

EPIDEMIOLOGY AND PUBLIC HEALTH

EAB 705/HCA 702

Instructor Information

INSTRUCTOR: Paulo S Pinheiro, M.D., Ph.D.
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OFFICE HOURS: Tuesdays 2:45-4:45 pm Thursdays 2:00-4:00 pm

Textbooks & Required Reading

There is one textbook (purchase not required) outlined to serve as a reference source throughout this course. However, the lecture material will come from various sources that will not always match up exactly with the reference chapter material in the recommended textbook. You will be ultimately responsible for understanding the material provided to you during class.

REFERENCE TEXTS

Gordis, Leon, Epidemiology, 5th Edition, W.B. Saunders Company, 2014

Webb, Penny and Bain Chris, Essential Epidemiology. 2nd Edition Cambridge Medicine, 2011

OTHER HELPFUL RESOURCES:

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*, Second 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
Hospital and Health Services Organizations	Quality Review Bulletin
Hospital Literature Index	National Center for Health Statistics: Vital and Health Statistics Reports and Results of
Inquiry: The Journal of Health Care Organizations, Provisions and Finance	National Health Interview Survey
Journal of the American Medical Association	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.
Journal of Community Health	

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 and causal inference, disease surveillance, descriptive and analytical. Experimental and observational study designs, 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 :

NOTE: CORE (MPH) AND AREA OF EMPHASIS (EAB) COMPETENCIES IN BRACKETS

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

1. Demonstrate an understanding of prevalence and incidence measures (EAB 001),
2. Demonstrate knowledge of crude and adjusted rates (EAB 001, 002),
3. Demonstrate a basic understanding of study designs, including strengths and weaknesses (EAB 007, 009),
4. Demonstrate an understanding of observational studies (EAB 009),
5. Demonstrate an understanding of which study designs are optimal for certain public health and disease research studies (EAB 007, 009),
6. Demonstrate an understanding of causal inference and bias among study designs (EAB 007, 009),
7. Demonstrate the ability to interpret and critique a scientific manuscript (MPH 001,002)
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 (MPH 001, 002 and EAB 001, 002, 003, 005, 007, 009, 010).

Course Evaluation & Grades

GRADING:

Descriptive Epidemiology Take-Home Exercise 1	15%
Analytical Epidemiology Take-Home Exercise 2	20%
In Class Exercise 3	25%
Group Project	20%
Homework	10%
Class Participation	10%

Grade	Percent Points
A	95-100
A-	90-94
B+	85-89
B	80-84
	<79%

Exercises

Formats for Exercises 1,2,3 will be a combination of multiple choice, problems, and short answer. Exams (exercises) will be developed from the reading assignments and any material presented during the lectures. The in-semester exercises will each cover only the material presented up to that point. The final exam is cumulative. Exams must be taken at scheduled times unless special permission is given by the instructor. **Take Home Exercise 1 will be made available on February 18 and will be due on February 25. Take Home Exercise 2 will be made available on March 25 and will be due in the following class on April 8. The final Exercise (in class) will take place on April 29.** Advance permission to complete the exam is only given for personal medical reasons or a serious illness or death in the immediate family. A written physician's note is required to be excused for a student to be excused for personal/family medical leave. Students who fail to take the exam at the scheduled time without advance instructor notice will be given a 0 on that exam.

Exams and assignments will be of varying degrees of difficulty. Some may find epidemiology and its numerical component challenging. As such, all exams and assignments will not be scored to the final potential score, **but to the highest student's score.**

As an example if the exam has 50 questions and each question is worth 1 point, then the 100% bar will be the highest score obtained by any of the students (e.g. 46 points instead of the 50 points). That student will obviously get an A. Those with 90-94% of the highest student's score will get A- and so on.

The instructor's grading is generous (if question B relates to A, and you give the wrong answer in question A, your answer in B will be based on its logic content given your wrong answer in A) but rigorous. If a question asks what and why, you have to explain why and not limit yourself to the what.

The final EAB 705/HCA 702/HED 725 grade will be strictly based on the points accumulated in each graded item (see page 4 of this syllabus). There is no room for any extra credit of any kind. A final grade of 94.4 will be a A-, whereas a 94.5 will be an A- . Also a 89.5 will be a A- while 89.4 will be a B+., etc. In essence, everybody will be expected to fare within a 20% range from the best student, meaning an average of 80% is the minimum grade to pass the graduate requirements. **It is a narrow band so ensure that you complete all assignments and exams on time. If you do not complete an assignment for instance, you will get a 0 and that will substantially affect your final grade.**

Class participation

Students are expected to attend class and be prepared to discuss reading material. **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%.**

Even if you participate frequently in class, you keep text messaging while the instructor is giving the lecture, please expect a grade of less than 80% in participation.

In-Class Exercises and Homework Assignments

The instructor reserves the right to make in-class assignments and homework assignments as deemed necessary for the topic being covered. These assignments are intended to assess how well the student understands the material or is on-track in the completion of other projects. Missed or inadequate participation or completion of the assignment will result in a percentage deduction for this category.

ALL HOMEWORK ASSIGNMENTS AND TAKE-HOME EXERCISES ARE TO BE CARRIED OUT INDIVIDUALLY AND SHOULD BE HANDED IN BACK TO THE INSTRUCTOR IN TYPED FORMAT, ARIAL OR TIMES NEW ROMAN, FONTS

11-12, unless students are told to do otherwise. Write your name ONLY on page 1. Page 2 should be left blank.

Final Group Project

The groups (1,2) will be assembled in a random way by the instructor after class 4. The group project will be assigned to students to investigate and track a disease, injury or illness. The project will entail providing background on the topic to be discussed, provide an overview of the latest research study regarding the topic, provide rates of the disease in the US, Nevada, and Clark County. This group project will, in a summarized fashion, undertake the following:

Part 1.

- Provide an introduction of the disease or health condition.
- Identify the incidence and prevalence of a disease or health condition and compare the rate of the disease or condition on a national, state, and local level;
- 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 the treatment of the disease from primary, secondary and tertiary prevention levels;
- Identify the latest trends and technologies in the treatment of these diseases and draw an educated conclusion regarding the future status of the disease.

Part 2.

Support your presentation with a scientific paper on the topic. The paper should be distributed via webcampus one week in advance of the date of your presentation. The aim is to critically analyze the paper and encourage participation from the rest of the class.

Part 3.

State a research question in the context of the health condition/disease of choice, choose a study design that could be used to answer that question and briefly describe a study that could be performed in that context.

Project must be presented in Powerpoint or similar format. Group must supply electronic copy of presentation. The project will be presented during the second half of the semester. Grading for the project will be based on the overall class presentation by the instructor (see below), and the group members' assessment of each individual's performance. For the group project you will be graded on the following

- 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- **Quality** of the defense/discussion of the scientific paper you proposed.
- 3- **Originality** of the chosen research question and the **validity** of the ensuing study of choice.
- 4- **Quality** of the critique raised to the other group's chosen paper:
 - Group 1 will do the paper of Group 3
 - Group 2 will do the paper of Group 4.
 - Group 3 will do the paper of Group 2
 - Group 4 will do the paper of Group 1.

Item#4 will take place in the week the group is not presenting.

Course Schedule

Lecture	Week Of	Topic	Competencies and Learning Outcomes	Readings from Gordis Book of reference
1	21 January	<ul style="list-style-type: none"> Introduction to the Course Historical Perspective of Epidemiology 	EAB 001	<ul style="list-style-type: none"> Chapter 1,2
		DESCRIPTIVE EPI		
2	28 January	<ul style="list-style-type: none"> Measures of disease frequency Prevalence vs. incidence 	EAB 01,02 MPH 01	<ul style="list-style-type: none"> Chapter 3,4
3	4 February	<ul style="list-style-type: none"> Descriptive Epidemiology Crude vs. adjusted rates 	EAB 02 MPH 01	<ul style="list-style-type: none"> Chapter 3,4
4	11 February	<ul style="list-style-type: none"> Measures of Disease Association 	EAB 01,05,07,09	<ul style="list-style-type: none"> Chapter 11,12
5	18 February	<ul style="list-style-type: none"> From Association to Causation 	EAB 07,09	<ul style="list-style-type: none"> Chapter 14
		ANALYTICAL EPI		
6	25 February	<ul style="list-style-type: none"> Experimental Studies: Assessing Efficacy of Preventive/Therapeutic Measures 	EAB 02,07,09	<ul style="list-style-type: none"> Chapter 7,8
7	4 March	<ul style="list-style-type: none"> Observational Studies – Cohort 	EAB 02,07,09	<ul style="list-style-type: none"> Chapter 9
8	11 March	<ul style="list-style-type: none"> Observational Studies - Case Control 	EAB 02,07,09	<ul style="list-style-type: none"> Chapter 10
9	18 March	<ul style="list-style-type: none"> Observational Studies- Cross-sectional / Ecological 	EAB 02,07,09	<ul style="list-style-type: none"> Chapter 10
10	25 March	<ul style="list-style-type: none"> Bias, Confounding and Effect Modification 	EAB 02,07,09	<ul style="list-style-type: none"> Chapter 15
	1 April (not a lie)	It really is Spring break		
11	8 April	<ul style="list-style-type: none"> Properties of a Test Quasi Experimental Studies 	EAB 02,07,09	<ul style="list-style-type: none"> Chapter 5,18 Chapters 7,8
		PRACTICAL USE OF EPI		
12	15 April	<ul style="list-style-type: none"> Group presentation (1) 	EAB 02,07,09	
13	22 April	<ul style="list-style-type: none"> Group presentation (2) 	EAB 03,10 MPH 02	
14	29 April	<ul style="list-style-type: none"> Exercise 3 IN - CLASS 		
15	6 May	<ul style="list-style-type: none"> Group presentation (3,4) 	EAB 03,10 MPH 02	
16	13 May	▪ NO CLASS, NO FINAL		

Dr. Pinheiro reserves the right to change the schedule and requirements for this course. Announcements made by webcampus under the announcement link or email will be clearly posted and are your responsibility.

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 listed below. Take responsibility for your own grade. Every effort has been taken to provide you with the most relevant and up-to-date literature.

ADDITIONAL COURSE INFORMATION

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 Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in 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: <http://studentconduct.unlv.edu/misconduct/policy.html>.

VERY IMPORTANT: In what respects take home assignments (normal homework or exercises), there will be zero tolerance for any conversation or discussion about the assignments prior to their submission to the instructor. Any infraction of this rule will result in a ZERO score for that assignment which will inevitably affect your final grade.

Copyright – The University requires all members of the University Community to familiarize themselves 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://provost.unlv.edu/copyright/statements.html>.

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 me during office hours so that we 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 me before or after class to discuss your accommodation needs.

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 no later than the end of the first two weeks of classes, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. This policy shall not apply in the event that administering the test or examination at an alternate time would impose an undue hardship on the instructor or the university that could not reasonably be avoided. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=4&navoid=164>.

Incomplete Grades - The grade of I – Incomplete – can be granted when a student has satisfactorily completed all course work up to the withdrawal date of 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. A student who receives an I is responsible for making up whatever work was lacking at the end of the semester. 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.

Tutoring – The Academic Success Center (ASC) provides tutoring and academic assistance for all UNLV students taking UNLV courses. Students are encouraged to stop by the ASC to learn more about subjects offered, tutoring times and other academic resources. The ASC is located across from the Student Services Complex (SSC). Students may learn more about tutoring services by calling (702) 895-3177 or visiting the tutoring web site at: <http://academicsuccess.unlv.edu/tutoring/>.

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 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/>

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.

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>.