

Course Syllabus: Graduate Epidemiology (BIOL 5301--009)

Classroom: Liberal Arts Building #206

Instructor: Jianying Zhang, MD, M.P.H., Ph.D.

Office: B3.124; **Lab:** B3.200

Email: jzhang@utep.edu

Phone: 915-747-6995 (O); 915-747-5343 (L)

Class Hours: MW 1:30-2:50 pm

Office Hours: MW 3:30-5:00 pm

Required Materials

Gordis, L., Epidemiology (ISBN: 978-1-4160-4002-6), Elsevier Saunders Co., Philadelphia, 4th Ed., 2009. (or: Gordis, L., Epidemiology (ISBN: 978-1-4557-3733-8), Elsevier Saunders Co., Philadelphia, 5th Ed., 2014).

Course Description

Epidemiology is the study of the distribution and determinants of health-related states or events in specified populations and the application of this study to the control of health problems. The course will follow closely the book, Epidemiology, by Leon Gordis and will feature in-person lectures that rely exclusively on Microsoft PowerPoint animated text and graphics, presented in class with a computer projector. This course will guide you in learning the basic concepts, principles, and methods of population-based epidemiologic research. Special emphasis will be given to measuring the occurrence of disease, study design, data quality, and causal inference. Discussion sessions will focus on health problems that are making news, and ways that epidemiology is being used to address these problems.

Course Objectives

1. To understand the basic concepts, principles, and methods of epidemiologic research.
2. To develop a unified methodologic framework for understanding, planning, and evaluating epidemiologic studies and for assimilating new research methods.
3. To recognize the difference between epidemiologic research, basic or clinical research.
4. To be able to read and evaluate the epidemiologic literature critically in any specific substantive area of interest.

Attendance

Attendance in this course is critical to your success. Not only attending lecture aid in your understanding of course material, attendance is mandatory.

Evaluation

One final examination will be given for this course. The final examination will be comprehensive, covering all reading and lectures, and will be given during the last week of this semester.

The exercises (Review Questions) that accompany each chapter will be given. The exercises encourage students to immediately use their newly acquired knowledge and, thus, by practice, improve retention.

Using journal articles from the medical literatures, several projects will require you to ascertain the study objectives, target population, and especially the study design. One of the projects is to use epidemiological approaches to write a research proposal, and further to understand the epidemiological principles and methods. You can choose any research topic which you have interest in (for example, human cancer, diabetes, cardiovascular diseases, obesity, and so on) as the focus of your proposal. Your papers must be typed and double-spaced. No hand written papers will be accepted. Later papers will receive a 10% deduction in points for each day (including non-class days) they are late. If you absolutely cannot make it to class on the day your paper is due, you may email your assignment to me with an attachment.

Grading

Your grade in this course is based on a combination of exam, projects, presentation and participation in class. Grades are based on a straight percentage scale; there is no curve and no +/- grades are awarded. So, an A=100-90%, a B=89.9-80%, a C=79.9-70%, a D=69.9-60%, and F=<60%.

Projects: 200 points

Exams: 120 points

Presentation: 40 points

Class Participation & Attendance: 40 points

Course Total: 400 points

The following schedule is tentative, and the dates of lectures and/ or class discussions may be changed.

1st week: Introduction

2nd week: The Dynamics of Disease Transmission

3rd week: Measuring the Occurrence of Disease

4th week: Diagnostic and Screening Test

5th week: Natural History of Disease

6th week: Randomized Trials

7th week: Cohort Studies

8th week: **Spring Break (No Classes)**

9th week: Case-Control Studies

10th week: Cross-Sectional Studies

11th week: Estimating Risk; More on Risk

12th week: Comparing Cohort and Case-Control Studies;

From Association to Causation; More on Causal Inferences

13th week: Molecular Epidemiology & Cancer Epidemiology

14th week: Precision Medicine

15th week: presentation

16th week: presentation

17th week: **Final Exam**