

EPIDEMIOLOGY AND PUBLIC HEALTH

EAB 705/HCA 702

Tentative Syllabus: Students will be responsible for any changes to syllabus and/or schedule posted through WebCampus.

Textbooks & Required Reading

REFERENCE TEXT

Gordis, Leon. (2014). *Epidemiology* (5th ed.). Philadelphia: Elsevier/Saunders.

This textbook is a required component for enhancing your understanding of materials presented in the class. Relevant chapters are assigned for each lecture topic. However, the lecture material will come from various sources, and you will ultimately be responsible for understanding the material provided to you during class.

OTHER HELPFUL RESOURCES:

Webb, P. & Bain C. (2011) *Essential Epidemiology*. 2nd Edition Cambridge Medicine

Aschengrau, A. & Seage, G. (2008). *Essentials of Epidemiology in Public Health*
Second Edition, Boston/Toronto: Jones and Bartlett Publishers

Hennekens, C., & Buring, J. (1987). *Epidemiology in Medicine*, Boston/Toronto:
Little, Brown and Company.

Kelsey, J., Whittemore, A., Evans, A. & Thompson, D. (1996). *Methods in Observational Epidemiology*, 2nd Edition, New York: Oxford University Press.

Useful Journals and Periodicals:

Ambulatory Care	Journal of Epidemiology and Community Health
Archives of Environmental Health	Journal of Health and Social Behavior
American Journal of Public Health	Journal of Health Politics, Policy, and Law
British Medical Journal	Journal of Infectious Diseases
Canadian Journal of Public Health	Journal of Long Term Care Administration
Canadian Medical Association Journal	Journal of Public Health Policy
Cancer	Journal of Women and Aging
Cancer Epidemiology Biomarkers and Prevention	Lancet
Cancer Research	Medical Care
Epidemiologic Reviews	Medical Care Review
Gerontology	Milbank Memorial Fund Quarterly/Health and Society
Health Affairs	Nation's Health
Health Policy Quarterly	New England Journal of Medicine
Health Services Research	Public Health Reports
	Quality Review Bulletin

Hospital and Health Services Organizations Hospital Literature Index Inquiry: The Journal of Health Care Organizations, Provisions and Finance Journal of the American Medical Association Journal of Community Health	National Center for Health Statistics: Vital and Health Statistics Reports and Results of National Health Interview Survey Morbidity and Mortality Weekly Report, U.S. Dept. of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention (CDC), Atlanta, GA.
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Course Description & Objectives

COURSE DESCRIPTION:

This course is an introduction to epidemiology, which is the comparative study of the distribution and determinants of disease in human populations. Topics will include analytic reasoning in public health, causal inference, disease surveillance, descriptive and analytical methods, experimental and observational study designs, and bias. This course will make use of scientific articles to introduce students to medical research.

Three credit hours.

COURSE PREREQUISITES: Basic statistics knowledge.

LEARNING OUTCOMES:

By the end of this course, students will be able to:

1. Demonstrate an understanding of prevalence and incidence measures
2. Demonstrate knowledge of crude and adjusted rates
3. Demonstrate a basic understanding of study designs, including strengths and weaknesses
4. Demonstrate an understanding of observational studies
5. Demonstrate an understanding of which study designs are optimal for certain public health and disease research studies
6. Demonstrate an understanding of causal inference and bias among study designs
7. Demonstrate the ability to interpret and critique a scientific manuscript
8. Incorporate the learning outcomes 1-6 and construct a valid epidemiological design for a specific public health or disease question of the student's choice

COMPETENCIES

MPH Core		
	MPH 01	Apply epidemiological methods to the breadth of settings and situations in public health practice
	MPH 02	Select quantitative and qualitative data collection methods

		appropriate for a given public health context
	MPH 04	Interpret results of data analysis for public health research, policy or practice
	MPH 19	Communicate audience-appropriate public health content, both in writing and through oral presentation
MPH EAB Track		
	EAB 01	Explain the importance of epidemiology and biostatistics for informing scientific, ethical, economic, and political discussion of health issues.
	EAB 02	Understand and apply proper terminology and definitions used in epidemiology and biostatistics.
	EAB 03	Identify key sources of data for epidemiologic and biostatistical studies.
	EAB 04	Comprehend ethical and legal principles pertaining to the collection, maintenance, use, and dissemination of data and other epidemiological information.
	EAB 05	Monitor the occurrence of health outcomes, organizing data from surveillance, investigations, and other sources, and use those data to support the evaluation of the effectiveness of public health programs.
PHD EAB Track		
	EAB 02	Demonstrate excellence in applying the theoretical and problem-solving aspects of public health within epidemiology and biostatistics.

Course Evaluation & Grades

Category Weights*		Final Grade	Cumulative Percentage Points
Cumulative Final Exam, In Class	25%	A	94.5-100
Homework	45%	A-	89.5-94.4
		B+	84.5-89.4
Class Participation-non-PhD students ONLY	10%	B	79.5-84.4
			<79.5%
Discussion Posts-PHD students ONLY	10%		
Group Project	20%		

Please note: There will be NO extra credit. The final EAB 705/HCA 702 grade will be strictly based on the points accumulated for each graded item. Be sure to complete all assignments and exams on time. Points will be deducted for late work. Missing work will be assigned a zero.

Exam: 25%

- **Format:** multiple choice, true/ false, fill-in-blank, problems/calculations, and short answer questions. (*Calculators permitted.*)

- Questions will be derived from lectures/ material presented in class. Students are encouraged to do supplemental reading as needed.
- Final exam will be given IN CLASS and is cumulative
- Exams will be graded on a **scale**. The highest scoring student will receive a 100% and all other students will get the ratio of their raw score to the highest raw score. (*Ex. If the top raw score is a 95, that student will earn 100%. A raw score of 90 would earn 90/95, or 94.7%. A raw score of 70 would earn 70/95, or 73.7%, etc.*)
- In essence, everybody will be expected to fare within a 20% range from the best student, as an average of 80% is the minimum grade to pass the course.
- Grading is generous. Partial credit is awarded. Multi-step questions will be graded based on logic if initial part is incorrect. However, please be sure to address all parts of every question.

In-Class (no grade) and Homework Assignments (45%)

- The instructor will give in-class and homework assignments as deemed necessary for the topic being covered. These assignments are intended to provide practice and assess how well the student understands the material.
- **Homework assignments must be carried out individually**, and will be graded, using the same raw scaling technique as with exams. Any sharing of answers will result in zeros.
- In class assignments will be done in groups and/or partners. They are for practice, and provide an opportunity for students to ask for clarification of lecture material. While these will not be collected and graded, missed or inadequate participation in class assignments will result in a percentage deduction for this category.

Specifications for Exams and Homework (*unless directed otherwise*)

- Typed. (Neat handwriting is acceptable for short answer questions only.)
- Ariel or Times New Roman Font, size 12.
- Assignments turned in to instructor, printed double or single sided.
- NOTE: Assignments are graded anonymously. Therefore, provide a one-sided cover page with your name. (*This will be separated from your assignment during grading process.*) NO other page should have your name on it except the cover sheet.

Class participation, non PhD ONLY, 10%

- Students are expected to attend classes. **Students who have 3 or more unexcused absences will receive a score of 0 for class participation and their group project grade weight will be reduced from 20% to 5%.**
- Students are expected to come prepared and to participate meaningfully in class discussions: answering or asking questions, offering ideas, etc.
- Disruptive and/or disrespectful behaviors such as texting, browsing the internet, working on other assignments, or talking/whispering to classmates during lectures will result in a reduction of your participation grade to less than 80%.

Discussion Prompts, PhD ONLY, 10%

- All criteria for class participation are assumed for PhD students
- PhD students will have 4 additional peer-reviewed journal articles featuring epidemiological concepts to read, summarize, and critique in 200-500 word discussion prompts in WebCampus.

Group Project, 20%

Purpose: To apply the information learned in class.

Group Assignment: Random, by instructor.

Overview: Each group will select a disease, injury or illness to investigate and track. The project will entail providing background on the topic to be discussed, analyzing an epidemiological research article about the topic, designing a study, and critiquing another group's project.

Format: Power point or similar. Bring copy on day of presentation. Send electronic version to instructor.

NOTE: Although some time may be available in class, groups are expected to conduct the bulk of their collaboration outside of regularly scheduled class time.

Group Project Guidelines	Weight	Other
Part 1: Disease Overview ✓ Provide an introduction to the disease or health condition. ✓ Identify the incidence and prevalence of the disease or health condition and compare the national, state, and local level rates. ✓ Include rates among specific age, race, or gender groups. ✓ Include the main risk factors or determinants for the disease under study. ✓ Present research information regarding primary, secondary and tertiary prevention strategies and disease treatment. ✓ Identify the latest trends and technologies in the treatment of the diseases. ✓ Draw an educated conclusion regarding the future status of the disease.	50%	Approx. 6-12 Power point slides or similar format. Due on presentation day.
✓		
Part 2: Study Design ✓ State a research question related to your disease/ health condition. ✓ Choose a study design that could be used to answer that question. ✓ Describe your design. ✓ Provide copy of your study design to the group responsible for critiquing you one week in advance of your presentation date.	50%	5-6 slides Slides due 1 week ahead.
✓		

Grading for Group Project:

Instructor will assign each member of the group the **same grade** based on:

- 1- **Quality** of the presentation on the disease (identification of the main issues regarding the biology, the epidemiology, and the public health control of the disease if applicable).
- 2- **Originality** of the chosen research question and the **validity** of the ensuing study of choice.

PLEASE NOTE: Assignments completed for this course may be used as evidence of student learning in accreditation reports. Students who do not wish their work to be used for accreditation purposes must inform the course instructor in writing by the end of late registration. Your participation and cooperation are appreciated.

Course Schedule

Dr. Pinheiro reserves the right to change the schedule and requirements for this course. Announcements posted on Web Campus or via course email are your responsibility.

Lecture	Week Of	Topics	Reading from Gordis
1	18-Jan	Introduction to the Course Historical Perspective of Epidemiology	Chapters 1,2
DESCRIPTIVE EPIDEMIOLOGY			
2	25-Jan	Measures of disease frequency Prevalence vs. incidence	Chapters 3,4
3	1-Feb	Descriptive Epidemiology Crude vs. adjusted rates	Chapters 3,4
4	8-Feb	Measures of Disease Association	Chapters 11, 12
5	15-Feb	From Association to Causation	Chapter 14
6	22-Feb	Properties of a Test EXAM 1 DISTRIBUTED	Chapters 5,18
ANALYTICAL EPIDEMIOLOGY			
7	1-Mar	Take home EXAM 1 DUE Experimental Studies: Assessing Efficacy of Preventive/ Therapeutic Measures	Chapters 7,8
8	8-Mar	Observational Studies: Cohort	Chapter 9
9	15-Mar	Observational Studies: Case Control	Chapters 10,13
10	22-Mar	Research Paper Discussion and Multivariate Analysis	Chapters 15, 16
11	5-Apr	Observational Studies: <ul style="list-style-type: none"> • Cross-sectional • Ecological 	Chapter 10
12	12-Apr	Bias, Confounding and Effect Modification Quasi-Experimental Studies EXAM 2 DISTRIBUTED	Chapters 7,8
EPIDEMIOLOGY APPLICATION & PRACTICE			
13	19-Apr	Take home EXAM 2 DUE Group 1 and 2 presentations <ul style="list-style-type: none"> • Groups 3 & 1 critique 	Optional: Chs. 6, 17-20
14	26-Apr	Group 3 presentations <ul style="list-style-type: none"> • Group 2 critiques Review for Exam	
15	3-May	No Class: Study Week	
16	10-May	FINAL EXAM IN CLASS	

Additional Items

This course is designed to cover a large amount of material. If you are falling behind, please make sure to notify the instructor prior to the drop date. Take responsibility for your own grade. Every effort has been taken to provide you with the most relevant and up-to-date literature.

Academic Misconduct—Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV’s function as an educational institution. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the Student Academic Misconduct Policy (approved December 9, 2005) located at: <https://www.unlv.edu/studentconduct/student-conduct>

Copyright—The University requires all members of the University Community to familiarize themselves with and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you, nor assume any responsibility for employee or student violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at: <http://www.unlv.edu/provost/copyright>

Disability Resource Center (DRC)—The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu/>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

Final Examinations—The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule. See the schedule at: <http://www.unlv.edu/registrar/calendars>

Incomplete Grades—The grade of I—Incomplete—can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student’s control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

Library Resources—Students may consult with a librarian on research needs. Subject librarians for various classes can be found here: https://www.library.unlv.edu/contact/librarians_by_subject. UNLV Libraries provides resources to support students' access to information. Discovery, access, and use of information are vital skills for academic work and for successful post-college life. Access library resources and ask questions at <https://www.library.unlv.edu/>

Rebelmail—By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students' e-mail prefixes are listed on class rosters. The suffix is always @unlv.nevada.edu. Emailing within WebCampus is acceptable.

Religious Holidays Policy—Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>

Transparency in Learning and Teaching—The University encourages application of the transparency method of constructing assignments for student success. Please see these two links for further information:

<https://www.unlv.edu/provost/teachingandlearning>

<https://www.unlv.edu/provost/transparency>

Tutoring and Coaching—The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit <http://www.unlv.edu/asc> or call 702-895-3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TBE second floor.

UNLV Writing Center—One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student's Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>