

Syllabus Module 216: The control of environmental infectious diseases

Module : 216	The control of environmental infectious diseases
UE coordinator	Michèle Legeas, PhD, Professor, Environmental and Occupational Health Department, EHESP
Dates	November 2 to Nov 5 2021
Credits/ECTS	3 (1 ECTS = 30 h student's work)
Duration	Number of days: 4
UE description	<p>This course is designed to introduce students to major issues related to global health and epidemics.</p> <p>The course is recommended for students who are interested in understanding how global prevention and control of wide epidemics/pandemics needs two complementary approaches: 1) epidemiology and dynamic of transmission of agents modeling and 2) definition of politics adapted to the prevention and control.</p> <p>The course will introduce students to some basic about the different plans, organizations and policies internationally adopted. But, the course will also offer an understanding of how research needs to help decision makers in such issues.</p> <p>It is related to the Module ISB track 229 (modeling of infectious diseases) and to the Module of EHOS track 232 (Advanced planetary health)</p>
Prerequisites	Core curriculum in Environmental and Occupational Health Sciences of MPH1
Course learning objectives	<p>At the completion of the module, the students should be able to:</p> <ul style="list-style-type: none"> - Understand the importance of fighting against epidemics and the differences between all infectious diseases and those having wide potential to spread inside a population and coming from human or animal or vegetal reservoirs; - Describe international bodies involved against epidemics: WHO, FAO, OIE, ECDC, CDC etc., and their interactions, plans, programs, directives, guidelines ... - Explain the different kinds of models used to fight against epidemics: defining vaccine programs, predicting the spread of cases, understanding links between environmental factors and the epidemic dynamics etc. - Discuss about countries preparedness to tackle epidemics, accounting their level of risks and the state of their health system.
Contributes to the development of the following competences	<p>Competences :</p> <p>This module contribute to the One Health and Health Security competency, particularly :</p> <ul style="list-style-type: none"> - Understands the local implications of the One Health approach, its global interconnectivity and its impact on health conditions in the population - Knows and where needed applies the International Health Regulations to coordinate and develop strategic partnerships and resources in key sectors and disciplines for health security purposes

	<ul style="list-style-type: none"> - Performs surveillance of risks and threats to the full continuum of factors that influence and determine health in order to identify intervention needs <p>Teaching activities :</p> <ul style="list-style-type: none"> - Lectures given by experts - Tutored group works (time planned on the schedule) <p>Evaluation :</p> <ul style="list-style-type: none"> - Problem based learning: group works leading to an graded oral defense (and production of a short paper, used to help grading); self-evaluation of the students regarding the real involvement of each member of the group
UE Structure (details of sessions title/spaeker/date/duration)	<p>Session 1: introduction to environmental infectious diseases, Michèle Legeas, Nov 02, Session 2: Objectives and organization of international surveillance and alert, Nov 02 Session 3 : Zoonotic diseases and their increasing importance, OIE, Nov 03, Session 4: WHO strategy and tools : presentation of the GOARN and the IHR(2005), Nov 03 Session 5: Working group restitutions, Nov 05</p> <p>Days 3 and 4, students will have to work on a study case, serving to grade the Minor.</p>
Course requirement	Students are expected to attend all lectures and make individual & group works. Students will be expected to participate actively and discuss some issues related to methods studies and their application.
Grading and assessment	<p>Working group graduation at the end of the week.</p> <p>Details assignments: groups of students will have to prepare a communication for the last day afternoon, to give answers to the case study. These presentations would be done in the UE coordinator.</p> <p>Time is reserved on the schedule for that work, in presence of the coordinator, but they can also work at home</p>
Location	EHESP Building 20 Avenue George Sand, 93210 La Plaine Saint Denis (Greater Paris)
Course policy	<p>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).</p> <p>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.</p> <p>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.</p> <p>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)</p> <p>Maximum absences authorized & penalty otherwise</p>

	<p>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)</p> <p>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).</p> <p>Courtesy: <u>All cell phones/pages MUST be turned off during class time.</u> 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.</p>
Valuing diversity	<p>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.</p>
Course evaluation	<p>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.</p>

Sessions 1	Introduction to environmental infectious diseases
Speakers	<p>Dr. Michèle Legeas, Professor, DSET&GS, EHESP michele.legeas@ehesp.fr</p>
Session Outline	<p>The session introduces students to basic principles of health risks related to microorganisms transmitted via environment.</p> <p>The first part of the session introduces the differences between individual risks and epidemic ones. The importance of the relationship between the different environmental compartments, i.e. water, air, soil, food, animals, nature... will be highlight with different current examples.</p> <p>During the second part, the estimation of the burden of such diseases, after been quickly presented, is discussed as a tool to give public health priorities. Last, major ways to manage such risks (prevention and reduction of impact) will be discussed during the last part of this session, to introduce the next ones.</p>
Learning Objectives	At the end of the sessions, students will be able to:

	<ul style="list-style-type: none"> - Discuss the difference between different kinds of microorganisms in terms of public health threats and impact - Identify the different ways of disease control among the risk - Be part of a simplified process to formulate priorities in different country context.
Duration	1 sessions of
Dates	Tuesday 2, 9:00 am – 12:00
Training methods	Lecture
Reading	http://www.who.int/topics/infectious_diseases/en/ https://wwwnc.cdc.gov/eid/ https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html http://www.health.nsw.gov.au/Infectious/Pages/a-to-z-infectious-diseases.aspx

Sessions 2	International surveillance and alert
Speakers	ECDC or Dr. Michèle Legeas
Session Outline	The session aims to present how countries organize international collaborations to survey infectious diseases to prevent their spread. Principles and method for this survey are described in the second part of the lecture.
Learning Objectives	<p>At the end of the sessions, students will be able to:</p> <ul style="list-style-type: none"> - Link their epidemiological knowledge to the surveillance of environmental infectious diseases - Know how to find useful data of surveillance to build public health policies regarding environmental infectious diseases - Use data produced by international structures of communicable diseases surveillance in an appropriate way
Duration	1 sessions
Dates	Tuesday 2, afternoon
Training methods	Lecture
Reading	https://www.cdc.gov/ddid/centers.html https://www.ecdc.europa.eu/en https://africacdc.org/ http://www.chinacdc.cn/en/
Validation	Global validation of all sessions of the Minor; working groups on case study

Session 3	Zoonotic diseases and their increasing importance
Speakers	Andrea Lavarello, OIE

Session Outline	The session introduces students with the growing importance of infectious diseases crossed between human and animals. It presents emergent infectious diseases and factors affecting the crossing between species: together biological, behavioral, environmental. The part of OIE as a symmetric international organization of WHO, for animal health and its organization to guarantee global health is discussed and clarified.
Learning Objectives	At the end of the sessions, students will be able to: <ul style="list-style-type: none"> - Understand the barriers between human and animals for infectious diseases, but also the recent proofs that this barriers are not total; - Illustrate some of major current concern for zoonotic diseases, according to the context (geographical, behavioral, cultural...); - Use data base and documentation portal of OIE when necessary to be part of prevention of human epidemic
Duration	1 sessions of 3 hours
Dates	Wednesday 3
Training methods	Lectures alternate with in class applications/reading
Reading	http://www.oie.int/en/
Validation	Global validation of all sessions of the Minor; working groups on case study

Session 4	WHO strategy and tools
Speakers	Margaux Mathis, WHO
Session Outline	During this session, WHO politic to prevent pandemics occurrence or spread is describe to the students. The International Health Regulation (IHR2005) and the Global Outbreak alert and response network (GOARN) are presented: objectives, organization, tools, implication for countries.
Learning Objectives	At the end of the sessions, students will be able to: <ul style="list-style-type: none"> - Describe the content of the IHR(2005) and its implications for state members (countries capacities) - Use the decision instrument for the assessment and notification of Annexe2 of IHR - Know the role of GOARN and its links with IHR - Understand the crucial part of scientific knowledge about diseases; their survey and the detection of emergency, to limit extend of infectious epidemics.
Duration	3 hours
Dates	Wednesday 3
Training methods	Lectures
Reading	http://www.who.int/ihr/publications/9789241580496/en/ http://www.who.int/ihr/publications/annex_2_guidance/en/ http://www.who.int/ihr/alert_and_response/outbreak-network/en/
Validation	Global validation of all sessions of the Minor; working groups on case study

Session 5	Case study
Speakers	Dr. Michèle Legeas, Professor, DSET&GS, EHESP michele.legeas@ehesp.fr
Session Outline	Topics of case studies are given the first day of the week and the groups are defined. 2 Nov: introduction to the case study 4 Nov: work on case study 5 Nov morning : preparation of oral communication of the conclusions of the group 5 Nov afternoon : oral defense by group (serving to grade the Minor)
Learning Objectives	At the end of the case study, students will be able to: <ul style="list-style-type: none"> - Clarify the features of the agent involved - Discuss of the potential wide spreading of the agent - Propose some ways to limit the spread of the epidemic and its impact on population - Taking clearly into account the context - Discuss if there are some needs in terms of research to prevent or reduce such epidemic in the future
Duration	12 Hrs
Dates	4 th and 5 th of November
Training methods	Students are free of the organization of their work inside each group. The coordinator of the module is present during all these periods of working group to help students and give them additional resources if necessary.
Reading	Initial documentary file given first day.
Validation	Oral defenses are graduated. It lasts between 0:30 to 1:00 Hr (accounting the number of groups). Criteria of judgment are : <ul style="list-style-type: none"> - Individual contribution to the group production (self-assessment) - Understanding of the disease and the epidemic (agent, way of contamination, morbidity, mortality, medical solutions ...) - Understanding of the specific context of the risk (geographical, economical, sanitarian, cultural ...) - Ability to propose some proposals to reduce the impact of the current Covid-19 pandemic on prevention policies of these diseases - Discuss research needs to tackle this problem in the future