Syllabus Advanced Core Epidemiology TBC

N°2013	Advanced Core Epidemiology
Coordinator	Dr. Judith Mueller Department of Quantitative methods in Public Health (METIS) Ecole des Hautes Etudes en Santé Publique (EHESP, French School of Public Health) judith.mueller@ehesp.fr
Dates	September 4 - October 2, 2018
Credits/ECTS	3 ECTS
Duration	30 hours
Location	Room : Amphitheatre, EHESP, 20 avenue George Sand, 93210 LA PLAINE ST DENIS
Description	This module aims at providing students with working knowledge of epidemiology, which will allow them applying epidemiological concepts in a general public health work setting. This includes understanding epidemiological measures, study designs, biases and study validity, diagnostic testing as it relates to screening and use of epidemiological data in decision making and simple models for prediction and evaluation of intervention strategies (decision analysis). The module also aims at consolidating pre-existing knowledge to prepare students for the epidemiology track.
Prerequisites	Introduction to epidemiology (M1 level) Previous reading of BOOK, Chapters XXXX
Course learning objectives	Students who successfully complete this course should be able to: 1. Explain and apply principal concepts of epidemiological reasoning (validity, causality, power, attributable risk…) 2. Interpret and discuss epidemiological studies, their design and their contribution to public health 3. Perform simple epidemiological analyses (measures of frequency and association; standardization and Mantel-Haenszel; test performance; combining probabilities)
Structure (details of sessions title/speaker/date /duration)	Each module day will include two lectures and a lab session during which the concepts and method presented during the lectures will be worked on. Howeworks will be briefly discussed in the morning of each day. Additional Help! Sessions after class (see schedule) will allow students with major difficulties in following the course to discuss difficulties with teaching assistants and to catch up. An additional review session will be offered on October 8, to allow students ask specific questions to the course coordinator. In-depth preparation of the course material is essential for participation in this review session. <u>September 4</u> 1. Introduction to module and entry exam (J. Mueller, 1.5h) 2. Measures of frequency and association, study design (J. Mueller, 1.5h) 3. Study design and biases (F. Bodeau-Livinec, 1.5 h) <u>September 11</u> 4. Validity and strategies to control confounding (F. Bodeau-Livinec, 1.5 h) 5. Ecological studies (C. Padilla, 1.5 h) <u>September 18</u> 6. Report writing in epidemiology, representative sampling (J. Mueller, 1.5h) 7. Clinical trials (R. Porcher, 1.5h) <u>September 25</u> 8. Diagnostic testing (J. Mueller, 1.5h)

	9. Metaanalysis (JP. Regnaux, 1.5h) October 2 10. Causal inference : lecture and case study (E. Counil, 3h) 11. Introduction to decision analysis (J. Mueller, 1.5h)
Resources	All readings and materials will be posted on REAL. Readings are available below for each session. Recommended text book: xXXX
Course requirement	Students are expected to attend all lectures and lab sessions and must hand in homework assignments for the given deadlines (9.30h of each module day, except the first). Class attendance will be checked accordingly. Validation of the module may be refused if attendance is judged insufficient. Students are expected to read and analyse selected papers before the courses and to participate actively in group work. Active contribution to discussions during lectures – as invited by the lecturer – is encouraged. Participation in the Help! Sessions is only recommended for the weakest students of the class.
Grading and assessment	Final exam: 80% of grade Homeworks (4): 20% of grade
Course policy	Attendance & punctuality Regular and punctual class attendance is a prerequisite for receiving credit in a course. Students are expected to attend each class. Attendance will be taken at each class. The obligations of attendance and punctuality cover every aspect of the course: - lectures, conferences, group projects, assessments, examinations, as described in EHESP Academic Regulations http://mph.ehesp.fr EHESP Academic Regulation Article. 3). If students are not able to make it to class, they are required to send an email to the instructor and to the MPH program coordinating team explaining their absence prior to the scheduled class date. All supporting documents are provided to the end-of-year panel. . Students who miss class are responsible for content. Any student who misses a class has the responsibility for obtaining copies of notes, handouts and assignments. If additional assistance is still necessary, an appointment should be scheduled with the instructor. Class time is not to be used to go over material with students who have missed class. Lateness: Students who are more than 10 minutes late may be denied access to a class. Repeated late arrivals may be counted as absences (See http://mph.ehesp.fr EHESP Academic Regulation Article. 3 Attendance & Punctuality) Maximum absences authorized & penalty otherwise Above 20% of absences will be designated a fail for a given class. The students will be entitled to be reassessed in any failed component(s). If they undertake a reassessment or they retake a module this means that they cannot normally obtain more than the minimum pass mark (i.e. 10 out of 20) Exceptional circumstances Absence from any examination or test, or late submission of assignments due to illness, psychological problems, or exceptional personal reasons must be justified; otherwise, students will be penalized, as above mentioned. Students must directly notify their professor or the MPH academic secretariat before the exam or before the assignment deadline. Before accepting the student's justification, the professor or the MPH academic secretariat has the right to request either a certificate from the attending physician or from a psychologist, or from any other relevant person (See http://mph.ehesp.fr EHESP Academic Regulation Article 4 Examinations). Courtesy: All cell phones/pagers MUST be turned off during class time. Students are required to conduct themselves according to professional standards, eating during class time is not permitted during class time, such as course or group work.

Valuing diversity	Diversity enriches learning. It requires an atmosphere of inclusion and tolerance, which oftentimes challenges our own closely-held ideas, as well as our personal comfort zones. The results, however, create a sense of community and promote excellence in the learning environment. This class will follow principles of inclusion, respect, tolerance, and acceptance that support the values of diversity. Diversity includes consideration of: (1) life experiences, including type, variety, uniqueness, duration, personal values, political viewpoints, and intensity; and (2) factors related to "diversity of presence," including, among others, age, economic circumstances, ethnic identification, family educational attainment, disability, gender, geographic origin, maturity, race, religion, sexual orientation and social position.
Course evaluation	EHESP requests that you complete a course evaluation at the end of the school year. Your responses will be anonymous, with feedback provided in the aggregate. Open-ended comments will be shared with instructors, but not identified with individual students. Your participation in course evaluation is an expectation, since providing constructive feedback is a professional obligation. Feedback is critical, moreover, to improving the quality of our courses, as well as for instructor assessment.

October 2
12. Causal inference : lecture and case study (E. Counil, 3h)
Introduction to decision analysis (J. Mueller, 1.5h)

Session 1	Module introduction
Speakers	Judith Mueller
Session Outline	Lecture, entry exam
Learning Objectives	- Understand the organisation of the module - Evaluate own level of knowledge to prepare work during the module
Duration	1.5 hours
Training methods	Lecture, entry exam
Readings	Required Reading: see course requirements

Session 2	Measures of frequency and association, study design
Speakers	Judith Mueller
Session Outline	Lecture followed by lab session
Learning Objectives	- Recall measures of frequency and association - Recall principals of study design
Duration	1.5 hours
Training methods	Lecture and discussion
Readings	Required reading: see course requirements

Session 3	**Study design and biases**
Speakers	F. Bodeau Livinec
Session Outline	Lecture followed

Learning Objectives	- Recall study designs and their risk for bias - Categories of biases, ways to avoid them during the study development
Duration	1.5 hours
Training methods	Lecture and discussion
Readings	Required reading: see course requirements

Session 4	**Validity and strategies to control confounding**
Speakers	F. Bodeau Livinec
Session Outline	Lecture followed by lab session
Learning Objectives	- Internal and external study validity - Confounding - Methods to control confounding, including standardisation
Duration	1.5 hours
Training methods	Lecture and discussion
Readings	Required reading: BOOK Chapter

Session 5	Ecological studies
Speakers	C. Padilla
Session Outline	Lecture
Learning Objectives	- Understand how to conduct and interpret an ecological study - Discuss validity and level of evidence in ecological studies
Duration	1.5 hours
Training methods	Lecture and discussion
Readings	Required reading: Article XXX

Session 6	Report writing in epidemiology, representative sampling
Speakers	J. Mueller
Session Outline	Lecture followed by lab session
Learning Objectives	- Understand and apply good practice in reporting of epidemiological studies and results - Understand principal of representative sampling of a population
Duration	1.5 hours
Training methods	Lecture and discussion
Readings	Required reading: BOOK Chapter

Session 7	Clinical Trials
Speakers	R. Porcher
Session Outline	Lecture
Learning Objectives	- Understand how to conduct and interpret clinical trial - Discuss types and limitations in clinical trials
Duration	1.5 hours
Training methods	Lecture and discussion
Readings	Required reading: Article XXX

Session 8	Diagnostic testing
Speakers	J. Mueller
Session Outline	Lecture followed by lab session
Learning Objectives	- Understand concepts of test performance and their application to screening - Calculate sensitivity, specificity, predictive values - Understand and estimate consequences from limited test performance for the validity of epidemiological studies
Duration	1.5 hours
Training methods	Lecture and discussion
Readings	Required reading: BOOK Chapter

Session 9	Metaanalyses
Speakers	JP Regnaux
Session Outline	Lecture
Learning Objectives	- Understand how to conduct and interpret a metaanalysis - Discuss limitations of metaanalyses
Duration	1.5 hours
Training methods	Lecture and discussion
Readings	Required reading: Article XXX

Session 10	Causal inference
Speakers	E. Counil
Session Outline	Lecture and case study
Learning Objectives	- Understand and apply arguments for causality based on results of epidemiological studies

Duration	1.5 hours
Training methods	Lecture and case study
Readings	Required reading: BOOK Chapter

Session 11	Introduction to decision analysis
Speakers	J. Mueller
Session Outline	Lecture and lab
Learning Objectives	- Understand the principal idea of decision analysis - Conduct a simple combination of probabilities
Duration	1.5 hours
Training methods	Lecture, discussion and lab
Readings	Required reading: Article XXX