

Western Kentucky University Department of Public Health

Course Syllabus PH384: Introduction to Epidemiology Spring 2018

Lecture Format: Web-based (Online through Blackboard Learning Management)

Instructor Information

Instructor: Dr. Xiuhua (pronounced Shoowah) Ding

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Office Hours: Tuesdays & Thursdays, 9:00am-11:00am (or by E-mail appointment)

Email is the best way to reach me. I try to respond to all emails within 24 hours (48 over weekends). If you've not heard back from me by then, please re-email me. Please put the course name in the subject line. See course site for additional details on how to reach me.

Required Text:

Friis R.H. (2010). *Epidemiology 101: Essential Public Health Series*.

Sudbury, MA: Jones and Bartlett Publishers, Inc.

ISBN: 9780763754433

Other Requirements:

Calculator

Access to Blackboard

Course Description:

Epidemiology is concerned with the distribution and determinants of health and diseases, illnesses, injuries, disability, and death in populations. The long-term goal of epidemiology in controlling and/or preventing diseases is to prevent the occurrence of new cases, eradicate existing cases, and prolong life. Epidemiology also examines the occurrence of disease among population groups rather than individuals.

In this course we will focus on the basic concepts, principles and methods of epidemiology, which provide an essential set of tools used in public health research and evaluation. The course includes description of the historical development and the theory and methods of epidemiology, including key concepts such as incidence,

prevalence, morbidity, mortality, risk, exposure and the interaction of agent, host and environment across the constructs of time, person, and place.

Public health surveillance is the systematic, ongoing collection, management, analysis, and interpretation of data followed by the dissemination of these data to public health programs to stimulate public health action. The best-recognized use of public health surveillance data is the detection of epidemics and other health problems in a community, but there are many other uses that are critical to public health practice. These data are used to estimate the scope and magnitude of a problem, including the geographic and demographic distribution of health events that will facilitate public health planning. Surveillance data also can be used to detect changes in health practices, monitor changes in infectious and environmental agents, evaluate control measures, and describe the natural history of a health event in a community that will generate hypotheses and stimulate applied research. In short, public health surveillance is the foundation for decision making in public health and empowers decision makers to lead and manage more effectively by providing timely, useful evidence.

Course Objectives:

Upon completion of this course, students should be able to do the following:

1. Discuss the history, philosophy, and uses of epidemiology.
Competency 1, 2, 5, 13, 29
2. List sources of epidemiologic data and define related measures of morbidity and mortality.
Competency 7,8,9,10,26
3. Define the term *descriptive epidemiology* and describe the applications of descriptive epidemiology to the health of populations.
Competency 7, 8, 9,10,12,19
4. State what is meant by the terms *association* and *causation*.
Competency 12
5. Define the term *analytic epidemiology* and differentiate among the various types of analytic research study designs.
Competency 10, 11, 12
6. Analyze epidemiological study designs: calculate odds ratios and relative risks.
Competency 10, 11, 12
7. Define the term *evidence-based public health* and discuss its applications.
8. Discuss the applications of epidemiology to policy development.
9. Describe applications of infectious disease outbreak investigation, social and behavioral phenomena, and special topics including work and the environment.

Competency 20, 21, 22

Blackboard

All course materials will be posted on the Western Kentucky University Blackboard, at <https://www.wku.edu/it/blackboard/>. To log in to Blackboard, you must use your active directory account. The Blackboard environment will permit students to discuss problems and assignments with each other and will allow the instructor to make general

announcements to the class through the announcements frame or the e-mail facility. It is recommended that you check in at Blackboard at least once early.

Requirements and Evaluation

Exams (51%)

There will be three exams. Each exam worth 17% of your final grade. Exams will be completed through Blackboard during specified dates. All exams will be timed and give well-prepared students ample time to answer all questions. Student must finish these exams in one sitting. So plan enough time to take these exams. These exams are not proctored, open book and notes, and require a calculator.

Exam topics and points are as followed:

1. **Exam #1** will cover Chapters 1-3 (100 points).
2. **Exam #2** will cover Chapters 4-6 (100 points).
3. **Exam #3** will cover Chapters 7–10 (100 points).

Please note: these exams are not accumulative.

Quizzes (19%)

There are a total of 10 quizzes (one quiz by one chapter), each worth about 1.9% of your final grade. These quizzes provide an opportunity to understand the concepts from lectures. There is a due date (Friday night) for taking each quiz at the first time, which is listed in the schedule. But you are allowed to retake up to three times and the highest score will be recorded through the whole semester. Just keep in mind, these questions in quizzes are randomly generated, you are not likely to get the same questions as last time, and you will not be told what you missed from last quiz since you are allowed to retake. Sometimes, there are bad questions in the test bank. If you find one (or think you do), please email me with the test number, the question and the response options, and why you think the question is bad. I will make grade adjustments, if needed. All quizzes are due by 11:59:59 p.m. on May 7th, 2018.

Weekly Assignment (30%)

There will be weekly assignments (total 10 assignments). These assignments provide an opportunity to understand the concepts from lectures and practice calculations for the exams. Each assignment worth 3% of your final grade. Weekly assignments must be received by the server by 11:59:59 p.m. (CST) on the due date (Friday night) listed in the schedule. Assignments received late (1 second, minute, hour or day) will not be evaluated. Early submissions are strongly encouraged. To finish these assignments, you can read books, lectures notes or discuss with others but you are responsible for your own work.

Grading

Students' grades will be determined based on three in-class exams, ten quizzes and ten weekly assignments. Final grades will be calculated based on point totals from all

exams, quizzes, and weekly assignments. Additional assignments for extra credit will not be given, please don't ask.

A standard 10 point scale will be used, based on the following:

Exams (3 at 17% each)	51%
Quizzes (10 at ~1.9% each)	19%
Weekly Assignments (10 at 3.0% each)	30%

NOTE: A clean 10-point scale used which means there is no roundup. The grade you earn is the grade is recorded in the system. If you have a question about your grade, please email me to discuss.

Letter grades for the course will be assigned on a percentage basis (as given below).

Grade	%
A	90-100
B	80-89
C	70-79
D	60-69
F	< 60

Late work policy

All assignments are due on the date indicated on blackboard. Late submissions may not be accepted or may be accepted under certain circumstances with a deduction of 20% of the grade. It is the students' responsibility to submit assignments in a timely manner to the instructor.

Students with Disabilities

In compliance with university policy, students with disabilities who require accommodations (academic adjustments, and/or auxiliary aids or services) for this course must contact the Office for Student Disability Services in Downing University Center A 200. The phone number is 270-745-5004; TTY is 270-745-3030. Per university policy, please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from the OFSDS."

Academic Integrity

Students are expected to abide by the WKU Student Code of Conduct. WKU has **zero** tolerance for academic dishonesty. All assignments and exams are to be completed by you, the student. Any observed cheating will be dealt with in accordance with WKU policies. Plagiarism cannot be tolerated in this course. Please note that every student's

assignment submitted or posted on Blackboard may be checked using a variety of plagiarism detection software.

Complaints

Students with suggestions or complaints should see me first, and if we cannot come to an agreement, I will direct you to the head of the department.

Religious Observances

Students will be given the opportunity to make up work (typically, exams or assignments) when students notify their instructor that religious observances prevent the student from completing assignments according to deadlines stated in this syllabus. Students must notify the course instructor at least two weeks prior to such an absence and propose how to make up the missed academic work.

Instructor expectations

1. I expect you to read handouts along with the notes and the book chapter each week.
2. I expect (and encourage) you to provide honest and timely feedback regarding the content and process of this course throughout the semester.
3. I expect you during the semester to interactively engage with the other students and the instructor.
4. I expect you to share in the responsibility for making this course an enjoyable and beneficial learning experience.

BSPH Competencies

Upon graduation a student with an MPH should be able to...

Competencies	Objectives
Overview of Public Health: Address the history and philosophy of public health as well as its core values, concepts, and functions across the globe and in society	
1. Public Health History	1
2. Public Health Philosophy	1
3. Core PH Values	
4. Core PH Concepts	
5. Global Functions of Public Health	1
6. Societal Functions of Public Health	
Role and Importance of Data in Public Health: Address the basic concepts, methods, and tools of public health data collection, use, and analysis and why evidence-based approaches are an essential part of public health practice	
7. Basic Concepts of Data Collection	2,3
8. Basic Methods of Data Collection	2,3
9. Basic Tools of Data Collection	2,3
10. Data Usage	2,3, 5
11. Data Analysis	5,6
12. Evidence-based Approaches	3,4,5,6

Identifying and Addressing Population Health Challenges: Address the concepts of population health, and the basic processes, approaches, and interventions that identify and address the major health-related needs and concerns of populations	
13. Population Health Concepts	1
14. Introduction to Processes and Approaches to Identify Needs and Concerns of Populations	
15. Introduction to Approaches and Interventions to Address Needs and Concerns of Populations	
Human Health: Address the underlying science of human health and disease including opportunities for promoting and protecting health across the life course	
16. Science of Human Health and Disease	
17. Health Promotion	
18. Health Protection	
Determinants of Health: Address the socio-economic, behavioral, biological, environmental, and other factors that impact human health and contribute to health disparities	
19. Socio-economic Impacts on Human Health and Health Disparities	3
20. Behavioral Factors Impacts on Human Health and Health Disparities	9
21. Biological Factors Impacts on Human Health and Health Disparities	9
22. Environmental Factors Impacts on Human Health and Health Disparities	9
Project Implementation: Address the fundamental concepts and features of project implementation, including planning, assessment, and evaluation	
23. Introduction to Planning Concepts and Features	
24. Introduction to Assessment Concepts and Features	
25. Introduction to Evaluation Concepts and Features	
Overview of the Health System: Address the fundamental characteristics and organizational structures of the U.S. health system as well as to the differences in systems in other countries	
26. Characteristics and Structures of the U.S. Health System	2
27. Comparative Health Systems	
Health Policy, Law, Ethics, and Economics: Address the basic concepts of legal, ethical, economic, and regulatory dimensions of health care and public health policy, and the roles, influences and responsibilities of the different agencies and branches of government	

28. Legal dimensions of health care and public health policy	
29. Ethical dimensions of health care and public health policy	1
30. Economical dimensions of health care and public health policy	
31. Regulatory dimensions of health care and public health policy	
32. Governmental Agency Roles in health care and public health policy	
Health Communications: Address the basic concepts of public health-specific communication, including technical and professional writing and the use of mass media and electronic technology	
33. Technical writing	
34. Professional writing	
35. Use of Mass Media	
36. Use of Electronic Technology	

Please note that one course cannot make you “competent” in any discipline. As such, at the end of this course, you should not expect to be able to do all of these things well. You will, however, have – at minimum – exposure to topics that comprise each competency.

Cross-cutting concepts

This course contributes to the foundational knowledge of public health by addressing the following:

Concepts	Objective
1. Advocacy for protection and promotion of the public’s health at all levels of society	
2. Community dynamics	
3. Critical thinking and creativity	3,6
4. Cultural contexts in which public health professionals work	
5. Ethical decision making as related to self and society	
6. Independent work and a personal work ethic	
7. Networking	
8. Organizational dynamics	
9. Professionalism	
10. Research methods	
11. Systems thinking	
12. Teamwork and leadership	2,6

Tentative Course Schedule

Week	Topics of Discussion	Assignment/ Reading Chapter
1	(1/22-1/26) Lecture: (Chapter 1): History, Philosophy, and Uses of Epidemiology	Review the entire syllabus (Required). Ch.1. Read Chapter 1 Quiz 1 & Assignment 1 for chapter 1 (Due: 1/26 11:59:59 pm)
2	(1/29 -2/2) Lecture: (Chapter 3): Epidemiologic Measurements Used to Describe Disease Occurrence_ Prevalence & Incidence	Ch. 3: Read Chapter 3 Assignment 2 for chapter 3 (first half) (Due: 2/2 11:59:59 pm)
3	(2/5-2/9) Lecture: (Chapter 3): Epidemiologic Measurements Used to Describe Disease Occurrence_ Crude rate & Adjusted rates	Ch. 3: Read Chapter 3 Quiz 2 for the whole chapter 3& Assignment 3 for chapter 3 (second half) (Due: 2/9 11:59:59 pm)
4	(2/12-2/16) Lecture: (Chapter 4) Data and Additional Measures of Disease Occurrence	Ch. 4: Read chapter 4 Quiz 3 & Assignment 4 for chapter 4 (Due: 2/16 11:59:59 pm)
5	EXAM 1 (2/19 – 2/23)	Study Chapter 1, 3, 4 & Handouts
6	(2/26-3/2) Lecture: (Chapter 5) Descriptive Epidemiology: Patterns of Disease - Person, Place & Time	Ch. 5: Read chapter 5 Quiz 4 & Assignment 5 for chapter 5 (Due: 3/2 11:59:59 pm)

7	(3/5-3/9) Lecture: (Chapter 2& 6) Association and Causality	Ch. 2 & 6: Read Chapter 2 & 6 Quiz 5 & Assignment 6 for chapter 2&6 (Due: 3/9 11:59:59 pm)
8	SPRING BREAK (3/12-3/16)	
9	(3/19-3/23) Lecture: (Chapter 7) Analytic Epidemiology: Types of Study Designs ratios and relative risks _Ecologic & Case-control study	Ch. 7: Read Chapter 7 Assignment 7 for chapter 7(first half) (Due: 3/23 11:59:59 pm)
10	(3/26-3/30) Continue with Chapter 7 Analytic Epidemiology: Types of Study Designs, Cohort study, Confounding & Bias	Ch. 7: Read Chapter 7 Quiz 6 for the whole chapter & Assignment 8 for chapter 6(second half)
11	Exam 2 (4/2-4/6)	Study Chapter 4-6 & Handouts
12	(4/9-4/13) Lecture: (Chapter 8&9) Epidemiology and the Policy Arena & Screening for Disease in the Community	Ch. 8 & 9: Read Chapter 8 & 9 Quiz 7 & Assignment 9 for chapter 7 (Due: 4/13 11:59:59 pm)
13	(4/16-4/20) Lecture: (Chapter 10) Infectious Diseases and Outbreak Investigation,	Ch. 8: Read Chapter 8 (p. 135 - 156) Quiz 8 & Assignment 10 for chapter 8 (Due: 4/20 11:59:59 pm)
14	(4/23-4/27) Lecture: (Chapter 11) Social and Behavioral Epidemiology	Ch. 9: Read Chapter 9 (p. 159 - 177) Quiz 9 for chapter 11 (Due: 4/27 11:59:59 pm)

15	(4/30-5/4) Lecture: (Chapter 12) Special Epidemiologic Applications	Ch. 10: Read Chapter 10 (p. 181- 196) Quiz 10 for chapter 12 <i>(Due: 5/4 11:59:59 pm)</i>
16	EXAM 3 (5/7-5/11)	Study Chapter 7-10 & Handouts