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Global Health and Epidemiology

Course Coordinator:

PROF. STEFANIA BOCCIA

Faculty:

Prof. Stefania Boccia, Prof. Maria Luisa Di Pietro, Prof. Patricia J. Baynham, Dr. Stefano Vella, Dr. Mario Carere, Dr. Chiara Cadeddu, Dr. Leonardo Villani, Dr. Sara Farina

Overview

Area: Health Sciences

Dates: June 12 - 23 (2 weeks)

Campus: Rome

Course Number: HL/PP300

Term: Summer 2023

Credits: 6 ECTS

Course description

One of the overall goals of the course is introducing the students to the concepts and definitions of epidemiology and global health, as well as global health challenges governance. The course will enable students to calculate and interpret the measures of the global health burden of diseases, health indicators and major determinants of disease. Moreover, an overview on ethical issues raised in the field of global health will be provided, covering a wide range of global bioethics topics and human rights issues. One part of the lessons will be focused on infectious diseases and outbreaks but will also cover the topics of vaccination policies around the world. Non-communicable diseases (NCDs) will be explored, placing particular focus on the global epidemic rise of these conditions and preventive measures. The increase in population movement has substantial public health implications, thus, the course will provide an overview of global migration and international experiences when addressing the health needs of migrants and refugees. Moreover, the course will cover one of the major global emergencies related to environmental exposures and their impact on the population health. In particular, one part of the lessons will be focused on Planetary Health and climate crisis, which poses a threat to health with both a direct effect on health (cardiovascular disease, respiratory disease, mental disorders) and an indirect effect (migration, alteration of work activities).

The course will use an interactive teaching approach, covering lectures, practical exercises, open discussions, and group analyses. At the end of the course students will take a mandatory final exam covering contents of the whole program.

Prerequisites

- Principles of global health or health sciences
- Basic principles of epidemiology
- Basic principles of statistics
- Highly motivated and interested in the global health thematic
- Ability to work in a team



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Course Requirements

- Students are expected to regularly attend class sessions and to actively take part in class debate and case discussions
- Students are expected to be prepared on the assigned readings
- Students are expected to deliver one group assignments and present it to the class

Topics

- The global burden of disease and the use of epidemiological indicators
- Globalization and global health
- Ethical challenges in the context of global health
- Genomics and public health
- Vaccination policies
- Migration and health
- Environmental health, Planetary Health and major global emergencies

Learning Outcomes

- Understanding the principles of global health, major challenges and global health governance
- Ability to understand and apply epidemiological indicators
- Understanding global bioethics topics and human rights issues
- Acquisition of an international perspective of vaccination policies worldwide
- Understanding global environmental exposures and the impact on population health

Teaching Methods

- Lectures, team working and in class discussion, site visits, role playing and case studies.

Faculty

Prof. Stefania Boccia
Prof. Maria Luisa Di Pietro
Prof. Patricia J. Baynham
Dr. Stefano Vella
Dr. Mario Carere
Dr. Chiara Cadeddu
Dr Leonardo Villani
Dr Sara Farina

Teaching assistants

Dr Leonardo Villani
Dr Sara Farina



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Evaluation

- Assessment of in class participation (30%)
- Mid-term practical session - Group assignments (case studies presentation) (30%)
- Final exam (multiple choice test) (40%)

Detailed Description of The Assignments

- For the mid-term assessment, students will be divided into groups, according to their background, in order to have an equal distribution of different backgrounds in each group. A topic will be assigned to each group and students will be asked to give a presentation of the work.
- The final exam will be a written exam composed of 30 multiple choice questions. The weights of lectures in the questions of the final exam will be:
 - Lecture 1: The global burden of disease and the use of epidemiological indicators: 4 questions
 - Lecture 2: Health social determinants: 4 questions
 - Lecture 3: Ethical aspects and global health: bioethics and human rights issues: 2 questions
 - Lecture 4: Vaccines and vaccination policies: a global picture: 3 questions
 - Lecture 5: Planetary Health: a broader look at Global Health: 4 questions
 - Lecture 6: Global health - from current challenges to governance: 1 question
 - Lecture 7: Food security as a human right and global health challenge: 3 questions
 - Lecture 8: Major global emergency: Global warming and environmental exposures impacting population health: 4 questions
 - Lecture 9: Interactive session/working groups: 2 questions
 - Lecture 10: Genomics and public health: 3 questions

Readings

- Selection from: Charles Guest, Walter Ricciardi, Ichiro Kawachi, and Iain Lang (2013) Oxford Handbook of Public Health (5 ed.), OXFORD UNIVERSITY PRESS
- WHO: World health statistics 2018: monitoring health for the SDGs, sustainable development goals (2018)
- WHO: guidelines on ethical issues in public health surveillance (2017) WHO: Global Vaccine Action Plan Report (2017)
- Selection of reading from individual faculty members

Schedule

- Lecture 1: The global burden of disease and the use of epidemiological indicators
- Lecture 2: Health social determinants
- Lecture 3: Ethical aspects and global health: bioethics and human rights issues
- Lecture 4: Vaccines and vaccination policies: a global picture
- Lecture 5: Planetary Health: a broader look at Global Health
- Lecture 6: Food security as a human right and global health challenge
- Lecture 7: Global health - from current challenges to governance
- Lecture 8: Major global emergency: Global warming and environmental exposures impacting population health



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- Lecture 9: Interactive session/working groups
- Lecture 10: Genomics and public health
- Discussion & Q&A for the exam

Rules of conduct

Attendance: Attendance is mandatory, and no absence/s will be excused. Please consider that Field Trips are considered equal to regular classes and indeed you are expected to attend the visits. Unexcused absences will not be accepted. An excused absence will only be granted if you are seriously ill and can support your claim with a local doctor's certificate dated the day you missed class (therefore you must go to the doctor that same day) that has to be delivered to the Professor or to UCSC International Office. Any other absence will not be excused and will result in not being admitted to the final exam, which corresponds to a 0 (zero) in the final exam.

Exam Date: The exam date cannot be re-scheduled. Should the dates of the final exams be moved for force major reasons, UCSC International Office and the Professor will promptly inform you in class and/or via e-mail on the new date agreed. Unexcused absences to the exams will result in a failing grade in the course.

In cases of unforeseeable circumstances such as illness or injury on the day of the exams, you must submit a medical certificate and communicate your absence to the Professor and UCSC International Office via email prior to the exam. If the student does not justify his/her absence through sufficient documentation and with adequate notice before the final test, you will receive an automatic Failed. Absences for other unforeseeable circumstances will not be accepted and will result in a failing grade.

Biographies

STEFANIA BOCCIA

Stefania Boccia Stefania Boccia is Full professor of Hygiene, Preventive Medicine and Public Health at Università Cattolica del Sacro Cuore in Rome, and Research Director for Policlinico Universitario A. Gemelli – IRCCS. She is Deputy Research Director of the Policlinico Universitario A. Gemelli IRCCS and Affiliate of the Meta-Research Innovation Center at Stanford, Stanford, UK. She is the President of the European Public Health Epidemiology Section of the European Public Health Association (EUPHA), Associate Editor of European Journal of Epidemiology and European Journal of Public Health, Member of the Advisory Board of the Lancet Regional Health - Europe. She currently coordinates the EU funded projects “European network staff eXchange for integrAting precision health in the health Care sysTems” (ExACT) and “A PeRsonalized Prevention roadmap for the future HEalThcare” (PROPHET). She coordinates the “Interaction of genomic and dietary aspects in gastric cancer risk: the global StoP project” project, funded by the Italian Ministry of Health, Bando 2022 Ricerca Finalizzata, the “Innovative approaches for personalised cardiovascular prevention: multicentre randomised controlled study and multidisciplinary evaluation for a National Health Service implementation” project, funded by the Italian Ministry of Health, PNRR: M6/C2_CALL 2022, and the “Generation Gemelli: longitudinal study for the evaluation of maternal exposome on the newborn and child health” project, funded by UCSC (linea D3, University research projects of interest). She has an H index of 52 and 9312 citations at december 2022.

MARIA LUISA DI PIETRO

Maria Luisa Di Pietro is a MD specialized in Endocrinology and Legal Medicine. She is Associate Professor of Legal Medicine at the UCSC, Docent at the Catholic University of Avila (Spain) the Catholic University of Seoul (Korea) and University San Toribio de Mongrovejo (Chiclayo-Peru). She is the Director of the Center for Research and Studies on Procreative Health at the UCSC. She is Vice President of National Bioethics Committee (Italy), Member of the Steering Committee and Scientific Committee of the Global Health



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Studies and Research Center, Member of the Ethical Committee of the Ospedale Pediatrico Bambino Gesù (Rome). She carries out research on issues related to social inequalities (access to food and health status of Italian children, health of unaccompanied foreign minors, accessibility, and quality of health care for undocumented migrants), lifestyles (Project "Youth health" - lifestyles of university students in Italy), problems in the presence of infertility and inherited family cancer. She has published over 400 contributions such as monographs, collective works, articles in Italian and international journals.

PATRICIA J. BAYNHAM

Patricia Baynham is a Professor of Biological Sciences at St. Edward's University in Austin, TX. She obtained her Ph.D. in Microbiology and Immunology from Wake Forest School of Medicine, Winston-Salem, NC. She served as a public health associate at the US Centers for Disease Control stationed in Dallas, TX. Her teaching experience includes courses in Epidemiology, Microbiology, History and Philosophy of Science, and Culminating Experience. She has previously served as department chair and interim dean and is currently the Lucian Chair of Science and Director of the Health Systems and Administration program. She is a National Academies Education Fellow in the Sciences, and her research interests include seeking solutions for antimicrobial resistance and science pedagogy.

STEFANO VELLA

Stefano Vella, MD achieved specialty degrees in both Infectious Diseases and Internal Medicine. He is currently adjunct Professor of Global Health at Università Cattolica del Sacro Cuore in Rome, Italy, and member of the Program Committee of Horizon Europe (Health Cluster 2021-2027). He was the Director of the Global Health Center of the National Institute of Health and, until 2016, he was the Director of the Drug Department of the National Institute of Health. Dr. Vella is the former President of the Italian Drug Agency. His research group works and publishes extensively on various aspects of HIV pathogenesis, treatment and prevention. Dr Vella, has been invited as speaker in over 100 International Conferences, is an article reviewer for numerous journals, including Science, Lancet, Journal of Infectious Diseases, AIDS, Journal of AIDS, and he has published more than 200 articles in international journals. Since 1996, as Member of the Governing Council of the International AIDS Society [IAS] and subsequently as IA President (2000-2002), he actively worked towards promoting access to treatment and care in the South of the World and moving the international AIDS conferences in the South of the World. Indeed, he was chair of numerous WHO therapeutic guidelines for the prevention and treatment of HIV/AIDS. Finally, he was scientific advisor of the Italian Ministry of Foreign Affairs, of the Ministry of Finances and of the Ministry of Health.

MARIO CARERE

Dr. Mario Carere is a PhD Biologist, Senior Researcher at the Department Environment and Health of the Italian Institute of Health. He has a long experience in the field of exposure and risk evaluation linked to the contamination of aquatic environments. He is currently co-chairing the "WG Chemicals" in the context of the Common Implementation Strategy of the Water Framework Directive. He has contributed to the elaboration of European guidelines about water chemical monitoring, effect-based methods, environmental quality standards. At national level his research work is related to the use of effect-based methods for surface water monitoring and to the evaluation of the risks for human health and the environment in polluted sites. He is author of several national and international publications.

CHIARA CAEDDU

Chiara Cadeddu is a Medical Doctor, specialized in Hygiene and Preventive Medicine in 2015. She is currently Assistant Professor of Public Health at the Department of Public Health of the Università Cattolica del Sacro Cuore in Rome, Italy, and scientific coordinator of the Italian Institute for Planetary Health. In the years 2016-2020 she worked at the Italian National Institute of Health (Istituto Superiore di Sanità - ISS), and previously in the Clinical Management Staff at the National Oncologic Institute "Regina Elena" in Rome, Italy. Her main fields of experience are vaccination, health services research, health policy, epidemiology, planetary health and Health Technology Assessment. She is involved in several national and international



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projects and is co-author of 53 scientific indexed publications, with an H-index (Scopus) of 14, and of more than 100 abstracts presented at international and national congresses.

LEONARDO VILLANI

Leonardo Villani is a MD, specialist in Hygiene and Preventive Medicine and PhD student in Life Science and Public Health at Università Cattolica del Sacro Cuore in Rome. He is mainly involved in national and international research projects related to the epidemiology of infectious diseases (especially the COVID-19 pandemic), leadership in healthcare systems, vaccination, environmental health, health determinants and health policies at national and international level.

SARA FARINA

Sara Farina is a MD, resident doctor in Hygiene and Preventive Medicine at Università Cattolica del Sacro Cuore, in Rome. Her main areas of interest are epidemiology and prevention of chronic diseases, vaccination, personalized medicine and genomics in public health. She is actually involved in personalized medicine and genomics national and international projects. Her scientific experience has been consolidated through the participation in different conferences, seminars and trainings as well as the publication of papers in international journals.