysis in Epidemiology »	Mary Beth Terry	<p>« Analysis and measurement in Epidemiology (I) »</p> <p>Major C will be analytical and will bridge biostatistics and epidemiology. In other words, it will provide the epidemiological explanation and rationale as well as the tools behind certain analytical decisions.</p> <ol style="list-style-type: none"> 1. Learning objectives: Students who successfully complete this course will be able to: 2. Integrate study design methods and advanced statistical analysis 3. Apply multivariable analyses 4. Clarify methodological issues for modeling and measurement 5. Critically appraise and interpret the findings of epidemiology papers <p>Major C will cover: Analytical approaches: Equal observation periods, Analytical approaches: Unequal observation periods Sampling and Power, Measurement error in Epidemiology and its impact, Matched designs and analysis, Life table and survival analysis, Proportional hazards in epidemiology and Age cohort period effect and Poisson regression</p> <p>Prerequisite: Major B « Concepts, methods and design in Epidemiology »</p>	3	50, 2019
225- (2)	« Analysis and measurement in Epidemiology »	Mary Beth Terry	<p>« Analysis and measurement in Epidemiology (II) »</p> <p>Major C will be analytical and will bridge biostatistics and epidemiology. In other words, it will provide the epidemiological explanation and rationale as well as the tools behind certain analytical decisions.</p> <ol style="list-style-type: none"> 6. Learning objectives: earning objectives: ogy (I) with SAS Software Students who successfully complete this course will be able to: 7. Integrate study design methods and advanced statistical analysis 8. Apply multivariable analyses 9. Clarify methodological issues for modeling and measurement 10. Critically appraise and interpret the findings of epidemiology papers <p>Major C will cover: Analytical approaches: Equal observation periods, Analytical approaches: Unequal observation periods Sampling and Power, Measurement error in Epidemiology and its impact, Matched designs and analysis, Life table and survival analysis, Proportional hazards in epidemiology and Age cohort period effect and Poisson regression</p> <p>Prerequisite: Major B « Concepts, methods and design in Epidemiology »</p>	3	3, 2020