

**Introduction to Epidemiology (Bio 303)
Fall 2016**

Wednesday and Friday 11:30-12:30
Halsey 367

Professor: Dr. Sabrina Mueller-Spitz
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Office Hours: Monday 9:30-11:30 and Friday 10-11
Other times are available by appointment.

Course Description: This was a course created for the environmental health majors. It also serves as an elective for biology and microbiology majors. This course provides a foundation of topics in epidemiology through examining infectious disease, chronic diseases, and “good” health. Students will learn about real world health problems and how epidemiology is used to better understand, prevent, and treat these “health states”. Prerequisite: Biology 105.

Course Objectives: At the end of this course you will be able to explain the scope of epidemiology, describe how this field is essential for improving the human health, and recognize how the various study types help us understand infectious and chronic disease etiology. You will learn how to critically evaluate epidemiology in the media and the scientific evidence to better understand your “risk” in developing a chronic disease, infectious disease or preventing a negative health outcome. This will be accomplished by lectures, homework assignments, classes based discussions, and analysis of current research in the field of epidemiology. We will examine how social, economic, genetic, environmental, and cultural factors impact disease development, treatment, and prevention. The entire class will focus on different aspects of control, prevention, and treatment of disease.

Course Readings: Electronic textbooks and various primary literature papers will be used for this course. The materials are posted on the D2L page content page under the header course readings.

Electronic Textbooks:

- 1) Health Research Methodology: A Guide for Training in Research Methods, 2nd Edition. World Health Organization
- 2) Epidemiology an evolving text. Schoenbach and Rosamond. Department of Epidemiology. School of Public Health*
- 3) Infectious diseases a geographic guide [edited by] Eskild Petersen, Lin H. Chen, Patricia Schlagenhauf-Lawlor*
- 4) Emerging Infectious Diseases: A Guide to Diseases, Causative Agents, and Surveillance by L. Beltz Controlling communicable disease Norman Noah Maidenhead, England; New York: Open University Press, 2006*
- 5) Epidemiology and Prevention of Vaccine-Preventable Diseases; The Pink Book: Course Textbook 12th Edition 2012. Centers for Disease Control
- 6) Microbiology: A Human Perspective. Nester, Anderson, and Roberts. 2012. McGraw Hill.
Hard Copy Book (on reserve in Halsey Resource Center Rm 259):

* Electronic textbooks will be directly access via UWO Polk Library or specific website. Links are on D2L for each book.

PART I Foundations of Epidemiology September 7--28th Quiz 1 October 5	
Course Topics	Readings
Goals of Epidemiology	Understanding the Fundamentals of Epidemiology Ch 1 & Ch 2 Understanding the Fundamentals of Epi Ch 5
Measures in Epidemiology	Understanding the Fundamentals of Epi Ch 6 Health Research Methodology Ch 2
Population Statistics	Population Doom or Vroom (Science paper) Understanding the Fundamentals of Epi Ch 3
Epidemiology Study Types: Descriptive Studies	Health Research Methodology Ch 3 & Ch 4
Epidemiology Study Types: Analytical Studies	Understanding the Fundamentals of Epi Ch 8 Health Research Methodology Ch 7, Ch 8 & Ch 9
Epidemiology Study Types: Experimental Studies	Health Research Methodology Ch 4
PART II Infectious Disease Epidemiology September 30th - November 4nd Quiz 2 October 14th and Exam 1 November 9th	
Course Topics	Readings
Infectious Disease Basics	Infectious Diseases: A Geographic Guide Ch1 , 2, & 3 Microbiology: A Human Perspective (General Microbiology textbook) Infectious Disease Epidemiology Barreto et al 2006
Global View of Infectious Disease	Emerging Infectious Diseases: A Guide to Diseases, Causative Agents, and Surveillance Ch 1
Chain of Infection & Disease Triangle	Microbiology: A Human Perspective: Ch 19 CDC Travelers Health Understand How Infectious Diseases Spread (webpage)
Emerging & Reemerging Infectious Disease and Neglected Tropic Infectious Diseases	Global climate and health predicting infectious disease outbreaks Devastating Global Impact of Neglected Tropical Diseases Emerging Microbial Threats: Communication Challenges and Opportunities Global trends in emerging infectious diseases
Infectious Disease Surveillance	Controlling Communicable Disease Section 1 Chapter_6_Epidemiology_and_Surveillance
Outbreak/Epidemic Investigations	Outbreak investigations-a perspective Reingold 1998 Emerg Infect Dis 4-21-27 Controlling Communicable Disease Section 2
Example Outbreak Investigation	TO BE DETERMINED
Interventions: Control & Prevention	Epidemiology and Prevention of Vaccine-Preventable Diseases Ch1, 2, & 3 Infectious Diseases: A Geographic Guide Ch 3
PART III Application of Epidemiology in Chronic Disease November 11th- December 16th Exam 3 December 14	
Bias & Confounding in Studies Ethical Aspects of Studies Application of Study Types: Cross-Sectional, Cohort, Case-Control & Intervention/Clinical Trials Specialties of Epidemiology: Environmental, Occupational, Molecular, and Social Epidemiology	Readings will be posted on D2L for this section.

The topic order could change. If there is a specific topic that you would like to included, please feel free to share this information with me, so I can best address the interests and needs of the students in the class.

Graded Course Items (400 points for course):

- There will be two quizzes and two exams that will focus on application of the concepts from the lecture material, data interpretation, and critical analysis of the field of epidemiology. **(66.25% of final grade=265 points)**
- There will be five homework assignments where you will further explore some concepts presented in lecture and examine health information from freely available data sets. These assignments will be posted on D2L and explained in class a couple of days before each is due. **(15% of final grade=60 points)**
- **There will be three paper discussions during the semester. The objective of each discussion is to dissect an epidemiological study.** For each discussion, the class will be divided into groups of 4-5. Each group will be responsible for discussing the paper based upon questions provided by the professor, generating a list key findings from the paper, application of these findings, and planning follow-up experiments. **(7.5% of final grade= 30 points)**
- Each student will conduct an epidemiologic literature analysis about a current health topic. **The goal of this assignment is for each student to distill peer reviewed epidemiology literature into a short news story targeted for the general public.** The core element of this project is for you to practice writing about peer-reviewed science/research and clearly portraying the science to an educated public. The details of the project are posted on D2L. **(11.25% of final grade=45 points)**

Grading Scale:

93-100 %	A	71-76.9 %	C
90-92.9 %	A-	69-70.9 %	C-
87-89.9 %	B+	67-68.9 %	D+
82-86.9 %	B	61-66.9 %	D
81.9-80 %	B-	60.9-60 %	D -
77-79.9 %	C+	less than 60	F

Course Policies:

Exams: If a student misses an exam because of extreme circumstance such as death of a close relative or a documented medical excuse, the student will be allowed to take a make-up exam. The student must talk with the professor within 24 hours of the missed exam to schedule a make-up (your responsibility). However, just missing an exam does not warrant a make-up exam. Graded quizzes and exams will be handed back within two week after the scheduled date, providing the professor sufficient time to grade the short answer exams.

Homework Assignments & Epidemiology Project: These assignments **MUST BE** submitted on D2L's drop box as a word document or PDF (e.g. txt., .doc or .docx file) to receive full credit. These assignments will be graded for how the completeness of the answers. If other sources are used to answer the question, these source **MUST** be included. When citing sources used Council of Science Editors (<http://www.scientificstyleandformat.org/Tools/SSF-Citation-Quick-Guide.html>) and if a peer reviewed literature source is used, then a copyPDF of the paper must be up-loaded. A link to the article **DOES NOT** count. **Late assignments will be accepted with a loss of 20% of the point total per day the assignment is late.** Assignments will be graded within 2 weeks of submission.

Discussion Participation: Grading will be based upon on preparation and participation in the discussion. If you do not contribute to the discussion in a constructive manner or are not present, this will be considered a ZERO for participation.

Academic Dishonesty: Cheating on an exam, plagiarizing (e.g. using information from a website, textbook, journal article, or public press without a citation or paraphrasing), or any other form of academic dishonesty will be dealt with in accordance with the current UWO Student Discipline Code section 14. **Academic dishonesty could result in the instructor assigning a grade of "F" for the course should circumstances warrant. I TAKE ACADEMIC MISCONDUCT VERY SERIOUSLY.** If you have any questions when working on assignments for this class or any other please come. **REMEMBER WHEN IN DOUBT CITE THE SOURCE or ASK QUESTIONS.**

Email: When contacting me by email include the course number (Bio 303 or Epidemiology) in the subject line to make sure that your email receives a response in a timely manner. If I am unable to understand the content or context of your email, I will not respond, so please send a detailed message/professional manner. Emails that are received after 5 pm on weekdays and over the weekend may not be responded to until the next business day.

Mobile Devices: Turn off all **cell phones**, mp3players, or any other device that can be distracting to classmate prior to lecture. **Any mobile device use during class will result in a loss of 20 points from your final point total.**

Important Dates for the Course	
Date	Event
September 12 th	Topic Choice for Epidemiology Project Framework
September 19 th	Homework #1
September 28 th	Discussion #1
October 5th	Quiz 1(covers Part I- wks 1-3)
October 14th	Quiz 2 (cover Part 2- wks 4-6)
October 19 th	Homework #2
October 26 th	Discussion #2
October 28 th	Homework #3
November 1 st	Submit Papers for Epidemiological Disease Assessment
November 9th	Exam 2 (covers Part II- wks 4-9)
November 14 th	Homework #4
November 21 st	Analysis of Journal Articles for Epidemiology Project
December 2 nd	Homework #5
December 9 th	Discussion #3
December 11 th	Layperson Summaries of Epidemiology Research
December 14th	Exam 3 (covers Part III-wks 10-13)
December 16 th	Epidemiology Project Disease Discussions