



**CGH 302: Epidemiology, 4 units
Course Syllabus, Fall 2019**

Schedule

Tuesdays, 9:00 – 11:50 am
Location: Burkle 14

Instructor

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Office hours by appointment

Office Hours

Tues, 2-3pm; or by appointment

The best way to contact me is via email. Please put "CGH 302" in the subject field of your email. I do my best to respond within 24-48 hours.

Required Textbook

Friis, R.H. & Sellers, T.A. Epidemiology for Public Health Practice, Fifth Edition. Boston: Jones and Bartlett publishers; ISBN 978-1-4496-6549-4. Assigned readings from the Friis text are required.

Recommended Textbook (particularly for Epi & Biostats Concentration)

Merrill, R.M. Introduction to Epidemiology, Seventh Edition. Burlington: Jones and Bartlett publishers; ISBN 978-1-284-09435-0. Suggested readings from the Merrill text are optional.

Texts available at the CGU bookstore or from online marketplaces.

I will provide you with additional supplementary readings during the course. I assume that you have read the required and supplemental readings when I lecture.

Course description

This course introduces the methods and applications of epidemiology, with an emphasis on relevance to community and global health. The field of epidemiology is concerned with the distribution and determinants of health and diseases, injuries, disability, death and other factors related to morbidity and mortality in populations. Epidemiologic studies are applied to the control of health problems in populations; therefore, an understanding of epidemiology is essential for research and practice in community and global health. This course covers core concepts in epidemiology including measures of morbidity and mortality, sources of data, study designs, measures of effect, screening measures, and practical applications. Students will apply this knowledge to present, summarize and research the epidemiology of infectious and chronic diseases in local populations.

Learning objectives

After taking this course, students should be able to:

1. Describe characteristics of the epidemiologic approach.
2. Discuss the uses of epidemiology in determining disease causality, health needs of a population, delivery of services, program planning, and social policy.
3. Discuss population dynamics and health with respect to the stages of the demographic transition and trends in the U.S. population.
4. Identify measures of mortality and morbidity (proportions, rates, ratios, and adjusted rates) and the major sources of error in measurement of disease.
5. Utilize descriptive epidemiologic approaches to summarize the amount and distribution of disease within a population by person, place, and time.
6. Assess the validity and reliability of data collection mechanisms such as death certificates, patient charts, agency records, and personal surveys.
7. Differentiate among the types of research designs used in the etiologic investigation of disease such as cross-sectional, retrospective (case-control), prospective (cohort) and experimental (clinical trials), and describe their strengths and limitations.
8. Evaluate screening programs for the detection of disease on the basis of criteria such as sensitivity, specificity, and predictive value.
9. Apply the epidemiologic triangle to the occurrence of infectious disease (for example, variations in severity of illness, components of the infectious disease process, mechanisms of disease transmission, and common source versus communicable disease outbreaks).
10. Describe the epidemiologic aspects of chronic disease (for example, multifactorial nature of etiology, long latency period, differential effect of factors on incidence and prevalence of disease).

Foundational Knowledge

This course covers the following aspects of MPH foundational knowledge:

1. Explain public health history, philosophy and values
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health
4. List major causes and trends of morbidity and mortality in the US or other community relevant to the program
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.
6. Explain the critical importance of evidence in advancing public health knowledge
7. Explain effects of environmental factors on a population's health
8. Explain biological and genetic factors that affect a population's health
9. Explain behavioral and psychological factors that affect a population's health
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (e.g., One Health)

Foundational Competencies

This course addresses the following MPH foundational competencies:

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. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
4. Interpret results of data analysis for public health research, policy or practice
18. Select communication strategies for different audiences and sectors
19. Communicate audience-appropriate public health content, both in writing and through oral presentation
20. Describe the importance of cultural competence in communicating public health content

Class Structure

Classes are comprised of in-classroom lectures and discussions/labs.

Instruction Schedule

Week	Date	Lecture topics with Foundational Knowledge (FK) or Competency (MPH)	Reading(s)	Homework assigned
1	9/3	Introduction, history and scope of epidemiology Practical applications of epidemiology (FK1,3,4,5,6, MPH1)	Friis Chs 1,2 (Merrill Ch 2)	Homework 1
2	9/10	Measures of morbidity and mortality used in epidemiology (FK3, MPH2,3) Groups formed	Friis Ch 3 (Merrill Ch 6)	Homework 2
3	9/17	Descriptive epidemiology: Person, place, time (FK3, MPH2,3) Summarizing epidemiologic data (MPH 3, 18, 19) Collaborative Work Part I Assigned	Friis Ch 4 (Merrill Ch 5)	Homework 3
4	9/24	Sources of data for use in epidemiology (MPH2)	Friis Ch 5 (Merrill Ch 4)	Homework 4
5	10/1	Study designs: Ecologic, cross-sectional, case-control (MPH2,3,4) Collaborative Work Part I Due	Friis Ch 6 (Merrill Ch 7)	Homework 5
6	10/8	Study designs: Cohort, experimental (MPH2,3,4) Midterm exam review	Friis Chs 7, 8 (Merrill Ch 7, 8)	Homework 6
7	10/15	Midterm Exam Mid-semester evaluation		
8	10/22	Measures of effect (MPH3) Collaborative Work Part II Assigned	Friis Ch 9 (Merrill Ch 7)	Homework 7
9	10/29	Data interpretation issues: Bias & Confounding (MPH3,4)	Friis Ch 10 (Merrill Ch 7)	Homework 8
10	11/5	Class Cancelled - APHA Conference		
11	11/12	Screening for disease in the community (FK5, MPH1) Collaborative Work Part II Due	Friis Ch 11 (Merrill Ch 12)	Homework 9
12	11/19	Epidemiology of infectious diseases (FK8, MPH1,4) Searching the Epi Literature (MPH2, 3)	Friis Ch 12 (Merrill Ch 3)	Homework 10
13	11/26	Environmental & occupational epidemiology (FK7, FK12, MPH1,4) Collaborative Work Part III Assigned	Friis Ch 13	Homework 11
14	12/3	Genetic epidemiology (FK8, MPH1,4)	Friis Ch 14	Homework 12
15	12/10	Social, behavioral & psychosocial epidemiology (FK9,10, MPH1,4) <i>Pam Ogata guest lectures</i> Class recap, Final exam review Collaborative Work Part III Due	Friis Ch 15	-
16	12/17	Final Exam		

Please note that I reserve the right to make modifications to this syllabus as necessary, depending on our pace and needs of the whole class.

Digital classroom

I (and our TA) will use Canvas to provide you with lecture handouts, assignments and supplemental readings as well as for overall class communication. You are responsible for checking the course site periodically for changes to the syllabus or announcements. On days when lectures are presented in PowerPoint format, I will post lecture slides in note-taking format to Canvas in advance of class. I try very hard to post lecture slides the evening before lecture but can't always guarantee their availability during that timeframe or even prior to class. The intention of the notes is to aid in learning, but not to replace note-taking or class attendance. They serve only as a structure for the lectures, and do not contain all the information you will be responsible for in the course.

Class rules/etiquette and use of electronic devices

Please bring a calculator to class. Please turn off cell phones and keep them off desks during class. Texting and emailing during class time are prohibited. Please use breaks provided during class accordingly. Laptops should be used for class-related note-taking only. I expect you to abide by these rules so that you do not become a source of disruption for the entire class. If you are unable to keep to these expectations, I will ask you to leave the class for the remainder of the class time.

Please use class time to ask questions that apply to course material and do not wait until the end of class to approach me or our TA with a question. All students benefit from questions and discussion, which also makes for a more interactive class.

Scientific and Professional Ethics

The work you do in this course must be your own, including exams which must be completed independently. A career in the sciences will undoubtedly involve building on, reacting to, criticizing, and analyzing the work of others. When you do this in this course and elsewhere, make sure to credit those who originated the work. It is critical to explicitly acknowledge when your work builds on someone else's ideas, including ideas of classmates, professors, and authors you read. If you ever have questions about drawing the line between others' work and your own, please ask me or our TA to provide guidance.

CGU Official Statement on Academic Honesty

All students at Claremont Graduate University are expected to adhere to the highest standards of academic honesty in the performance of all academic work. A student shall be subject to discipline for any form of academic dishonesty, including (but not limited to) cheating, plagiarism, forgery, and the use of materials prepared by another (whether published or not, including commercially prepared materials) without appropriately crediting the source. Exams must be completed independently and without using cell phones, tablets, or computers to search or retrieve material. Any collaboration on answers to exams, unless expressly permitted by the instructor, may result in an automatic failing grade and possible expulsion from the Program.

Additional information on CGU's Policy on Academic Honesty can be found at:

<https://cgu.policystat.com/policy/2194316/latest/>.

In addition, Honnold Mudd Library has a number of resources on academic honesty and integrity, including the following online tutorial: <http://libraries.claremont.edu/achontutorial/pages/>.

Class Requirements and Assessment

Points from a combination of exams, homework and collaborative group-based work will be used to determine the course grade.

Requirement (points)	Percent of grade
Mid-term Exam (100 points)	20%
Final Exam (125 points)	25%
Collaborative Work Part I (50 points)	10%
Collaborative Work Part II (50 points)	10%
Collaborative Work Part III (50 points)	10%
Homework (12 at 10 points each)	25%
Mid-semester evaluation, optional (5 extra credit points)	
Total (500 points)	100%

Exams - Mid-term and Final Exam

The mid-term and final exams assess your comprehension of material covered in the text readings, class lectures and discussion activities. The exams require you to apply what you have learned to a solve problems typically encountered in a range of settings and situations applicable to epidemiology. The mid-term exam will cover material presented prior to that exam. The final exam will be cumulative, i.e., cover concepts from the whole semester. There will be no make-up exams unless a valid reason is provided in advance and approved by me.

Collaborative Work, Parts I, II & III

The purpose of the group-based work is to foster collaboration through the implementation of a team approach as you summarize and describe the epidemiology of current health problems which impact our local populations, and examine associated risk or preventive factors. The collaborative work assignments will build on your knowledge of the topic areas, increase your familiarity with searching the scientific literature and develop your oral and written communication skills.

- *Groups will be determined during Week 2 and will be formed of 3-5 students depending upon class size.*
- *Groups will collaborate on the problems presented in Parts I-III, but each group member will submit his/her own work for the assignments.*
- *I will provide you with additional handouts with more information on these assignments.*

Collaborative Work, Part I: Presenting Epidemiologic Data

I will provide your group with morbidity data on a communicable disease prevalent in Los Angeles County in a tabular format. Your task will be to analyze this data and present it in chart and graph formats. Three groups will have an opportunity to present their results to the class on 10/1.

Collaborative Work, Part II: Describing Epidemiologic Data

Using data that I provide you on a chronic disease prevalent in the United States, you will describe the extent of the disease according to person, place and time, and using epidemiologic measures (e.g., incidence, prevalence, mortality) to examine the descriptive epidemiology of the disease. Three groups will have an opportunity to present their results to the class on 11/12.

Collaborative Work, Part III: Summarizing and Evaluating Epidemiologic Data

By searching the literature, research a risk or preventive factor for one of the following diseases: HIV/AIDS, influenza, diabetes, tuberculosis, Alzheimer's disease, kidney cancer, pancreatic cancer or

cervical cancer. Using PubMed, identify one recently published epidemiologic study on your selected risk or preventive factor and the disease. Following the outline that I provide you, you will summarize the elements of the study including the research question, study variables, subjects, study design, procedures, results and conclusions and then evaluate the study.

Homework:

Twelve (12) homeworks assignments are worth 10 points each. Homework assignments are an opportunity for you to select and apply the epidemiologic methods covered in weekly lectures to problems relevant to public health practice using both qualitative and quantitative approaches. Homework assignments will be available for you to access on Canvas after class and will be due via electronic submission to Canvas the following week prior to the start of class (i.e., at 8:59am). You will receive full credit (10 points) for submitting each homework assignment on time and no credit (0 points) for submitting homeworks after they are due. We will begin each class going over the homework assignment due that day so you will have an opportunity to review your answers.

Mid-semester Evaluation

Half way through the semester I will be interested in your input on how well our class has helped you to learn so far, so I will ask you to complete an optional, anonymous survey to gather this information. Your feedback will help me make adjustments to the course during the remainder of the semester. I will apply 5 extra credit points towards your semester total for completion of the survey.

Class Attendance and Participation:

Attendance: I expect you to attend all classes, whether the class is taken for credit or on an audit basis. If you are unable to attend a class, please ask me for permission for an excused absence prior to the class meeting. Unexcused absences or late attendance for three or more classes may result in a lower grade or being involuntarily withdrawn from the class (with enrollment refunds governed by CGU’s published Academic Calendar). If you do have to miss a class, I suggest you arrange to get notes from a fellow student.

Participation: I expect you to participate in class discussions. Note: you cannot participate if you are absent from class!

Grading system

Total Number of Points Earned for the Semester	Percentage range	Interpretation
465 - 500	93 – 100%	A Excellent performance
450 - 464	90 – 92%	A- Very good performance
435 - 449	87 – 89%	B+ Good performance
415 - 434	83 – 86%	B Acceptable performance
400 - 414	80 – 82%	B- Marginally acceptable performance
385 - 399	77 – 79%	C+ Below marginally acceptable performance
365 - 384	73 – 76%	C Passing, but below expectations for graduate work
350 - 364	70 – 72%	C- Below expectations for graduate work

Other Resources

Accommodations for Students with Disabilities

If you would like to request academic accommodations due to temporary or permanent disability, contact the CGU Dean of Students and Coordinator for Student Disability Services at DisabilityServices@cgu.edu or 909-607-9448. Appropriate accommodations are considered after you have conferred with the Office of Disability Services (ODS) and presented the required documentation of your disability to the ODS.

Center for Writing & Rhetoric

CGU's Center for Writing & Rhetoric is committed to helping you achieve the next level of excellence in the written word. Their mission is to foster an intellectually stimulating and supportive environment during all phases of the writing process. They seek to make writing an integral, fulfilling part of graduate education. The Center supports students from all fields, at any stage of the writing process, through individual consultations, video-conferencing, online support, and campus-wide workshops. We seek to enhance the graduate experience by offering student-centered programs that encourage collaboration, communication, and education. <https://www.cgu.edu/student-life/resources-support/writing-rhetoric/>

Mental Health Resources

Graduate school is a context where mental health struggles can arise or be exacerbated. If you ever find yourself struggling, please ask for help. If you wish to seek out campus resources, here is some basic information: <https://www.cuc.claremont.edu/mcaps/>

Monsour Counseling and Psychological Services (MCAPS) is committed to promoting psychological wellness for all students at the Claremont Colleges. Professional and well-trained psychologists, psychiatrists, and post-doctoral and intern therapists offer support for a range of psychological issues in a confidential and safe environment. MCAPS is located at the Tranquada Student Services Center, 1st floor, 757 College Way, Claremont, CA 91711; (909) 621-8202. After hours emergency (909) 607-2000.

Title IX

If I learn of any potential violation of CGU's gender-based misconduct policy (e.g., rape, sexual assault, dating violence, domestic violence, or stalking) by any means, I am required to notify the CGU Title IX Coordinator at Deanof.Students@cgu.edu or (909) 607-9448. Students can request confidentiality from the institution, which I will communicate to the Title IX Coordinator. If students want to speak with someone confidentially, the following resources are available on and off campus: EmPOWER Center (909) 607-2689, Monsour Counseling and Psychological Services (909) 621-8202, and The Chaplains of the Claremont Colleges (909) 621-8685. Speaking with a confidential resource does not preclude students from making a formal report to the Title IX Coordinator if and when they are ready. Confidential resources can walk students through all of their reporting options. They can also provide students with information and assistance in accessing academic, medical, and other support services they may need.

Campus Security

Campus security can be reached 24 hours/day at (909) 607-2000.