

## HS 395 (Sec 2) – Spring 2017 Fundamentals of Epidemiology

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**A. Course description**

Fundamentals of Epidemiology (HS 395 – 3 credits)

Epidemiology is often referred to as “the basic science of public health”. This class provides an introduction to the principles and methods of epidemiology as it applies to health promotion and healthcare delivery. The course will cover a historical perspective of epidemiology, measures of disease occurrence and association, clinical epidemiology, major epidemiological study designs, disease screening, causal inference and common methods for identifying and controlling infectious disease outbreaks.

Prerequisite: Math 355.

**B. Format**

Three hours lecture per week for sixteen weeks. *Hybrid format with out-of-class narrated lectures and in-class discussions.*

**C. Textbook**

Epidemiology (4<sup>th</sup> Edition) by Leon Gordis

**D. General goals and objectives**

At the conclusion of this course, students will be able to:

1. Articulate the basic epidemiologic study designs and statistics used for measuring risk factor/disease associations.
2. Apply knowledge of epidemiology to identify the strengths and weaknesses of published studies.
3. Demonstrate the importance of using epidemiologic data to design disease prevention programs.
4. Appreciate the scope of epidemiology and its potential application for health promotion and improving healthcare delivery.

**E. Grading system**

93 – 100	A	77 – 79	C+
90 – 92	A-	73 – 76	C
87 – 89	B+	70 – 72	C-
83 – 86	B	67 – 69	D+
80 – 82	B-	60 – 66	D
		Below 60	F

“A” reflects exceptional work (going beyond the basics, integrating material well, displaying professionalism in individual and group work, application and demonstration of knowledge and skills, showing initiative, using creativity, writing is reflective of multiple drafts).

“B” reflects good work (valuable teamwork skills, active in class, ability to grasp basic concepts and apply to new situations, some participation in class, completes all assignments with a degree of proficiency but may not demonstrate initiative, creativity or reflection consistently, writing contains errors or lacks conciseness and completeness).

“C” reflects average work (assignments are completed at the minimum, basic concepts are grasped but cannot be applied, some difficulty in group work, spelling and grammar mistakes are common, writing is conversational in tone with little attention paid to detail, word choices, organization (rough draft quality), little participation in class).

**Student responsibilities for successful coursework:**

Attendance: Students should plan to attend all classes and are responsible for all information presented in class. Notify the instructor in person, by telephone or email if an absence is anticipated. Class begins promptly at the scheduled times.

Reading Assignments: Additional readings will be posted in D2L. Students will be more successful in the class if the text and other handouts are read before the class period during which a given topic will be covered. The course is focused on discussion and analysis of topics. Readings will prepare you for participation in class.

Written work must be computer-printed (12 point font, double-spaced, 1 inch margins) and written in complete sentences with proper punctuation, spelling and grammar. Student names should be printed in the upper right hand corner of the paper. All assignments are due at class time on the day specified. Students must submit one copy of their homework in the drop box of D2L before class and also bring a copy for review in class. Late assignments may be accepted but these will receive a lower grade. *If you have any concern about meeting the requirements of this course, please see me.*

**G. Derivation of course grade**

Three 1-hour exams (15% each - multiple choice and short answer)	45%
Class participation	5%
Quizzes	15%
Final exam (comprehensive)	35%

**H. Other class information**

Cell phone policy - please don't use your cell phone during class!

No text messaging.

Email – please note that you are responsible for anything I send you via email.

Remember, class attendance is very important!

**I. Communicating with your instructor via email**

I check my email frequently during the day. However, I receive a lot of email and I sometimes delete emails which do not have the subject specified. If you have not received a response to your email within 24 hours, please resend your email. I do check email routinely at home and on weekends. Please remember that these are professional communications so please use full sentences and complete words.

**J. Students with special needs**

Students with special needs should contact the instructor as early in the semester as possible to make any necessary class/test accommodations.

**The contents of this syllabus are as complete and accurate as possible. The instructor reserves the right to make any changes necessary to the syllabus and course material. The instructor will make every effort to inform the students of changes as they occur. It is the responsibility of the student to know what changes have been made in order to successfully complete the requirements of the course. Any in-class announcement, verbal or written, is considered official addendum to this syllabus.**

## Tentative Course Calendar

Date	Topics
Thurs, Jan 26 (in class)	Lesson 1 - Course Overview / What is Epidemiology?
Tues, Jan 31	Lesson 2 - The Role of Chance: Probability, Fallacies and Monty Hall
Thurs, Feb 2 (In class)	Discussion - Overview of Epidemiology (Lesson 1 continued)
Tues, Feb 7	Lesson 3 - History of Epidemiology
Thurs, Feb 9 (In class)	Discuss Levels of Prevention and study designs
Tues, Feb 14	Lesson 4 - Descriptive Studies / case reports, case series and cross-sectional surveys: incidence and prevalence
Thurs, Feb 16 (In class)	Lesson 5 – Rates and Demography
Tues, Feb 21	Lesson 6 - Ecological studies / Causality
Thurs, Feb 23 (In class)	Lesson 7 – Case Control Studies. Discuss Ecological Studies and Case Control Studies
Tues, Feb 28	Lesson 8 – Sampling Lesson 9 - Cohort Studies
Thurs, March 2 (In class)	Discuss Cohort Studies /Measures of Association
Tues, March 7	Lesson 10 – Odds Ratios and Relative Risks
Thurs, March 9 (In class)	<b>Exam 1</b>
Tues, March 14	Lesson 11 - Randomized Controlled Trials (RCTs)
Thurs, March 16 (In class)	Review Exam 1 and Discuss Randomized Controlled Trials Methods
Tues, March 21	<i>Spring Break (no class)</i>
Thurs, March 23	<i>Spring Break (no class)</i>
Tues, March 28	Lesson 12 - Community Intervention Studies Lesson 13 - Meta Analysis and Evidenced Based Medicine
Thurs, March 30 (In class)	Discuss Meta Analysis and evidenced-based medicine
Tues, April 4	Lesson 14 - P-Values and 95% Confidence Intervals Lesson 15 - Screening: sensitivity and specificity
Thurs, April 6 (In class)	Discuss: RCT paper and screening
Tues, April 11	Review for Exam 2
Thurs, April 13 (In class)	<b>Exam 2</b>
Tues, April 18	Lesson 16 - Overview of Infectious Disease Epidemiology
Thurs, April 20 (In class)	Discuss Outbreak Investigation Methods and Review Exam 2
Tues, April 25	Lesson 17 - Infectious Disease Field Epidemiology
Thurs, April 27 (In class)	Lesson 18 - Discuss Outbreak Investigation Methods
Tues, May 2	The great Milwaukee Crypto outbreak / Review for exam 3
Thurs, May 4 (In class)	<b>Exam 3</b>
Tues, May 9	Lesson 19 - Diabetes Pandemic talk
Thurs, May 11 (In Class)	Review Exam 3 and Review for Final
Wend May 17	<b>Final Exam (2:45pm to 4:45pm)</b>