

EPIDEM 100: Introduction to Epidemiology
UCLA Fielding School of Public Health
Summer 2020

This is a draft syllabus and is subject to change.

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Course website: <https://ccl.e.ucla.edu/course/view/191A-EPIDEM100-1>

Teaching Assistant: TBA

“...it is the knowledge about the way in which the disease is propagated which will cause them to disappear.”

- John Snow

Course Outline

Epidemiology is the systematic and rigorous study of health and disease in a population. The purpose of this course is to introduce you to core concepts in epidemiology as a foundation for further learning in the public health field. You will learn about several aspects of epidemiology and will discover and learn to apply analytical methods to study patterns of disease and injury. Upon learning concepts of inference, bias and confounding you will assess epidemiological associations and causation of disease. You will recognize how to apply these concepts to inform basic and clinical science as well as policy. The course requires problem-based learning of epidemiological concepts and methods, so you will be able to use epidemiology as a scientific tool for addressing the health needs of the community.

Required Text

Essentials of Epidemiology in Public Health, 3rd Edition. Ann Aschengrau & George R. Seage III. Jones and Bartlett Publishers. Sudbury, Massachusetts, 2014.

Additional Readings

Additional readings may be found on course website.

Objectives

To familiarize the student with how epidemiology contributes to:

1. The understanding of the causes and natural course of disease of all kinds,
2. The control of disease in human populations, and
3. Scientific judgment and inquiry in public health problems.

By successfully completing this course, students should be able to:

1. Discuss the role of epidemiology within the broader field of public health
2. Discuss the principles of disease prevention within populations
3. List and describe key terms used in the epidemiology and prevention of infectious disease
4. Calculate and interpret basic population measures of health and disease occurrence including incidence, prevalence, and survival
5. Make appropriate comparisons of disease rates within and between populations
6. Distinguish between basic measures of association, including rate ratio, risk ratio, incidence density ratio, odds ratio, attributable risk, and population attributable risk
7. Select and apply fundamental epidemiologic study designs including randomized clinical trial, cohort, case-control, and ecologic for the purpose of investigating public health problems
8. Identify the role of bias and confounding in epidemiologic research and apply methods appropriate to assessment of confounding and various types of bias
9. Differentiate between various epidemiologic study designs and compare their respective strengths and weaknesses
10. Critique published epidemiological studies and identify their strengths and weaknesses

Association of Schools of Public Health (ASPH) competencies covered in class (epidemiology specific):

After completion of this course the student should be able to :

1. Identify key sources of data for epidemiologic purposes.
2. Identify the principles and limitations of public health screening programs.
3. Describe a public health problem in terms of magnitude, person, time and place.
4. Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.
5. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.
6. Apply the basic terminology and definitions of epidemiology.
7. Calculate basic epidemiology measures.
8. Communicate epidemiologic information to lay and professional audiences.
9. Draw appropriate inferences from epidemiologic data.
10. Evaluate the strengths and limitations of epidemiologic reports.

Council on Education for Public Health Foundational Competencies for Bachelor's Degrees (epidemiology specific):

1. Students will develop the ability to locate, use, evaluate and synthesize public health information

Council on Education for Public Health Foundational Competencies for Master's or Doctoral Degrees (epidemiology specific):

1. Apply epidemiological methods to the breadth of settings and situations in public health practice
2. Select quantitative and qualitative data collection methods appropriate for a given public health context
3. Interpret results of data analysis for public health research, policy or practice

Course Format

The class format will include lectures, in-class work, homeworks (case studies), and in-person discussion sections as described below. Attending the lectures is an essential and mandatory part of the course for which there is no suitable substitute. Students should read each chapter before the lecture; the textbook provides the foundation for the course. Lectures provide additional information, clarity, and examples to enhance the book.

Class Schedule

Week 1	Topics	Readings	Homeworks
Class 1	Introduction and course content	Chapter 1	Homework #1
	Sources of data and descriptive epidemiology	Chapter 4 Chapter 5	
	Person, place, and time: Epidemiology as Key to Prevention and Control of Disease in Los Angeles County		
Class 2	Prevalence and incidence		Homework #1 due
	Studying populations; Measures of association	Chapter 2 Chapter 3	
Week 2			
Class 3	Quiz 1		Homework #2:
	Overview of study designs Age adjustment Ecological studies	Chapter 6	
Class 4	No class – Enjoy the 4 th !		
Week 3			
Class 5	Clinical Trials	Chapter 7	Homework #2 due
			Homework #3:
Class 6	Cohort studies	Chapter 8	Homework #3

			due
Week 4			
Class 7	Quiz 2		
	Case-control studies	Chapter 9	
	Random error	Chapter 12	
Class 8	Bias	Chapter 10	Homework #4
	Effect Measure Modification	Chapter 13	
Week 5			
Class 9	Confounding	Chapter 11	Homework #4 due
Class 10	Quiz 3		Homework #5
	Causal inference	Chapter 15	
	Screening	Chapter 16	
Week 6			
Class 11	Ethics	Chapter 17	Homework #5 due
	Review of studies	Chapter 14	
Class 12	Final Exam		

Homeworks (40% of grade)

Each week you will have a homework assignment which is aimed for you to apply epidemiologic principles. Homeworks will be posted on the course website.

Quizzes (25%) and Final Examination (25% of grade)

There will be 3 quizzes and a final exam. Exams are closed book. The format of the exams will include multiple choice, true or false, short answer questions, as well as calculations and step-wise work through a 'real world' epidemiological problem. These reviews assess your application of knowledge from required readings, lectures, discussions, and will be **cumulative**.

Students who cannot take an exam on the day due to extenuating circumstances should inform the instructor as soon as possible of the illness/situation. Extenuating circumstances are defined as severe personal illness (medical note required) or circumstances beyond the student's control. If you are aware that you will miss an exam deadline because of a planned trip, interview or due to official business for UCLA, you should contact the instructor as soon as possible.

Participation in Discussion Sections (10% of grade)

The teaching assistant will lead twice-weekly discussion sections, in order to further understanding of concepts and get your questions addressed and discussed. Participation is mandatory.

Grading Scale

A :	94-100	B+:	87-89	C+:	77-79	D+:	67-69
A-:	90-93	B :	84-86	C :	74-76	D :	65-66
		B-:	80-83	C-:	70-73	F :	<65

Student Conduct Code

The Student Conduct Code is a valuable and venerable tradition at UCLA. You are expected to honor this tradition in all of your work. Academic dishonesty includes honoring rules for not sharing work on exams and assignments. According to Senate Regulation A-306 (<https://senate.ucla.edu/regulations/chapter1#bootstrap-fieldgroup-accordion-item--section-4-grades-3>), if I suspect a student of academic dishonesty, I am required to report this suspected incidence to the Office of Student Conduct (<https://www.deanofstudents.ucla.edu/Contact-Us>).

Extra Credit

No extra credit will be awarded. Detailed instructions will be provided to ensure you can successfully complete the course activities and the learning outcomes. Allow sufficient time to complete the course requirements so you can achieve your desired grade.

Accessibility

Your success in this class is important to me. Please let the TA or me know if there is anything we can do to help you better understand the materials in this course, and we will try to do it if we can. Work with us; together we can develop strategies to maximize your learning potential, your understanding of the course material, and your demonstration of that understanding.

Students with Disabilities

All students taking this class are valued and it is important to me that students with disabilities are appropriately accommodated. Students needing academic accommodations based on a disability should contact the Center for Accessible Education (CAE) at (310)825-1501 or in person at Murphy Hall A255. In order to ensure accommodations, students need to contact the CAE within the first two weeks of the term.

Title IX Resources

UCLA prohibits gender discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking. If you have experienced sexual harassment or sexual violence, there are a variety of resources to assist you.

Confidential resources: You can receive confidential support and advocacy at the CARE Advocacy Office for Sexual and Gender-Based Violence, 1st Floor Wooden Center West, (310) 206-2465, CAREadvocate@careprogram.ucla.edu . Counseling and Psychological

Services (CAPS) also provides confidential counseling to all students and can be reached 24/7 at (310) 825-0768.

Non-confidential resources: You can also report sexual violence or sexual harassment directly to the University's Title IX Coordinator, 2241 Murphy Hall, titleix@conet.ucla.edu, (310) 206-3417. Reports to law enforcement can be made to UCPD at (310) 825-1491. These offices may be required to pursue an official investigation.