Course Syllabus

Epidemiological Concepts and Methods for Public Health
PUBH 2010, section 400
UNT College of Health and Public Service

"…it is the knowledge about the way in which the disease is propagated which will cause them to disappear."

---- John Snow

Instructors

Professor: Julia Heck, PhD, MPH
Teaching Assistant: Ganette Apeadu-Baah

Course Description

Epidemiology is the systematic and rigorous study of health and disease in a population. The purpose of this course is to introduce you to core concepts in epidemiology as a foundation for further learning in the public health field. You will learn about several aspects of epidemiology and will discover and learn to apply analytical methods to study patterns of disease and injury. Upon learning concepts of inference, bias, and confounding you will assess epidemiological associations and causation of disease. You will recognize how to apply these concepts to inform basic and clinical science as well as policy. The course requires problem-based learning of epidemiological concepts and methods, so you will be able to use epidemiology as a scientific tool for addressing the health needs of the community.

Course Objectives

To familiarize you with how epidemiology contributes to:
1. The understanding of the causes and natural course of disease of all kinds,
2. The control of disease in human populations, and
3. Scientific judgment and inquiry in public health problems.

By successfully completing this course, you should be able to:
1. Discuss the role of epidemiology within the broader field of public health
2. Discuss the principles of disease prevention within populations
3. List and describe key terms used in the epidemiology and prevention of infectious disease
4. Calculate and interpret basic population measures of health and disease occurrence including
   incidence, prevalence, and survival
5. Make appropriate comparisons of disease rates within and between populations
6. Distinguish between basic measures of association, including rate ratio, risk ratio, the incidence
   density ratio, odds ratio, attributable risk, and population attributable risk

7. Select and apply fundamental epidemiologic study designs including a randomized clinical trial,
cohort, case-control, and ecologic for the purpose of investigating public health problems
8. Identify the role of bias and confounding in epidemiologic research and apply methods appropriate to the assessment of confounding and various types of bias
9. Differentiate between various epidemiologic study designs and compare their respective strengths and weaknesses

Course Format

This course will be held entirely online, with the opportunity to meet with the professor at Office Hours or over Zoom as needed. Students are expected to:
1. Complete the readings for each module before viewing the course material online.
2. Watch all lecture videos and supplemental materials for each module.
3. Take quizzes and complete the homework assignments on time.

The class format will include lectures (videos), thought questions, homeworks, discussions, quizzes, and projects as described below. The course website will show the steps students should follow in each module.

F-1 Visa Regulations

Federal regulations state that students may apply only 3 fully-online semester credit hours (SCH) to the hours required for full-time status for F-1 Visa holders. Full-time status for F-1 Visa students is 12 hours for undergraduates and 9 hours for graduate students.

How to Succeed in this Course

Keep up with readings, assignments, and quizzes. Find a Study Buddy. Reach out to Instructors when you need help! We hold Office Hours for you: these are walk-in hours when you can come and ask questions. We are here for you.

Connect with us through email and/or by attending office hours. During busy times, my inbox becomes rather full, so if you contact me and do not receive a response within two business days, please send a follow up email. A gentle nudge is always appreciated.

Student Wellness

UNT strives to offer a high-quality education in a supportive environment where you can learn, grow, and thrive. As a faculty member, I am committed to supporting you, and I want to remind you that UNT offers a range of mental health and wellness services to help maintain balance and well-being. Utilizing these resources is a proactive way to support your academic and personal success. To explore campus resources designed to support you, check out mental health services. (https://clear.unt.edu/student-support-services-policies.), visit unt.edu/success, and explore unt.edu/wellness. To get all your enrollment and student financial-related questions answered, go to scrappysays.unt.edu.

Every student in this class should have the right to learn and engage within an environment of respect and courtesy from others. We will discuss our classroom's habits of engagement and I also encourage you to review UNT's student code of conduct so that we can all start with the same baseline civility and understanding (Code of Student Conduct.).

Students with Disabilities

The University of North Texas makes reasonable accommodations for students with disabilities. To request accommodations, you must first register with the Office of Disability Access (ODA) by completing an application for services and providing documentation to verify your eligibility each semester. Once your eligibility is confirmed, you may request your letter of accommodation. ODA will then email your faculty a letter of reasonable accommodation, initiating a private discussion about your specific needs in the course.

You can request accommodations at any time, but it's important to provide ODA notice to your faculty as early as possible in the semester to avoid delays in implementation. Keep in mind that you must obtain a new letter of accommodation for each semester and meet with each faculty member before accommodations can be implemented in each class. You are strongly encouraged to meet with faculty regarding your accommodations during office hours or by appointment. Faculty have the authority to ask you to discuss your letter during their designated office hours to protect your privacy. For more information and to access resources that can support your needs, refer to the Office of Disability Access website.

Required/Recommended Materials

Readings will be listed on Canvas, under each module.

This course is completely online. To fully participate in this class, students will need internet access to reference content on the Canvas Learning Management System. If circumstances change, you will be informed of other technical needs to access course content. Information on how to be successful in a digital learning environment can be found at Learn Anywhere (https://online.unt.edu/learn).

Schedule

Students will be notified by Eagle Alert if there is a campus closing that will impact a class. As such, the calendar is subject to change (https://policy.unt.edu/policy/15-006).

Week	Topic	Homeworks/ Quizzes	Discussions/Podcasts
1	Introduction		Discussion 1
2	Studying Populations	Homework 1	
3	Outbreak Investigations	Homework 2	
4	Measures of Association		Podcast 1
5	Sources of Public Health Data	Quiz (weeks 1-5)	
6	Overview of Study Designs		Discussion 2
7	Ecologic and Cross-sectional Studies	Homework 3	

8	Intervention Studies	Homework 4	Discussion 3
9	Cohort Studies		Discussion 4
10	Case-Control Studies	Homework 5	
11	Confounding	Quiz (covers weeks 6-10)	
12	Bias		Discussion 5
13	Screening		Podcast 2
14	Causal Inference	Homework 6	
15	Class review		Discussion 6
16	Final exam	Online. Available Dec 5 and 6.	

Assessing Your Work

Quizzes (30% of grade)
Quizzes will address concepts from the modules. Questions will be short answer, multiple choice, true/false, and calculations. Quizzes are closed book and must be done individually. Students who cannot take quizzes due to extenuating circumstances should inform the instructor as soon as possible of the illness/situation. Extenuating circumstances are defined as severe personal illness or circumstances beyond the student's control.

Homeworks (36% of grade)
Homework assignments are aimed for you to apply epidemiologic principles. Homeworks will be posted on the course website.

Podcast reviews (10% of grade)
You will be asked to listen to epidemiology podcasts and review them.

Discussions (24% of grade)
You will be asked to read about recent or important topics in epidemiology: learning about diseases & their causes, and commenting on them.

Extra credit (optional)
Students may choose to participate in a research study for extra credit. Up to 5 credits (1 point each) will be allowed. More information is available here.

Late work
Please reach out to the instructor and TA if work will be late (please email both of us to make it easier to keep track). If we don't hear from you in advance there is a 5% penalty for every 24 hours that homework or assignments are late.

Use of Generative AI (GenAI)

In this course, I want you to engage deeply with the materials and develop your own critical thinking and writing skills. For this reason, the use of Generative AI (GenAI) tools like ChatGPT is not permitted. While these tools can be helpful in some contexts, they do not align with our goal of fostering the development of your independent thinking. Using GenAI to complete any part of an assignment, exam, or coursework will be considered a violation of academic integrity, as it prevents the development of your own skills, and will be addressed according to the Student Academic Integrity policy (https://policy.unt.edu/policy/06-003) . First instance: you will receive a zero for the assignment. After the first instance, your following assignments will come under greater scrutiny. Second instance: you will be referred to the Dean of Students office.

UNT's AI policy is shown here.

Copyright

All material in this course is copyrighted. You do not have permission to share or upload course materials. If the instructor determines that you have shared course materials on an external website, you will receive a 0 for the assignment and will be reported to the Dean of Students.