



CIEE Global Institute – Cape Town

Course name: Global Health and Emerging Diseases
Course number: (GI) PUBH 3010 CTSA
Programs offering course: Cape Town Open Campus
Open Campus track: Global and Community Health
Language of instruction: English
U.S. semester credits: 3
Contact hours: 45
Term: Spring 2019

Course Description

This course is oriented to analyze the current situation of global health and emerging diseases as priority topics that affect population health. Focusing on a global health scenario, the course will deal with the complexities of achieving global coordination, which is needed between multiple organizations to achieve improvements in the respective fields. Three related areas determine global health action: the socioeconomic situation, security, and public health. These issues play out against a background of demographic change, economic development, and urbanization. Infectious diseases remain critical factors, but are no longer the major cause of global illness and death. A global geopolitical and environmental scenario needs to identify how major threats to health have changed in order to devise ways to confront them. Undoubtedly, poverty and social inequality constitute the greatest challenges in addressing health problems at the population level. By learning about different local realities, theoretical frameworks, and specific sets of problems, the class will facilitate a better understanding of those approaches and global health topics.

Learning Objectives

By the end of the course, students will:



- Evaluate the complexity of the social and environmental settings that contribute to the emergence of specific diseases.
- Apply indicators to characterize population health and the relation with diseases risk.
- Examine the current debates regarding global health scenarios, public policies and political decisions related to the control of emerging diseases.
- Link those public policies and political decisions to debates about economic asymmetries and cultural differences between the global north and the global south.

Course Prerequisites

Students should have completed a level 2000 class in health studies and/or health issues and/or zoonosis prior to taking this course.

Methods of Instruction

The course will be taught using lectures, seminars, case study projects, and group presentations. Analyzing data, interpreting them and preparing them for presentation, which plays an important role in this course, will typically be done in groups. Case studies and scenarios on individual countries in particular will be facilitated by the instructor. Debates in the class forum will focus on understanding complex concepts and theories related to public and global health. Students will also do site visits and interviews. Invited guest speakers will add to the learning experiences of the class.

Assessment and Final Grade

| | |
|----------------------------|------|
| Participation | 20% |
| Video Reports (2) | 10% |
| Written Reports (3) | 15 % |
| Public Information Booklet | 15% |



| | |
|--------------|------|
| Presentation | 15% |
| Final Paper | 25% |
| Total grade | 100% |

Course Requirements

Video Reports

At the end of each assigned week (weeks 1 and 2 respectively) every student will submit a 5 minute FlipGrid synthesis reporting on highlights, main contributions and learning points during the previous week. Instructor will provide the students with guidelines.

Written Reports

At the end of each assigned week (weeks 3, 4, and 5 respectively) every student will submit a 400-word synthesis reporting on highlights, main contributions and learning points during the previous week. Instructor will provide the students with guidelines.

Public Information Booklet

Working in small teams of at least two persons, students will create a public informational booklet presenting pertinent information relating to environmental considerations and impacts on global health. The booklet will be a mix of text, images, and infographics. Students will be assessed on the quality of the information presented, the degree to which the pamphlet is reader friendly, and the presentation aesthetics of infographics. The total equivalent word count will be 2000 words.

Presentation



Students will be required to prepare individual or paired (1-2 students) presentations based on a topic covered by the class. Students are required to examine the impact of migration on the management of infectious diseases. Student presentations will be assessed on their ability to demonstrate a nuanced examination of the correlation between political decisions and public health policy with respect to emerging diseases. Students should focus their examination on one case of an emerging disease. Presentations will be five minutes in length for every student (i.e. ten minutes for pair presentations).

Final Paper

A 2,000-word discussion paper will be required. The manuscript has the purpose to evaluate the level of comprehension and critical thinking of the student. The structure of the paper will have a common format (template). This paper will cover a specific topic and needs to express a solid understanding and reflection on the assigned topic. The individual topic can be part of the oral presentation.

Participation

Participation is valued as meaningful contribution in the digital and tangible classroom, utilizing the resources and materials presented to students as part of the course. Meaningful contribution requires students to be prepared in advance of each class session and to have regular attendance. Students must clearly demonstrate they have engaged with the materials as directed, for example, through classroom discussions, online discussion boards, peer-to-peer feedback (after presentations), interaction with guest speakers, and attentiveness on co-curricular and outside-of-classroom activities. In order to promote future pedagogical and strategic adjustments, students will also be requested to fill a form with an anonymous evaluation related to the class dynamics and contents. Although the content of the evaluation (considering that is anonymous) will not be



evaluated or graded, satisfying this requirement constitutes a mandatory participation task.

Attendance Policy

Regular class attendance is required throughout the program, and all unexcused absences will result in a lower participation grade for any affected CIEE course. Due to the intensive schedules for Open Campus and Short-Term programs, unexcused absences that constitute more than 10% of the total course will result in a written warning. Students who transfer from one CIEE class to another during the add/drop period will not be considered absent from the first session(s) of their new class, provided they were marked present for the first session(s) of their original class. Otherwise, the absence(s) from the original class carry over to the new class and count against the grade in that class.

For CIEE classes, excessively tardy (over 15 minutes late) students must be marked absent. Attendance policies also apply to any required co-curricular class excursion or event, as well as to Internship, Service Learning, or required field placement. Students who miss class for personal travel, including unforeseen delays that arise as a result of personal travel, will be marked as absent and unexcused. No make-up or re-sit opportunity will be provided.

Attendance policies also apply to any required class excursion, with the exception that some class excursions cannot accommodate any tardiness, and students risk being marked as absent if they fail to be present at the appointed time.

Unexcused absences will lead to the following penalties:



| <i>Percentage of Total Course Hours Missed</i> | <i>Equivalent Number of Open Campus Semester classes</i> | <i>Minimum Penalty</i> |
|--|--|--|
| Up to 10% | 1 content classes, or up to 2 language classes | Participation graded as per class requirements |
| 10 – 20% | 2 content classes, or 3-4 language classes | Participation graded as per class requirements; written warning |
| More than 20% | 3 content classes, or 5 language classes | Automatic course failure , and possible expulsion |

Weekly Schedule

NOTE: this schedule is subject to change at the discretion of the instructor to take advantage of current experiential learning opportunities.

Week 1 Orientation Week

Class 1:1 Global health and its impacts on human well-being

During this class students will be introduced to major global health challenges, programs and policies. The principal conceptual frameworks



on which global health research and strategies are based will be introduced to the students.

Class 1:2 Basic determinants of emerging infectious diseases

In this class students and professor will analyze the determinants and drivers of infectious diseases. For this, students will analyze and interpret specific data subsequently to be presented to the rest of the class. Students are asked to come to class with a personal computers/tablet/smartphone with internet access for this session.

- Kevin M. De Cock, Patricia M. Simone, Veronica Davison, and Laurence Slutsker. (2013) "The New Global Health." *Emerging Infectious Diseases* 19 (8): 1192-1197.

Assignment Due: First Video Report due.

Week 2 Global Health and Environmental Changes

Class 2:1 Managing the health effects of environmental changes

This class will help the students to understand the most important links among environmental changes and its effects on the living conditions of the populations related to how they can affect their well being and health.

- Jeffrey P Koplan, T Christopher Bond, Michael H Merson, K Srinath Reddy, Mario Henry Rodriguez, Nelson K Sewankambo, Judith N Wasserheit (2009), "Toward a Common Definition of Global Health", *The Lancet* 373 : 1993-1995.



Class 2:2 Ecosystem-mediated health effects by the environmental changes

In this class students will be introduced to the analysis of how certain social and environmental settings contribute to the emergence of specific diseases. For this purpose they will analyze and discuss data based on guided readings that expose them to the complexity of establishing such correlations.

- Jan C. Semenza, Elisabet Lindgren, Laszlo Balkanyi, Laura Espinosa, My S. Almqvist, Pasi Penttinen, Joacim Rocklöv (2016), “Determinants and Drivers of Infectious Disease Threat Events in Europe.” *Emerging Infectious Diseases* 22 (4): 581-589.

Class 2:3 Analysing the data, what the impacts can be?

Based on the data previously collected and the information provided by the instructor, students will work on case studies. After they finish they will present it to discuss in class their results and findings.

- Sarah Whitmee et al.(2015) “Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health.” *The Lancet*. www.thelancet.com
Published online July 16, 2015 [http://dx.doi.org/10.1016/S0140-6736\(15\)60901-1](http://dx.doi.org/10.1016/S0140-6736(15)60901-1)

Assignment Due: Second Video Report due.



Week 3 Mobility and migration as key factors in the spread and emergence of diseases

Class 3:1 Principal aspects of mobility, migration in a global world

In this module students will explore the relationship between migration and health as a complex web of the associations between population growth and environmental effect which have large implications for global health.

- Judith Stephenson, Susan F Crane, Caren Levy, Mark Maslin (2013). Population, development, and climate change: links and effects on human health. *The Lancet* 382: 1665–73.

- Migration and health: key issues. WHO (2017). <http://www.euro.who.int/en/health-topics/health-determinants/migration-and-health/migrant-health-in-the-european-region/migration-and-health-key-issues#292929>

Class 3:2 Mobility and Migration in Southern Africa

This class will be divided into two parts:

Part one: by means of the presentation of a guest speaker students will be introduced into the specific problematics of the migration and mobility in southern Africa in order to analyze the reasons for this and their consequences for the population linked to health and life conditions:

Guest speaker: will introduce students into the problematics and key components of the mobility and migration in southern Africa.



Part two: each group of students will discuss with the instructor the structure of their research topics, based on the selected topic, sources needed and research approach.

- Migration and health. www.thelancet.com/infection Vol 16 August 2016

Class 3:3. Communicable diseases: life conditions matter?

In this class students will approach the problem of the communicable diseases and the association that primarily linked them with poverty. Therefore, the class will cover the analysis of topics like migration based on war, conflict or economic crisis, etc, that certainly increase the risks of communicable diseases, particularly measles, and food- and waterborne diseases, such as tuberculosis (TB), HIV/AIDS and others.

- Gushulak BD1, MacPherson DW (2004) Globalization of infectious diseases: the impact of migration. *Clinical Infectious Diseases*. 38(12):1742-8.

Assignment Due: First Written Report due

Assignment Due: Public Informational Booklet

Week 4 Emerging infectious diseases: impact on the global health

Class 4:1 Emerging infectious diseases and One Health

Most human infectious diseases, especially recently emerging pathogens, originate from animals, and ongoing disease transmission from animals to people presents a significant global health burden.



- WHO-OIE-FAO-UNICEF-WB (2008) Contributing to One World, One Health. A Strategic Framework for Reducing Risks of Infectious Diseases at the Animal–Human–Ecosystems Interface

Class 4:2 Emerging infectious diseases and its representation in cinematography:

The films “Outbreak” and “Contagion” will be discussed and analyze the theme of both films in relation to the global health and the distribution of the emerging infectious diseases. Students will be divided into two groups to present the arguments of the debate.

- Christine Kreuder Johnson, Peta L. Hitchens, Tierra Smiley Evans, Tracey Goldstein, Kate Thomas, Andrew Clements, Damien O. Joly, Nathan D. Wolfe, Peter Daszak, William B. Karesh & Jonna K. Mazet. (2015). Spillover and pandemic properties of zoonotic viruses with high host plasticity. Scientific Reports | 5:14830 | DOI: 10.1038/srep14830 www.nature.com/scientificreports/

Assignment Due: Presentations

Class 4:3 Site visit

Students will visit a neighborhood to observe and collect environmental, social and demographic data to analyze how some of the diseases covered by the class had impact in the local context



- Brian McCloskey, Osman Dar, Alimuddin Zumla, David L Heymann.
(2014) Emerging infectious diseases and pandemic potential: status quo
and reducing risk of global spread. The
Lancet Infect Dis 2014; 14: 1001–10

Assignment Due: Second written report due

Week 5

Class 5:1 Emerging infectious diseases by arbovirus (part 1)

This class will focus on the principal vector-borne emerging infectious diseases and their impact on global health. To do so students will have to analyzed specific data and the instructor will provide them with reading guidelines

- Stephen S Morse, Jonna A K Mazet, Mark Woolhouse, Colin R Parrish, Dennis Carroll, William B Karesh, Carlos Zambrana-Torrel, W Ian Lipkin, Peter Daszak. (2012) Prediction and prevention of the next pandemic zoonosis. The Lancet 2012; 380: 1956–65

Class 5:2 Emerging infectious diseases by arbovirus (part 2)

This class will focus on the principal vector-borne emerging infectious diseases and their impact on global health. To do so students will have analyzed specific data and the instructor will provide them with reading guidelines



- Van-Mai Cao-Lormeau, Alexandre Blake, Sandrine Mons, Stéphane Lastère, Claudine Roche, Jessica Vanhomwegen, Timothée Dub, Laure Baudouin, Anita Teissier, Philippe Larre, Anne-Laure Vial, Christophe Decam, Valérie Choumet, Susan K Halstead, Hugh J Willison, Lucile Musset, Jean-Claude Manuguerra, Philippe Despres, Emmanuel Fournier, Henri-Pierre Mallet, Didier Musso, Arnaud Fontanet, Jean Neil, Frédéric Ghawché. (2016) Guillain-Barré Syndrome outbreak associated with Zika virus infection in French Polynesia: a case-control study. *The Lancet*. www.thelancet.com Published online [http://dx.doi.org/10.1016/S0140-6736\(16\)00562-6](http://dx.doi.org/10.1016/S0140-6736(16)00562-6)
- Marcia C Castro, Mary E Wilson, David E Bloom (2017) Disease and economic burdens of dengue. *The Lancet Infectious Diseases*. Published Online [http://dx.doi.org/10.1016/S1473-3099\(16\)30545-X](http://dx.doi.org/10.1016/S1473-3099(16)30545-X)

Assignment Due: Third written report due

Week 6 International debate and controversies about government decision and private sector influence. Debriefing week and research project. Final exam

Class 6:1 Emerging infectious diseases by bats and rodents

This class will focus on the principal emerging infectious diseases transmitted by bats and rodents and their impact on global health. To do so students will have analyzed specific data and the instructor will provide them with reading guidelines to facilitate group debates in class. Each group will be asked to prepare some of the articles listed below to do so.



- M. Saiful Islam, Hossain M.S. Sazzad, Syed Moinuddin Satter, Sharmin Sultana, M. Jahangir Hossain, Murshid Hasan, Mahmudur Rahman, Shelley Campbell, Deborah L. Cannon, Peter Daszak, Stephen P. Luby, Emily S. Gurley (2016) Nipah Virus Transmission from Bats to Humans Associated with Drinking Traditional Liquor Made from Date Palm Sap, Bangladesh, 2011–2014. *Emerging Infectious Diseases* 22 (4): 664-670

- Angela D. Luis, David T.S. Hayman, Thomas J. O’Shea, Paul M. Cryan, Amy T. Gilbert, Juliet R:C: Pulliam, James N. Mills, Mary E. Timonin, Craig K.R. Willis, Andrew A. Cunningham, Anthony R. Fooks, Charles E. Rupprecht, James L.N. Wood, Colleen T. Webb (2013) A comparison of bats and rodents as reservoirs of zoonotic viruses: are bat special? *Proceedings of the Royal Society* 280: 20122753.
<http://dx.doi.org/10.1098/rspb.2012.2753>.

Class 6:2 The global health and the emerging infectious diseases in the political and economic agenda.

In this module students will explore the relationship and the importance of crucial universal issues—such as protecting health and climate and the political decisions and economics supports for achieve the better solutions. Although these commitments are welcome proof of political will, actions (not advocacy) must now follow. A major challenge in the governance of research funding is agenda-setting, given that the priorities of funding bodies largely dictate what health issues and diseases are studied. The challenge of agenda-setting is a consequence of a larger phenomenon in global health financing. The reality might yet inspire the development of a global health ethic that all of society eventually embraces.

Assignment Due: Final Paper.



Course Readings:

- Testimony on Global Health: The United States Response to Infectious Diseases by Stephen Blount (Associate Director for Global Health Centers for Disease Control and Prevention U.S. Department of Health and Human Services) Before the Senate Committee on Labor and Human Resources, Subcommittee on Public Health and Safety. 1998
- The Lancet. Climate and health: preparing for Paris. (2015) *The Lancet* 386: 1795
- Richard Horton (2014) Offline: The case against global health. *The Lancet* 383: 1705
- Devi Sridhar (2012) Who Sets the Global Health Research Agenda? The Challenge of Multi-Bi Financing. *PLoS Med* 9(9): e1001312. doi:10.1371/journal.pmed.1001312
- The Lancet (2015) The G7 and global health: inaction or incisive leadership? *The Lancet* 385: 2433
- Nils B. Tjaden, Jonathan E. Suk, Dominik Fischer, Stephanie M. Thomas, Carl Beierkuhnlein & Jan C. Semenza. (2017) Modelling the effects of global climate change on Chikungunya transmission in the 21st century. *Nature Scientific Reports* | 7: 3813 | DOI:10.1038/s41598-017-03566-3.
- Peter J. Hotez, Kristy O. Murray. Dengue, West Nile virus, chikungunya, Zika— and now Mayaro?. *PLOS Neglected Tropical Diseases* | <https://doi.org/10.1371/journal.pntd.0005462> August 31, 2017.
- Laurence Marrama, Francis Schaffner, Veerle Versteirt, Jolyon Medlock. (2014) European Centre for Disease Prevention and Control. Guidelines for the surveillance of native mosquitoes in Europe. ISBN 978-92-9193-599-4 doi 10.2900/37227



- Pedro Alonso, Dirk Engels, John Reeder. (2017) Renewed push to strengthen vector control globally. *The Lancet* 389: 2270-2271.
- Lawrence O Gostin, James G Hodge Jr. (2016) Zika virus and global health security. *The Lancet* www.thelancet.com/infection Vol 16 October 2016.
- Emily S. Gurley, Sonia T. Hegde, Kamal Hossain, Hossain M.S. Sazzad, M. Jahangir Hossain, Mahmudur Rahman, M.A. Yushuf Sharkar, Henrik Salje, M. Saiful Islam, Jonathan H. Epstein, Salah U. Khan, A. Marm Kilpatrick, Peter Daszak, Stephen P. Luby. (2017) Convergence of Humans, Bats, Trees, and Culture in Nipah Virus Transmission, Bangladesh. *Emerging Infectious Diseases* 23 (9): 1446-1453
- Hamzah A. Mohd, Jaffar A. Al-Tawfiq and Ziad A. Memish. (2016) Middle East Respiratory Syndrome Coronavirus (MERS-CoV) origin and animal reservoir. *Virology Journal* 13: 87-94
- Leslie A. Reperant, John MacKenzie, Albert D.M.E. Osterhaus (2016) Periodic global One Health threats update. *One Health* 2: 1-7

Online Resources:

- Tony L Goldberg, Jonathan A Patz (2015) The need for a global health ethic. www.thelancet.com Published online July 16, 2015
[http://dx.doi.org/10.1016/S0140-6736\(15\)60757-7](http://dx.doi.org/10.1016/S0140-6736(15)60757-7)