

<p>Duke Global Health Institute  One Health: Introduction to the One Health Approach  GLHLTH 731  Summer 2017, 2 Credit Hours</p>
---

Date	Time	Room
5/20/2017 Sat	10:00-2:30pm	Field Auditorium (room 112) Environment Hall
5/21/2017 Sun	1-3:45pm	Field Auditorium (room 112) Environment Hall
5/22/2017 Mon	8:00am-9:45am	Field Auditorium (room 112) Environment Hall
5/23/2017 Tue	8:00am-12:45pm	Field Auditorium (room 112) Environment Hall
5/24/2017 Wed	8:00am-12:45pm	Field Auditorium (room 112) Environment Hall
5/25/2017 Thu	8:00am-12:45pm	Field Auditorium (room 112) Environment Hall
5/26/2017 Fri	8:00am-12:45pm	Duke Lemur Center/3705 Erwin Rd Durham NC

### **Instructor Information**

Course director: Gregory C. Gray, MD, MPH  
Infectious Diseases Division  
Hanes House, Rm 254  
Durham, North Carolina 27710  
(919) 684-1032  
[gregory.gray@duke.edu](mailto:gregory.gray@duke.edu)  
Office hours arranged

### **Course Description**

This 2-credit-hour course is an introduction to the One Health approach of cross-disciplinary problem solving. Students will be introduced to the disciplines of infectious disease prevention and control through partnerships between human health, animal health, and environmental health. Through the cross-disciplinary One Health approach professionals are tackling public health's most difficult problems such as epidemics of zoonotic diseases and international food safety. The course will introduce students to infectious disease surveillance, diagnostic tools, outbreak investigations, vaccine trials, public health interventions, biodefense, emerging infectious diseases, and analytical approaches pertaining to infectious disease prevention and control.

### **Course Pre-requisites**

One of the following courses (or equivalent):  
Undergraduate biology  
Undergraduate animal science  
Undergraduate environmental science

### **Course Objectives and/or Goals**

At the end of this course the student will be able to:

- Understand the value of the One Health approach in tackling difficult public health problems

- Understand the etiologic, environmental, and host factors important to infectious disease epidemiology;
- Understand the value of epidemiological principles and methods in the identification and control of infectious disease;
- Develop skills needed to apply epidemiological principles and methods in solving problems related to infectious diseases and including identifying surveillance and control measures given a specific infectious disease outbreak.

### **Course Materials**

**Required text:** David L. Heymann, MD, ed., *Control of Communicable Diseases Manual* (CCDM), 20<sup>th</sup> edition, 2014, ISBN 978-0-87553-018-5

### **Course Requirements/Evaluation/Grading**

Students will be graded on a standard letter scale of A to F. Students will be evaluated by their class participation (50%) and a final open notes, open book, multiple-choice examination (50%). Students who fully participate and attend every session will earn at least a B for the class participation portion of the overall grade. To earn an A in class participation, students must attend each session and demonstrate that they prepared for lectures beforehand (through reading assigned text, interacting with the lecturers, and actively participating in group exercises).

<b>Percentage or points earned in class</b>	<b>93%-100%</b>	<b>90%-92%</b>	<b>87%-89%</b>	<b>83%-86%</b>	<b>80%-82%</b>	<b>77%-79%</b>	<b>73%-76%</b>	<b>70%-72%</b>	<b>Below 70%</b>
<b>Letter Grade equivalent</b>	A	A-	B+	B	B-	C+	C	C-	F

<b>Letter Grade</b>	<b>A</b>	<b>A-</b>	<b>B+</b>	<b>B</b>	<b>B-</b>	<b>C+</b>	<b>C</b>	<b>C-</b>	<b>F</b>	<b>NC</b>
<b>Grade Points</b>	4.0	3.7	3.3	3.0	2.7	2.3	2.0	1.7	0.0	0.0

For greater detail on the meaning of letter grades and university policies related to them, see <https://registrar.duke.edu/student-records/how-calculate-gpa>

### **Topical Outline**

	<b>Date</b>	<b>Title</b>	<b>Lecturer</b>	<b>Readings in CCDM</b>
1-2	Sat 10am-11:30am	Course overview, the concept of One Health, general principals of infectious disease prevention & control	Gray	A8-A19, A25-A28
3	Sat 11:45am-12:45pm	History of One Health and exercise I	Gray	
	12:45-1:15pm	Lunch (remember to bring your lunch)		
4	Sat 1:15-2:15pm	One Health problems and approaches	Gray	
5	Sun 1-1:45pm	Surveillance & quantitative methods	Gray	A1-A8

	Date	Title	Lecturer	Readings in CCDM
6	Sun 2-2:45pm	One Health activities in the USA and abroad	Stroud	
7	Sun 3-3:45pm	Analytical methods & forecasting	Gray	Distribute exercise 2 for homework
8	Mon 8-8:45am	Review exercise 2 Pathogen detection and molecular epidemiology	Gray Larsen	
9	Mon 9-9:45am	One Health and antimicrobial resistance	Woods	A33-A37
10	Mon 10-10:45am	Emerging Infectious Diseases I	Gray	26-46, 173-178, 245-249, 484-490, 675-679
11	Mon 11am-11:45am	Emerging Infectious Diseases II	Gray Bailey	26-46, 173-178, 245-249, 484-490, 675-679
12	Mon 12pm-12:45pm	Employing One Health principals in studies of the environment	Hilborn	
13	Tues 8-8:45am	Vaccines	Gray	A39-A45
14	Tues 9-9:45am	One Health video and discussion I	Anderson	
15	Tues 10-10:45am	Advanced GIS modeling in One Health	Lantos	
16	Tues 11am-11:45am	Introduction to Immunology and HIV	McKellar	287-294
17	Tues 12am-12:45am	Exercise 3	Gray	521-523
18	Wed 8-8:45am	The threat of bioterrorism	Gray	A19-A25, 16-26, 71-77, 456-465, 561-569, 650-654
19	Wed 9-9:45am	One Health video and discussion II	Anderson	
20	Wed 10-10:45am	Acute respiratory infections I	Gray	119-124, 539-549, 465-473
21	Wed 11am-11:45am	Acute respiratory infections II	Gray	306-322
22	Wed 12am-12:45am	Acute respiratory infections III	Gray	449-454, 581-592
23	Thur 8-8:45am	Diarrheal diseases I	Gray	85-88, 102-114, 134-139, 158-172, 190-196, 216-226, 234-236, 436-438, 524-526, 532-539, 556-561, 571-580
24	Thur 9-9:45am	Host response as a diagnostic tool	McClain	
25	Thur 10-10:45am	One Health video and discussion III	Bailey	
26	Thur 11am-11:45am	Diarrheal diseases II	Gray	
27	Thur 12pm-12:45pm	Exercise 4	Gray	
28	Fri 8-8:45am	An introduction to conservation: Examples from Madagascar	Welch	
29	Fri 9-9:45am	Behind the scene tour of the Duke Lemur Center	Welch	
30	Fri 10-10:45am	Malaria and tuberculosis	Gray	372-389, 637-650
31-32	Fri 11am-12:30pm	Final examination	Gray	

### **Duke Honor Code**

Duke University is a community dedicated to scholarship, leadership, and service and to the principles of honesty, fairness, respect, and accountability. Citizens of this community commit to reflect upon and uphold these principles in all academic and non-academic endeavors, and to protect and promote a culture of integrity. To uphold the Duke Community Standard:

- I will not lie, cheat, or steal in my academic endeavors;
- I will conduct myself honorably in all my endeavors; and
- I will not act if the Standard is compromised.

Students are encouraged to review the Duke Honor Code:

(<http://www.integrity.duke.edu/new.html>)

### **Plagiarism**

Plagiarism, of any kind, is not be acceptable and will result in an automatic failure and possible additional disciplinary action.

See Duke Guidelines for plagiarism: <http://library.duke.edu/research/plagiarism>

### **Attendance Policy**

Attendance is mandatory.

### **Policy Related to Make-up Exams or Other Work**

***Attendance and Make-up Work*** – I expect you to attend and be prepared to participate in all class sessions. Personal issues with respect to class attendance or fulfillment of course requirements will be handled on an individual basis.