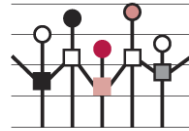




University of Wisconsin  
**SCHOOL OF MEDICINE  
 AND PUBLIC HEALTH**



**Population  
 Health  
 Sciences**

**PHS 797 Introduction to Epidemiology (3 credits)  
 September 6 to December 15, 2016**

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## **COURSE DESCRIPTION**

Epidemiology has been described as the “basic science” of public health. Historically, epidemiology has been the practice of identifying causes of disease. Fundamentally, epidemiology is the study of cause and effect as it relates to health. This course is designed to present relevant problems in human health and provide the methods and techniques necessary to solve them.

## **COURSE OBJECTIVES**

By the end of the course, you will be able to:

1. Identify the major causes of mortality and morbidity in the U.S.
2. Describe important variations in disease frequency according to person, place and time
3. Calculate and interpret measures of disease frequency
4. Identify the features of epidemiologic study designs, and describe their strengths and limitations
5. Compute and interpret measures of association between a risk factor and a health outcome
6. Evaluate causal inferences between risk factors and health
7. Describe major sources of bias and confounding in epidemiologic research, and how they can be addressed
8. Identify and interpret the presence of interaction (effect modification) between multiple risk factors in relation to an outcome
9. Read and critically review scientific literature and synthesize findings across studies
10. Define and interpret basic terms and methods used in the epidemiology of infectious diseases, chronic diseases, environmental epidemiology, and genetic epidemiology

## **COURSE FORMAT AND LOCATION**

Introduction to Epidemiology is administered through Learn@UW (<https://learnuw.wisc.edu/>) and will be taught both online and in-person. Approximately two-thirds of lectures have been pre-recorded and strategically parsed into short videos ranging from approximately 2 to 40 minutes in length. This format allows you to learn most of the core material when it best fits into your class and work schedules and to easily revisit select content whenever needed. You will also complete one of the six laboratory exercises online. In-person sessions include 5 lectures given by the Course Director, 4 lectures given by guest faculty, 11 laboratory sessions for 5 exercises, and 2 examinations. During the in-person laboratory sessions, faculty and teaching assistants will circulate around the room to provide guidance to you and your lab groups.

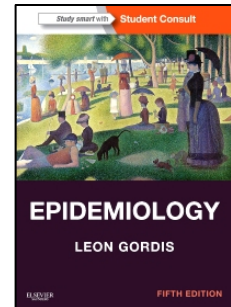
The 10 in-person lectures and the two in-class exams will be held in Room 1345 of the Health Sciences Learning Center (HSLC; 750 Highland Ave). Ten laboratory sessions will be held in 1321 and/or 1331 Signe Skott Cooper Hall (701 Highland Ave). Please see the schedule at the end of the syllabus for specific dates and locations.

## COURSE INSTRUCTORS

<u>Course Director:</u>	Ajay K. Sethi, PhD, MHS Associate Professor, Department of Population Health Sciences Faculty Program Director, Master of Public Health Program Room 601 WARF 608-263-1756 <a href="mailto:aksethi@wisc.edu">aksethi@wisc.edu</a>	
<u>Teaching Assistants:</u>	Sitong Guo PhD student Population Health Sciences	Melissa Marver MS Student Population Health Sciences
<u>Laboratory Faculty:</u>	Marty Kanarek, PhD, MPH Professor Population Health Sciences	Ajay Sethi, PhD, MHS Associate Professor Population Health Sciences

## TEXTBOOK

The required text for the course is *Epidemiology* (5<sup>th</sup> Edition) by Leon Gordis; 2013 Saunders (Philadelphia, PA); ISBN: 978-1-4557-3733-8.



## LABORATORY EXERCISES

Laboratory exercises are your opportunity to apply concepts you learn in lectures and readings. Exercises are to be completed on your own and during Thursday lab sessions. This course has the following six exercises integrated into the course schedule:

1. Oswego: An Outbreak of Gastrointestinal Illness Following a Church Supper
2. Assessing the Health of a Community
3. Diagnostic and Screening Tests
4. Hormone Replacement Therapy and Endometrial Cancer
5. Evaluating Evidence to Establish a Causal Relationship between an Exposure and Disease
6. Analyzing Published Papers: Silicone Breast Implants and Connective Tissue Diseases

## ASSESSMENT AND GRADING

Your course grade will be based on your performance on six laboratory exercises and two exams. The determination of your course grade and the distribution of points by assessment will be as follows:

<u>Total points</u>	<u>Grade</u>	<u>Proportion</u>	<u>Item</u>
93.0 – 100.0	A	5%	Exercise 1
87.0 – 92.9	AB	5%	Exercise 2
80.0 – 86.9	B	5%	Exercise 3
77.0 – 79.9	BC	5%	Exercise 4
70.0 – 76.9	C	5%	Exercise 5
60.0 – 69.9	D	10%	Exercise 6
<60.0	F	32.5%	Exam 1
		32.5%	Exam 2

Note: If the categories above were to change, it would be in your favor.

### Absences

Attendance is not recorded. However, because successful laboratory group work depends on equal effort from all participants, absence from laboratory sessions is strongly discouraged. If you must be absent during the semester you must coordinate with your laboratory group to ensure that all work is completed.

### Late assignments

You will work on laboratory exercises in your lab groups, but will turn in write-ups individually for an individual grade. With the exception of Exercise 3, lab write-ups will be turned in via a Dropbox folder set up on Learn@UW. Exercise 3 will be completed using a quiz-based format. In fairness to students who complete their laboratory exercises on time, any assignment handed in late will be assessed a penalty of one percent of your course grade each 24-hour period following the deadline. So, for example, Lab 1 is worth 5% of your course grade. If you turn it in 0-24 hours late, it will be worth a maximum of 4% of your course grade; if you turn it in 24-48 hours late, it will be worth a maximum of 3% of your course grade; and so on. Lab exercises will not be accepted after four days (96 hours) from the specified due date and time. This may be waived in advance for valid reasons. Please email the Teaching Assistants to document your request and, if applicable, to receive a mutually agreed upon due date.

## ACCESS AND ACCOMMODATION

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodation for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.

## **ACADEMIC HONESTY AND INTEGRITY**

Please read the University of Wisconsin standards of academic honesty and integrity (<http://students.wisc.edu/saja/misconduct/UWS14.html>). The expectations for this course are consonant with those of the University.

## **NON-DISCRIMINATION POLICY**

The UW-Madison is committed to creating a dynamic, diverse and welcoming learning environment for all students and has a non-discrimination policy that reflects this philosophy. Disrespectful behaviors or comments addressed towards any group or individual, regardless of race/ethnicity, sexuality, gender, religion, ability, or any other difference is deemed unacceptable in this class, and will be addressed publicly by the professor.

**COURSE SCHEDULE**

<b>Period</b>	<b>Content</b>	<b>In-person Meeting Dates &amp; locations</b>
09/06 to 09/08	Textbook: Gordis Chapters 1 and 2	
	Lecture: Introduction to epidemiology (Sethi)	09/06: 1345 HSLC
	Learn@UW: Disease transmission	
	Lab: Lab 1 group work	09/08: 1331 Cooper Hall
09/09 to 09/15	Textbook: Gordis Chapter 2	
	Learn@UW: Outbreak investigation	
	Learn@UW: Surveillance	
	Lab: Lab 1 group discussion	09/15: 1331 Cooper Hall
09/16 to 09/22	Textbook: Gordis Chapters 3 and 4	
	Learn@UW: Measures of morbidity	
	Learn@UW: Measures of mortality	
	Lab: Lab 2 group work	09/22: 1331 Cooper Hall
09/23 to 09/29	Textbook: Gordis Chapter 4	
	Lecture: Descriptive epidemiology (Sethi)	09/27: 1345 HSLC
	Learn@UW: Comparing mortality in different populations	
	Lab: Lab 2 group discussion	09/29: 1321 & 1331 CH
09/30 to 10/06	Textbook: Gordis Chapters 5 and 6	
	Learn@UW: Diagnostic and screening tests	
	Learn@UW: Natural history of disease	
	Lab: Lab 3 group work and discussion	10/06: 1321 & 1331 CH
10/07 to 10/13	Textbook: Gordis Chapter 14	
	Lecture: Causal inference (Sethi)	10/11: 1345 HSLC
	Exam: Exam 1	10/13: 1345 HSLC
10/14 to 10/20	Textbook: Gordis Chapters 7, 8, 9, and 11	
	Learn@UW: Experimental studies	
	Learn@UW: Cohort studies	
	Lab: Exam 1 review	10/20: 1331 Cooper Hall

**COURSE SCHEDULE (continued)**

<b>Period</b>	<b>Content</b>	<b>In-person Meeting Dates &amp; locations</b>
10/21 to 10/27	Textbook: Gordis Chapters 10 and 11	
	Learn@UW: Case-control studies	
	Learn@UW: Cross-sectional and other study designs	
	Lab: Lab 4 group work	10/27: 1331 Cooper Hall
10/28 to 11/03	Textbook: Gordis Chapters 13 and 17	
	Lecture: Summary of epidemiologic study designs (Sethi)	11/1: 1345 HSLC
	Learn@UW: Epidemiology to evaluate health services	
	Lab: Lab 4 group discussion	11/03: 1321 & 1331 CH
11/04 to 11/10	Textbook: Gordis Chapters 12 and 16	
	Lecture: Environmental epidemiology (Kanarek)	11/08: 1345 HSLC
	Learn@UW: Estimating risk and potential for prevention	
	Lab: Lab 5 group work	11/10: 1331 Cooper Hall
11/11 to 11/17	Textbook: Gordis Chapters 15 and 16	
	Lecture: Genetic epidemiology (Engelman)	11/15: 1345 HSLC
	Learn@UW: Bias	
	Lab: Lab 5 discussion	11/17: 1321 & 1331 CH
11/18 to 11/24	Textbook: Gordis Chapter 15	
	Learn@UW: Confounding	
11/25 to 12/01	Textbook: Gordis Chapters 15 and 18	
	Lecture: Evaluation of screening programs (Trentham)	11/29: 1345 HSLC
	Learn@UW: Interaction	
	Lab: Lab 6 group work	12/01: 1331 Cooper Hall
12/02 to 12/08	Textbook: Gordis Chapter 19	
	Lecture: Epidemiology & public policy (DuGoff)	12/06: 1345 HSLC
	Lab: Lab 6 debate	12/08: 1227, 1231, & 1331 Cooper Hall
12/09 to 12/15	Textbook: Chapter 20	
	Lecture: Course wrap-up and looking ahead	12/13: 1345 HSLC
	Exam: Exam 2	12/15: 1345 HSLC
12/16 to 12/20	Exam: Optional Final Exam	12/20: 1345 HSLC