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## Global Health and Epidemiology

### Course Coordinator:

PROF. STEFANIA BOCCIA

### Faculty:

PROF. MARIA LUISA DI PIETRO, DR. STEFANO VELLA, DR. STEFANIA BRUNO, DR. LAURA MANCINI, DR. LEONARDO VILLANI, DR. SARA FARINA

<b>Area of study:</b>	Health Sciences
<b>Area Code:</b>	CU HL/PP300
<b>Credit</b>	6 ECTS
<b>Dates</b>	9 - 20 June (2 weeks)

### 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. Finally, the course will cover one of the major global emergencies related to environmental exposures and their profound impact on the population health.

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
- Global environmental health

## 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 around the world
- Understanding global environmental exposures as well as 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  
Dr. Stefano Vella  
Dr. Stefania Bruno  
Dr. Laura Mancini  
Dr Leonardo Villani (teaching assistant)  
Dr Sara Farina (teaching assistant)



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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: Global health - from current challenges to governance: 4 questions
  - Lecture 3: Ethical aspects and global health: bioethics and human rights issues: 2 questions
  - Lecture 4: Infectious diseases and outbreaks: a global overview: 3 questions
  - Lecture 5: Major global emergency: Global warming and environmental exposures impacting population health: 4 questions
  - Lecture 6: Food security as a human right and global health challenge: 1 question
  - Lecture 7: Vaccines and vaccination policies: a global picture: 3 questions
  - Lecture 8: Global aspects of COVID pandemic: 4 questions
  - Lecture 9: Genomics and public Health: 2 questions
  - Lecture 10: Global migration and international experiences when addressing the health needs of migrants and refugees: 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: Global health - from current challenges to governance



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- Lecture 3: Ethical aspects and global health: bioethics and human rights issues.
- Lecture 4: Infectious diseases and outbreaks: a global overview
- Lecture 5: Major global emergency: Global warming and environmental exposures impacting population health
- Lecture 6: Food security as a human right and global health challenge
- Lecture 7: Vaccines and vaccination policies: a global picture
- Lecture 8: Global aspects of COVID pandemic
- Lecture 9: Genomics and public health
- Lecture 10: Global migration and international experiences when addressing the health needs of migrants and refugees.
- 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 is a Professor of Hygiene and Public Health UCSC in Rome. She obtained a Master of Science in Epidemiology and Biostatistics, and a PhD in Genetic Epidemiology at the Erasmus MC, Rotterdam. She is the Director of the Section of Hygiene of the Department of Public Health of UCSC and President of the Public Health Epidemiology Section of EUPHA where she also served as Vice President of the Public Health Genomics section until 2018. Prof. Boccia is the Editor in Chief of *Epidemiology, Biostatistics and Public Health*, and Associated Editor of *European Journal of Public Health* and *European Journal of Epidemiology*. Her main areas of interest are epidemiology and prevention of tumors, epidemiological methodology, health services research, genomics in public health, hospital hygiene, and environmental hygiene. She has published more than 245 scientific papers and 17 books/book chapters. Since 2006, Professor Boccia has been successfully leading around 25 national and international research projects. In the past years she coordinated the "Personalized PREvention of Chronic Diseases" project (PRECeDI, EU-H2020 MSCA- RISE). She also has large teaching experience with an average value of 237



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teaching hours per year. She coordinates the project titled “European network staff eXchange for integrAting precision health in the health Care sysTems” (ExACT) funded by the EC within the H2020 Marie-Slodowska Curie projects (MSCA-RISE).

#### **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), Buenos Aires (Argentina) and Seoul (Korea), University San Toribio de Mongrovejo (Chiclayo-Peru) and Pontifical Institute John Paul II (Rome). She is a member of the Steering Committee and Scientific Committee of the Global Health Studies and Research Center, Vice President of the Ethical Committee of the Bambino Gesù Hospital (Rome) and member of the Healthcity Institute. She is the Director of the Center for Research and Studies on Procreative Health. 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.

#### **STEFANIA BRUNO:**

Stefania Bruno, MD achieved specialty degrees in Hygiene and Preventive Medicine. She pertains to the Section of Hygiene, Public Health Institute of Università Cattolica del Sacro Cuore, IRCCS Fondazione Policlinico Agostino Gemelli in Rome. Her research interests are primarily in Hospital Hygiene, Prevention of infectious diseases in disadvantaged communities, Vaccines and Global Health. She is Academic Coordinator of the post graduate School of Hygiene and Preventive Medicine at UCSC and Adjunct Professor of Hygiene at School of Medicine of UCSC. Member of Steering Committee of the Global Health Research and Study Center. Member of the Executive Board of the Italian Network on Global Health Education. Till today, she has taught different topics related to Hygiene, Public Health, Epidemiology, Global Health, Community Medicine in University courses at different educational levels: Undergraduate and Postgraduate Levels Courses (Faculties of Medicine and Education Science); First and Second Level Master Courses (Faculties of Medicine and Economics); Medical Specialization Courses; Postgraduate Advanced Study Courses. She contributed to volume 12 of the Encyclopedia of Bioethics and Juridical Science, published by Edizioni Scientifiche Italiane. She contributed to the textbook Hygiene, Preventive Medicine and Public Health, 2013 Idelson Gnocchi Edition, which sets a benchmark for the training of students of different affiliation and for the retraining of health professionals; she was author or co-author of four chapters. Over 150 scientific products, Total Papers (Scopus December 2019) = 30

#### **STEFANO VELLA:**

Stefano Vella, MD achieved specialty degrees in both Infectious Diseases and Internal Medicine. He is currently the Director of the Global Health Center of the National Institute of Health. Up 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, both in the North and the South of the world. Dr. Vella is currently the coordinator of the - European Commission funded - HIV Clinical Trials Network (NEAT) which includes 16 European countries. 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 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 IAS



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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.

### **LAURA MANCINI**

Laura Mancini, Degree in Natural Sciences. Master's degree Environmental Economics and Sustainable Development. She is currently the director of the Ecosystems Health Unit of the National Institute of Health (ISS) in Italy. Her research group works and publishes extensively on Health and Climate Change, Environmental and Global Change, Ecosystems Health. The activity carried out at ISS has been characterized by an integration between basic research (methodological development), applied research (ecosystem health and primary prevention) and regulatory activity (pre- and post-normative). Her technical and scientific experience has also been consolidated through participation in training events and national and international lectures and collaborations, as well as through the planning and/or responsibility of national and European research projects. Editorial board member in international journals. Reviewer of scientific journals. Author and co-author of international papers, monographs, technical reports and guidelines.

### **LEONARDO VILLANI**

Leonardo Villani is a MD, resident doctor in Hygiene and Preventive Medicine and PhD student in Life Science and Public Health at Università Cattolica del Sacro Cuore in Rome, Italy. He also works in the Health Directorate of Local Health Unit ASL - Roma 1.

He is mainly involved in research projects related to the epidemiology of infectious diseases (especially the COVID-19 pandemic), leadership, vaccination, health determinants and health policies at national and international level.

### **SARA FARINA**

Sara Farina is a MD, currently a resident doctor in Hygiene and Preventive Medicine and Public Health 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.