PH 100: INTRODUCTION TO EPIDEMIOLOGY
Fall 2021
University of California, Merced

Updated August 27, 2021

INSTRUCTOR AND COURSE INFORMATION

Instructor	**Course information**
Sandie Ha, PhD, MPH Email: sha55@ucmerced.edu Office hours: Wednesdays 3-5PM both in person and through Zoom Location: SSM 356B Zoom (office hours only): • ID: 851 4109 4967 (link also available through Zoom in Catcourse)	Course number: PH 100 (4 units) Class time: MW 9:30-11:20am Location: COB2 140 Final exam: Wed Dec 15, 3:00-6:00pm
Sections and TAs	**TA Office hours**
1. 02D - M 11:30-12:20pm ADMIN 362 Kasem Salim (ksalim4@ucmerced.edu) 2. 03D - M 11:30-12:20pm via ZOOM Vince Ramirez (vramirez4@ucmerced.edu) 3. 04D - W 11:30-12:20pm GRAN 150 Kasem Salim (ksalim4@ucmerced.edu) 4. 05D - W 11:30-12:20pm via ZOOM Vince Ramirez (vramirez4@ucmerced.edu)	Kasem Salim Tuesdays: 12-2PM REMOTE Zoom link: Please check Catcourse Vince Ramirez: Fridays 10-12PM REMOTE Zoom link: Please check Catcourse

COURSE DESCRIPTION

The purpose of this class is to introduce student to the basic concepts of epidemiology, and to selected specific areas of interest of this population-based, numeric science. The class will concentrate on concepts of disease surveillance and measurement, risk factor evaluation (e.g., study designs) and analyses of epidemiologic data. Class topics will illustrate key epidemiologic concepts using historic studies and current public health and emerging disease issues. The class will follow a **lecture format** with assigned readings from the textbook, guest lectures, and readings from recent epidemiologic literature. During **weekly discussion sections**, students will have the opportunity to work on case studies, problem sets, and class activities that will help bridge concepts discussed in lectures with real-world examples.

LEARNING OUTCOMES

Course learning outcomes (CLOs)

By the end of the semester, students of PH100 will be able to:

1. Define, understand and elaborate on the differences between descriptive and analytic epidemiology (Measured by Assignments and Exams). (PLO 4 and 5)
2. Describe and understand the impact of disease in human populations as measured by measures of disease of frequency (Measured by Assignments and Exams). (PLOs 2 and 4)
3. Describe methods to understand and analyze the major etiologic factors in human disease (Measured by assignments and Exams). (PLO 2, 4)
4. Summarize and describe methods of screening and monitoring disease in populations (Measured by Assignments and Exams). (PLO 2, 4 and 5)
5. Explain how epidemiologists conduct research to enhance understanding of disease etiology (Measured by assignments and Exams). (PLO 2, 4 and 5)

Program Learning Outcomes

The following Program Learning Outcomes (PLOs) describe the focus of the Public Health major and minor. Our CLOs described above are aligned with these PLOs.

1. Define public health and describe the roles and responsibilities of government, non-governmental organizations, and private citizens in maintaining public health.
2. Use the theories and principles of Public Health to explain a Public Health problem.
3. Apply public health research methods to conduct rigorous research on public health issues.
4. Describe causes and risk factors in the major areas of focus in public health, including but not limited to determinants of mortality and morbidity; leading causes of health disparities among regional, national, and global populations; and transmission for infectious and chronic diseases.
5. Identify and analyze scientific data and other information to assess complex Public Health challenges, with special consideration of strategies for health promotion at the individual, community, and policy levels, as appropriate.
6. Communicate effectively and persuasively, orally and in writing, particularly to convey complex concepts and information in a clear and concise manner.

General Education Learning Outcomes

This course qualifies as a general education course in meeting the following UC Merced General Education Program Learning Outcomes:

1. *Life at the Research University*: Asking Questions - UC Merced graduates take an inquiry-oriented approach to the world that reflects engagement with the mission and values of our research university (via CLOs 1-5).
2. *Reasoning: Thinking Critically* – UC Merced graduates are equipped with multiple tools of analysis that enable them to formulate or assess an opinion or conclusion (via CLOs 1,3-5)
3. *Communication: Explaining and Persuading* - UC Merced graduates communicate in a variety of ways to diverse audiences (via CLOs 1,3,5)

General education requirements

1. Approach to knowledge in the Social Sciences
2. Intellectual experience badges: Scientific methods and quantitative and numerical analysis

COURSE REQUIREMENTS

This course will primarily utilize a didactic format, following the course textbook supplemented by materials (articles from scientific journals as well as popular magazines) from the instructor. During weekly discussion sections, students will work on problem sets, activities, and case studies that will provide the opportunity to bridge concepts learned from lectures to real-world problems. Wherever possible, concrete examples of data from the health sciences and web-based resources will be used in class to demonstrate the techniques of epidemiologic analysis.

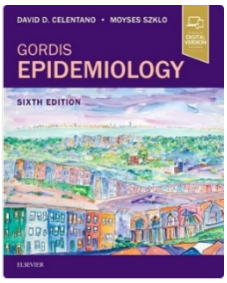
General expectations

- This course makes extensive use of Catcourses, students are expected to be closely engaged with the platform for all resources and communications.
- Complete readings and exercises and to come to class prepared for discussion. All deadlines are specified on the Course Schedule.
- Attend every class, students will be held responsible for all materials presented in each class (including guest lectures).

An understanding of introductory epidemiology requires some arithmetic and algebraic skill. A high mark in this course will require comfort with multi-step mathematical reasoning, facility with fractions and decimals, and the ability to craft arithmetic solutions to problems described by text and accompanying data (word problems). A simple calculator will make some of the arithmetic easier. Such calculator is OK to use for assignments, in class, and on the mid-terms and final.

The class generally requires a commitment of three hours per credit. Since this class is four credits, I expect everyone to commit five in-class (lectures and discussion section) and seven out-of-class hours each week (studying, reading, working on problem sets, etc).

Course materials



- **Course Textbook**

  Required: David D Celentano & Moyses Szklo. Gordis Epidemiology (6th edition). Elsevier.

- **Top Hat**

  We will be using the Top Hat (www.tophat.com) classroom response system in this class. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message.

  You can visit the Top Hat Overview (https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide) within the Top Hat Success Center which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system.

  An email invitation will be sent to you by email, but if don't receive this email, you can register by simply visiting our course website: https://app.tophat.com/e/943970

Course Join Code is **943970**

  Top Hat may require a paid subscription, and a full breakdown of all subscription options available can be found here: www.tophat.com/pricing.

  Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email (support@tophat.com), the in app support button, or by calling 1-888-663-5491.

- **A simple calculator** is highly recommended for solving problem sets. Graphing calculators with memory functions are NOT allowed on exams.

Grading methods

Assignments/homeworks = 40% (can be used as e-portfolio items for intellectual badges 'scientific method' or 'quantitative and numerical analysis')

- Assignments, also known as homework's, will be available several days in advance.

- You will have 2 attempts for each homework, and the attempt with higher score will be taken.
- Assignments are submitted electronically are due at midnight; that is, an assignment due on Monday should be marked as submitted on CatCourse by 11:59pm on that day. **No make-ups or late submissions will be allowed** unless there is a documented emergency or with prior arrangement with the instructor.
- If you have submitted an assignment on time, and decide to resubmit after the deadline, the system will mark your submission as LATE and you will get a zero. So, please do NOT resubmit an assignment just to check the answer when you study.
- Students are highly encouraged to take these assignments seriously and seek help if necessary.
- On the same note, students are *highly encouraged* to discuss the homework assignments with each other in study groups/discussion boards, the TAs, or me. If you work together on the assignment, please make sure the answers are individual, we will check for evidence of cheating/plagiarism.

Midterms (x2) = 15% each (total 30%)

- The midterms will be administered in class. Students are allowed to use one cheat sheet (8.5 x 11 inches) front and back. Students can use this cheat sheet to write formula or notes that may be useful for the exams.
- Questions on the first midterm will be drawn from the materials covered until that point of the course (lectures, text, and supplementary materials). The questions for the second midterm will cover materials since the first midterm but some concepts from the first exam will carry forward.
- The format for these exams generally includes a combination of multiple choice, true/false, and short essay questions.

Final = 20%

- Questions on the final exam will be drawn from the material covered in the <u>entire</u> course (lectures, text, and supplementary materials).
- The final will be taken place during finals week and is slightly longer (3hr).

Participation = 10%

- Attendance in lecture and discussion section is necessary for successful completion of this class.
- Top Hat, a classroom poll tool is used on the daily basis to assess student learning. Each question is worth 1 point. An incorrect response will get 0.5, and a correct response will get 1 point. These questions are generally not difficult, if a student engages with lecture and class materials, they should be able to answer the questions with ease.
- There will be in-class exercises and assignments throughout the course, students will work with their classmates and submit for credit.
- There is **no make-up for participation**. If you must miss a class, please let us know ahead of time and be prepared to provide documentation.

If you have a question about how an assignment or exam is graded, you have **one full week** to raise your question(s) to me or the TAs for a regrade. After this one-week window, the grade will not be changed. Note that changes are rarely made unless it is a clerical mistake and that a regrade does not guarantee a higher mark.

At the end of the course, any request for grade bump will not be responded to.

Grading scale

Name:	Range:	
A	100 %	to 93.0%
A-	< 93.0 %	to 90.0%
B+	< 90.0 %	to 87.0%
B	< 87.0 %	to 83.0%
B-	< 83.0 %	to 80.0%
C+	< 80.0 %	to 77.0%
C	< 77.0 %	to 73.0%
C-	< 73.0 %	to 70.0%
D+	< 70.0 %	to 67.0%
D	< 67.0 %	to 63.0%
D-	< 63.0 %	to 61.0%
F	< 61.0 %	to 0%

Make up assignment/exam

I generally **do not** offer make-up assignment/exam except for emergency situations, or if there is arrangement prior to the due dates. If you have a concern, please come talk to me early on to make arrangement, and/or provide documentation.

ACADEMIC STUDY IN A (POST)-PANDEMIC CLASSROOM SPACE

Teaching and learning have always required safe and open classroom environments. Conducting scholarly work under (post-)pandemic conditions simply extends values long established in higher education and reflected in UC Merced's Principles of Community.

In enrolling at UCM and in this course, we will observe the following:

- Appreciate and support the physical and psychological nuances of returning to an in-person classroom.
- **Wear a face covering—and wear it effectively—at all times**
- Keep informed on current campus information and maintain a consistent practice
- If symptomatic, quarantining is expected along with notification to the COVID-19 Response Center https://doyourpart.ucmerced.edu/crc for tracking and support

As a reminder, the above expectations are consistent with our campus' Code of Student Conduct, which emphasizes that a productive and safe campus involves honesty, fairness, and respect.

Circumstances and guidelines may change, and we will discuss important updates to affirm any updates or adjustments to classroom plans. This transition is new for all of us, and we are in this together as a classroom community. If you have questions, you are encouraged to stay in touch with me and/or UCM's Campus Ready COVID-19 site is an ongoing resource: https://doyourpart.ucmerced.edu/crc .

TIPS FOR SUCCEEDING THE CLASS

- Keep in mind that the instructor is not a pure transferrer of knowledge, instead the instructor is a facilitator of the learning process. Students are expected to be active learner in the process acquiring knowledge.
- It is normal to struggle and not knowing how to start a problem. If you have a question, ask it – in class; before or after class; via email; or during office hours
- Make learning the goal of the class, not grades.
- Please do not email me last minute and expect a quick response. I do not check emails regularly after 5PM.
- Complete your assignments in advance to avoid unexpected issues/questions.
- Attend and participate in every class and section.
- Take notes by hand if at all possible
- Visit the professor and TAs during office hours.
- Engage with the class materials and your classmates
- Prepare for the exams. Don't cram
- Take the homework's seriously
- Form study groups, but make sure your submission is your own work.

RESOURCES AND COURSE ADMINISTRATION POLICY

- COVID related resources: https://doyourpart.ucmerced.edu/
- Student Success Center: https://success.ucmerced.edu/
- Emergency Finance and housing: https://studentaffairs.ucmerced.edu/dean-students/emergency-funds
- For other resources such as academic honesty policy, LGBTQ+ & Allies resources, Undocumented Students resources, Accessibility Accommodations, Basic Needs, Harassment, and Registrars information/deadlines, please check the "Resources and Policy" tab on your navigation menu in Catcourse

Tentative course schedule on next page.

TENTATIVE COURSE SCHEDULE

Note: I am expecting changes to the course syllabus depending on our pace and the evolving situation. Students should check the course website on a regular basis for the most updated version of this course schedule.

Week	Date	Day	Topics	Readings DUE (Additional readings will be assigned throughout the course, please check Catcourse)	Assignments DUE
1	Aug. 25	Wed	1.Introduction to course and epidemiology	Syllabus	
			NO SECTION OR OFFICE HOURS THIS WEEK		
2	Aug. 30	Mon	2.The epidemiologic approach and history of the field	Textbook Ch. 1 Roueche, "Eleven Blue Men", 1948	Pre-class survey HW 0 (syllabus signature)
	Sep. 1	Wed	3.Disease Transmission	Textbook Ch. 2	HW 1 due (Introduction and history)
			Section	Worksheet 1	
3	Sep. 6	Mon	Labor Day, NO CLASS		
	Sep. 8	Wed	4.Epidemiologic measures of disease occurrence 1	Textbook Ch. 3	HW 2 due (Disease transmission)
			Section		
4	Sep. 13	Mon	5.Epidemiologic measures of disease occurrence 2 Skittles class activity	Textbook Ch. 3	
	Sep. 15	Wed	*Last day to drop/add class 6.Comparing mortality in different populations - standardization	Textbook Ch. 4 *(Note: You can ignore the section called "Indirect Age Adjustment (Standardized Mortality Ratios)". We will not cover that material in this course.)*	HW 3 due (measures of disease occurrence)
			Section	Standardization practice	
5	Sep. 20	Mon	Catch-up and review		HW 4 due (Mortality

					measures, standardization)
	Sep. 22	Wed	MIDTERM 1		
			Section		
6	Sep. 27	Mon	7.Overview of observational study designs	Textbook Section II introductory materials (pg. 147-148) and Ch. 7	
	Sep. 29	Wed	7.Observational studies (cont'd.) 8.Case-control studies	Finish Ch. 7 Conner et al 2012	
			Section		
7	Oct. 4	Mon	8.Case-control studies (cont'd.)	Readings	
	Oct. 6	Wed	9.Cohort study	Textbook Ch. 8 Doll et al. Petitte et al. Weng et al.	HW 5 due (Observational and case control studies)
			Section		
8	Oct. 11	Mon	9.Cohort studies (cont'd.) and comparison of cohort & case-control studies	Textbook Ch. 9	
	Oct. 13	Wed	10.Randomized trials	Textbook Ch. 10 -- You can ignore the short section on Factorial Design. We will not be covering that material in this class. Johansen et al Gold et al.	HW 6 (case control and cohort studies)
			Section		
9	Oct. 18	Mon	11.Clinical trials - sample size, error, power, and validity	Textbook Ch. 11	
	Oct. 20	Wed	Catch-up/ review		HW 7 (Clinical trials)
			Section		
10	Oct. 25	Mon	MIDTERM 2		
	Oct. 27	Wed	12.Estimating risk (relative measures of association)	Textbook Ch. 12 (ignore the section on "Calculating the Odds Ratio in a Matched-	HW 8 (clinical trials 2)

				Pairs Case-Control Study"; we will not cover that material in this class)	
			Section		
11	Nov. 1	Mon	12.Estimating risk (relative measures of association) 2		
	Nov. 3	Wed	13.Absolute measures of risk (attributable risk)	Textbook Ch. 13	HW 9 (Relative measures of association)
			Section		
12	Nov. 8	Mon	14.Causality – causal inference	Textbook Ch. 14	HW 10 (Absolute measures of association)
	Nov. 10	Wed	Veteran Day, NO CLASS		
			NO WEEKLY SECTION		
13	Nov. 15	Mon	15.Bias 1	Textbook Ch. 15. You can ignore the "Interaction" section (beginning pg. 299 and ending on pg. 304) but do read the Conclusion section.	HW 11 (Causal inference)
	Nov. 17	Wed	15.Bias 2		
			Section	Bias worksheet	
14	Nov. 22	Mon	16.Confounding 1	Chapter 15 (confounding) Additional readings	HW 12 (Bias)
	Nov. 24	Wed	Thanksgiving, NO CLASS		
			Section		
15	Nov. 29	Mon	16.Confounding 2		
	Dec. 1	Wed	17.Screening tests	Textbook Ch. 5. You can ignore the section on "Use of Multiple Tests" (starts bottom of pg. 99 and goes through middle of pg. 106).	HW 13 (confounding)
			Section	Young Epidemiologic Scholars' chapter on confounding	
16	Dec. 6	Mon	18. Epidemiology and Policy OR Ethnics in Epi Practice (if time allows)		
	Dec. 8	Wed	Catchup-review		HW 14 (Screening)
			Section		
Final	Dec 15	Wed	CUMULATIVE FINAL EXAM 3-6PM on Catcourse		

Once you finish reading the syllabus, please sign the statement below, and submit it through Catcourses as HW #0.

I have read and understand the policies and expectations for PH100 - Introduction to Epidemiology and understand them. If I choose not to meet these expectations, I am willing to accept the consequences.

Student name: _____

Signature: _____(typing is fine)

Date: _____