Appendix to the syllabus of EPID 7135: Course schedule for Fall 2019

Correct as of August 14, 2019, subject to potential changes*

Week/Date	**Activities In Class**
Module 1. Emergency Responses & Outbreak Investigation **PowerPoint (Background information):** Infectious Disease Epidemiology: an overview **PowerPoint (Lectures):** Emergency response 1: Severe Acute Respiratory Syndrome (SARS) Emergency response 2: Ebola **Required readings:** WHO/International Study Team (1978) **Ebola haemorrhagic fever in Sudan, 1976.** *Bull WHO* 56(2):247-270. **Optional readings:** Nelson and Masters Williams: Chapter 5. Outbreak Epidemiology; pp. 346-351. SARS. May and Schabas (2011). **The Toronto Severe Acute Respiratory Syndrome** II **Experience.** In Hunting and Gleason (ed.) *Essential Case Studies in Public Health* (New York: Jones & Bartlett Learning, 2011) **References:** Widdowson M-A et al. (2016) **Implementing an Ebola Vaccine Study- Sierra Leone.** *MMWR* 65 (Suppl 3): 98-106. Meltzer MI et al. (2016) **Modeling** in **Real Time during the Ebola Response.** *MMWR* 65 (Suppl 3): 85-89. Bell BP et al. (2016) **Overview, Control Strategies, and Lessons Learned in the CDC Response to the 2014- 2016 Ebola Epidemic.** *MMWR.* 65(Suppl. 3): 4-11. **An example of a food poisoning outbreak investigation:** Parry A, Feamley E, Denehy E (2012). **'Surprise': Outbreak of Campylobacter infection associated with chicken liver pate at a surprise birthday party, Adelaide, Australia, 2012.** *Western Pacific Surveillance and Response Journal*, 3(4):16-19. URL: http://ojs.wpro.who.int/ojs/index.php/wpsar/article/view/168/187	
Wk 1 Aug 19 (M)	Explanation of course requirements. **Lecture: SARS** Verify attendance as required by the University for financial aid purposes.
Aug 21 (W)	**Lecture: Ebola** Participation point 1 of 25
Wk 2 Aug 26 (M) 12.30pm	**Guest seminar: Assessing parameter identifiability in compartmental dynamic models using a computational approach: application to infectious disease models** Speaker: Kimberlyn Roosa, MPH, doctoral student at Georgia State University Bonus point activity #1
4pm	**Activity: Ebola 1976. Worksheet. How would you conduct an outbreak investigation? The Example of Ebola - Southern Sudan, 1976.** Participation point 2 of 25
Aug 28 (W)	**Major Assignment. Foodborne outbreak investigation exercise. Part A: Creating the scenario.** Students work in groups in class. Bring your laptop computers (if any) to class. Participation point 3 of 25

Wk 3 Sep 2 (M)	Labor day holiday- No class as specified in the University calendar
Sep 4 (W)	**Major Assignment. Foodborne outbreak investigation exercise.** **Part B: Presenting the scenario in class (Deliverable #1)**
Module 2. Vaccine **PowerPoint (Lecture):** Vaccine: an introduction (with a focus on vaccine efficacy) **Optional readings:** Nelson and Masters Williams: Chapter 11. Vaccines: Past, Present, and Future.	
Wk 4 Sep 9 (M)	**Lecture** **Activity: Vaccine efficacy. Worksheets x3** Participation point 4 of 25 **Submit Major Assignment Deliverable #2 by 11.59pm, Sep 9 (M)** **Written submission to FOLIO (i.e., all materials ready for classroom delivery)**
Module 3. Influenza **PowerPoint (Lectures):** Influenza: part (1) Influenza: part (2) **Required readings:** Marghella, Pietro D. (2011) **The 2009 H1N1 Influenza Pandemic.** In Hunting and Gleason (ed.) Essential Case Studies in Public Health (New York: Jones & Bartlett Learning, 2011) Case 21. This chapter is in your e-book. Zhou, Lei et al. (2017). **Preliminary Epidemiology of Human Infections with Highly Pathogenic Avian Influenza A(H7N9) Virus, China, 2017.** *Emerging Infectious Diseases*. 23(8): 1355-9. Zhou, Lei et al. (2018). Clusters of Human Infection and Human-to-Human Transmission of Avian Influenza A(H7N9) Virus, 2013-2017. *Emerging Infectious Diseases*. 24(2): 397-400. **Optional readings:** Nelson and Masters Williams: Chapter 15. Epidemiology and Prevention of Influenza.	
Sep 11 (W)	**Lecture.** Participation point 5 of 25
Wk 5 Sep 16 (M) 12.30pm	**Webinar: New developments in HCV surveillance estimates** Speaker: Heather Bradley, PhD, Assistant Professor, Georgia State University Bonus point activity #2
4pm	**Lecture.** **Activity. Guided readings: H7N9 in China.** Participation point 6 of 25
Module 4. Transmission Dynamics **PowerPoint (Lecture):** Introduction to basic dynamic models of infectious disease transmission **Required readings:** **Nelson and Masters Williams: Chapter 6. Infectious Disease Dynamics.** This chapter is in your e-book.	

Wong, Karen K. et al. (2013), **Transmissibility of Variant Influenza From Swine to Humans: A Modeling Approach**. *Clinical Infectious Diseases.* 2013 57 (Suppl 1): S16-S22.

Fung ICH et al. (2015). **Modeling the Effect of School Closures in a Pandemic Scenario: Exploring Two Different Contact Matrices.** Clinical Infectious Diseases, 60 (suppl 1): S58-S63.

References:

Garnett et al. Lancet 2011 378:515.

Sep 18 (W)	**Lecture** Participation point 7 of 25
Wk 6 Sep 23 (M)	**Activity: Understanding an influenza model. Worksheet.** Participation point 8 of 25
Sep 25 (W)	**Activity: Basic dynamic models: Computer practical with Excel.** Basic dynamic models of infectious disease transmission: an Excel based computer model NOTES: Bring your own laptop computer to class Participation point 9 of 25
Wk 7 Sep 30 (M)	**Activity: Model of closing schools: Computer practical with Excel.** Closing schools to delay the effect of a pandemic: an Excel-based computer model NOTES: Bring your own laptop computer to class Participation point 10 of 25
Oct 2 (W)	**Revisit materials taught in Modules 1 to 4.** *Buffer slot.* Participation point 11 of 25
Wk 8 Oct 7 (M) 12.30pm	**Webinar: Trachoma** Speaker: Emma Harding-Esch, PhD, Associate Professor and Chief Scientist for Tropical Data, London School of Hygiene and Tropical Medicine Bonus point activity #3
4pm	**Exam 1: Modules 1 to 4**

Module 6. Vector-borne diseases (Note: Module 6 is taught ahead of Module 5 in Fall 2019)

Required readings:

Renault, Philippe et al. (2007). A Major Epidemic of Chikungunya Virus Infection on Reunion Island, France, 2005-2006. *AJTMH*, 77(4):727-731.

Pommier de Santi V, et al. (2016) **Epidemiological and entomological studies of a malaria outbreak among French armed forces deployed at illegal gold mining sites reveal new aspects of the disease's transmission in French Guiana.** *Malaria Journal*, 15:35.

PowerPoint (Background information): Vectorborne diseases: an introduction

PowerPoint (Lectures):

Malaria

Optional reading: Nelson and Masters Williams: Chapter 25. Emerging Vector-borne Diseases; Chapter 27. The Epidemiology and Control of Malaria.

Optional PowerPoint. Zika virus (Not covered in syllabus)

Optional Activity. Zika virus outbreak on Yap Island. Data Interpretation Worksheet. (Removed from syllabus since 2018) Duffy MR et al. (2009) Zika Virus Outbreak on Yap Island, Federated States of Micronesia. *New England Journal of Medicine*. 360(24):2536-2543.

Reference readings: Renault et al. (2012) *Medicine et maladies infectieuses*, 42:93-101.

Oct 9 (W)	**Lecture** Participation point 12 of 25
Wk 9 Oct 14 (M) 12.30pm	**Guest seminar: Forecasting the 2014 Ebola outbreak** Speaker: Cristina Carias, PhD, Health economist and mathematical modeler, CDC Bonus point activity #4
4pm	**Activity: Chikungunya on Reunion Island. Data Interpretation Worksheet.** Participation point 13 of 25 **Distribute Exam paper.**
Oct 16 (W)	**Activity: Malaria among soldiers deployed in French Guinea Data Interpretation Worksheet.** Participation point 14 of 25

Module 5. Diseases transmitted via the Environment

Required readings on WASH Benefits Trials:

a) Study design:

Arnold BF, Null C, Luby SP, et al. (2013) **Cluster-randomised controlled trials of individual and combined water, sanitation, hygiene and nutritional interventions in rural Bangladesh and Kenya: the WASH Benefits study design and rationale.** *BMJ Open*. 3:e003476.

b) Main study results:

Luby, Stephen P. (2018). **Effects of water quality, sanitation, handwashing, and nutritional interventions on diarrhoea and child growth in rural Bangladesh: a cluster randomised controlled trial.** *Lancet Global Health*; 6: e302-15.

Null, Clair et al. (2018). **Effects of water quality, sanitation, handwashing, and nutritional interventions on diarrhoea and child growth in rural Kenya: a cluster-randomised controlled trial.** *Lancet Global Health*; 6:e316-29.

c) Comments and replies:

Cumming, Oliver and Val Curtis (2018). **Implications of WASH Benefits trials for water and sanitation.** *Lancet Global Health*. 6:e613.

Coffey, Diane and Dean Spears (2018). **Implications of WASH Benefits trials for water and sanitation.** *Lancet Global Health*. 6:e615.

Arnold, Benjamin F., et al. (2018). **Implications of WASH Benefits trials for water and sanitation. Authors' reply.** *Lancet Global Health*. 6:e616.

PowerPoint (Background information):

Water, sanitation and hygiene: an introduction

Helminth infection: an introduction.

Diarrheal diseases: an introduction

Optional readings:

Nelson and Masters Williams: Chapter 20. Diarrheal Diseases; Chapter 28. Epidemiology of Helminth Infections

Reference readings:

Fung and Cairncross. Int J Env Health Res 2007. 17(3):161-183.

Cairncross et al. Int J Epidemiol 2010. 39(S1):i193-i205.

Clasen et al. Cochrane Database of Systematic Reviews 2010. Issue 6.

Optional additional readings:

Paul A. Blake, "Cholera for a Dime" In Mark S. Dworkin (ed.) Cases in Field Epidemiology: A Global Perspective. Chapter 4

Jeffrey P. Davis, "The Massive Waterborne Outbreak of Cryptosporidium Infections, Milwaukee, Wisconsin,

1993" In Mark S. Dworkin (ed.) Cases in Field Epidemiology: A Global Perspective. Chapter 14	
Wk 10 Oct 21 (M) 12.30pm	**Webinar: Health Disparities in the Era of the Sustainable Development Goals: Implications for Improving Water Sanitation and Hygiene Conditions** Speaker Prof. Joseph Eisenberg, Professor & Chair of Epidemiology, University of Michigan. Bonus point activity #5
4pm	**Activity: Worksheet: Data interpretation exercise of WASH Benefits cluster-randomized trials.** Participation point 15 of 25
Oct 23 (W)	**Activity: continuation from the previous session** Participation point 16 of 25
Module 7. Sexually transmitted diseases **Required Readings:** Safren et al. (2016) **Frequency and predictors of estimated HIV transmissions and bacterial STI acquisition among HIV-positive patients in HIV care across three continents**. *Journal of the International AIDS Society*. 19:21096. Young SD, et al. (2015) **The HOPE Social Media Intervention for Global HIV Prevention: A Cluster Randomized Controlled Trial in Peru**. *Lancet HIV*; 2(1): e27-e32. doi:10.l016/S2352-3018(14)00006-X. **PowerPoint (Background information):** HIV Sexually transmitted diseases: an introduction Viral hepatitis: an introduction **Optional readings:** Nelson and Masters Williams: Chapter 22. Human Immunodeficiency Virus Infections and the Acquired Immunodeficiency Syndrome Chapter 23. Viral Hepatitis. Chapter 24. Sexually Transmitted Diseases. **Optional additional readings:** Jeffrey D. Klausner, "Tracking a Syphilis Outbreak Through Cyberspace" In Mark S. Dworkin (ed.) Cases in Field Epidemiology: A Global Perspective. Chapter 16. Harold W. Jaffe, "The Early Days of AIDS in the United States: A Personal Perspective" In Mark S. Dworkin (ed.) Cases in Field Epidemiology: A Global Perspective. Chapter 7.	
Wk 11 Oct 28 (M)	**Activity: Estimated numbers of HIV infections: Data Interpretation Worksheet.** Participation point 17 of 25
Oct 29 (T) 11am- 12.15pm	TENTATIVE DATE **Major assignment. Food poisoning investigation exercise.** **Part C: Delivering the scenario in PUBH 6533-A (Dr Logan Cowan)** **Deliverable #3.** **Enact the scenario in PUBH 6533** Note: The best group scenario will be chosen to be delivered to a class of first-year MPH students in PUBH 6533 Epidemiology. However, all EPID 7135 students have to be present. **Attendance will be taken.**
Oct 30 (W)	**Activity: Cluster Randomized Controlled Trial of Social Media Intervention: Data Interpretation Worksheet.** Participation point 18 of 25

Wk 12 Nov 4 (M)	Re-visit materials taught in Modules 5 to 7 (APHA) Participation point 19 of 25
Nov 6 (W)	*Buffer time slot (APHA)* Participation point 20 of 25
Wk 13 Nov 11 (M)	**Exam 2 (Modules 5 to 7)**
Nov 13 (W)	**Guest lecture. Introduction to Network Analysis** Doctoral student(s) from EPID 9132 under Dr. Fung's supervision. Participation point 21 of 25
Wk 14 Nov 18 (M)	**Distribute Exam paper.** Re-visit materials taught in Modules 1 to 4 to prepare for Final Exam. *Buffer time slot* Participation point 22 of 25
Nov 20 (W)	**Guest lecture. Special Topic: Environmental exposure to pathogens and toxins** **Prof. Atin Adhikari (Confirmed)** Dr. Fung will be out of town in a conference Participation point 23 of 25
Wk 15 Nov 25-29	**Thanksgiving Holiday (November 28, 2018)- NO CLASS**
Wk 16 Dec 2 (M) 12.30pm	**Guest lecture: Influenza Epidemiology (tentative title).** **By Benjamin Cowling, PhD** **Professor & Division Head, Epidemiology & Biostatistics, University of Hong Kong** Participation point 24 of 25
	No class at 4 pm.
Dec 4 (W)	TENTATIVE: Career talk by former MPH students. *To be organized.* Participation point 25 of 25
Wk 17 Dec 9-11	**Final Exam (Modules 1 to 7 & Guest Lectures)** **Location: Same Classroom** **Time: see the University's announcement**