

# PH 581: Applied Methods in Public Health Practice: Field Epidemiology

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*Email is the easiest 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.*

## Pre-requisites

None

## Required Text/Materials

No required text; readings and materials are posted in Blackboard

Recommended text: Pia McDonald, Methods in Field Epidemiology ISBN-13: 9780763784591

Access to Excel or Epi Info: <http://www.cdc.gov/epiinfo/downloads.htm>.

## Course Description

Application of methods, tools, and techniques utilized by public health practitioners and other related professionals to identify, develop, and assess population-based interventions and outbreak investigations.

## Course Overview

This course applies principles and practices of field epidemiology to build students' skill sets in data management, questionnaire construction, interviewing techniques, data presentation, and audience-specific communication.

## Course Learning Objectives

Upon successful completion of this course, students will be able to:

1. Apply concepts of disease transmission to outbreak investigations, using appropriate terminology.
2. Differentiate between active and passive surveillance and their respective sources.
3. Document and apply the steps of an outbreak investigation.
4. Create case definition and prepare line listing.
5. Analyze a public health outbreak in terms of time, including constructing and analyzing epidemic curves.
6. Analyze a public health outbreak in terms of person, including constructing and analyzing tables and charts.
7. Analyze a public health outbreak in terms of place, including constructing and analyzing spot, choropleth, and isopleth maps.
8. Document steps of traceback investigations and contact tracing.
9. Compare and assess methodologies, key formatting, and content considerations for quantitative and qualitative data collection relative to outbreak investigations.
10. Propose sound interviewing techniques for questionnaire administration.
11. Formulate hypotheses based on descriptive data, including calculation of attack rates, and choose appropriate analytical epidemiologic study.
12. Analyze, interpret, and communicate analytical epidemiological data.
13. Document theoretical underpinnings of risk communication, including biological and psychological processes that influence risk perception.
14. Choose strategies for effective risk and crisis communication, including role of social media.
15. Create audience-appropriate and culturally-appropriate messages.
16. Apply systems thinking approach to one health problem.

## Course Assessments

Quizzes/Homework: Most weeks, you will complete an un-proctored quiz on Blackboard and/or homework assignment. You are welcome to use your notes/class lectures for the quizzes, but any narrative responses (short answers, essays, etc.) **MUST** be in your own words. Quizzes can only be taken once and must be completed once started. Some homework assignments will require group work. *Assesses objectives 1-15.*

Midterm Exam. In-class exam. *Assesses objectives 1 – 12.*

Case Study. Multi-part outbreak investigation case study applying steps to outbreak investigation. *Assesses objectives 1 – 12.*

Group Project. Continuation of outbreak investigation case study that requires a thorough presentation and outbreak report. *Assesses objectives 3-7 and 11-15.*

## Grading

A standard 10-point scale is used. I do not round up.

Homework/Quizzes/in-class work	56%
Midterm Exam	17%
Case Study (Individual)	17%
Project Part D-E (Group)	10%

## Academic Integrity

Academic integrity is essential to students' intellectual development, and is a core value of the MPH program. Thus, the work you do in this course – and all MPH courses -- is expected to reflect academic integrity through responsible behaviors, including avoiding plagiarism, unauthorized collaboration, cheating, or other types of [academic dishonesty](#). Students who commit any act of academic dishonesty may receive a failing grade on the assignment/assessment, or a failing grade in the course. [Per policy](#), students may also be reported to the Office of Judicial Affairs for disciplinary sanctions and/or the Graduate School for dismissal from the program. A student who believes a faculty member has dealt unfairly with him/her/them in a course involving academic dishonesty may seek relief through the [Student Complaint Procedure](#).

## Diversity, Inclusivity, & Equity

*We promote social justice by creating a respectful, collaborative, diverse, inclusive, and equitable environment through teaching, service, and research.*

The strength and success of WKU's MPH program is built on the foundation of a wide range of perspectives and experiences. We embrace diverse backgrounds, embodiments, and experiences and are committed to fostering an inclusive and accessible environments. We respect physical, social, and cultural differences among us, which may include, but are not limited to: age, cultural background, disability, ethnicity, family status, gender identity and presentation, citizenship and immigration status, national origin, race, religious and political beliefs, sex, sexual orientation, socioeconomic status, and veteran status. Please talk with your instructor, advisor, or MPH staff member right away if you experience disrespect in this class or while part of our program. Whenever possible, we will work to address it in an educational manner. Resources on inclusive language and document accessibility are provided in the MPH Guidebook and MPH Student organizational site on Blackboard

## ADA Accommodations

In compliance with University policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center located in Downing Student Union, Room 1074. The SARC can be reached by phone number at 270-745-5004 [270-745-3030 TTY] or via email

at [sarc.connect@wku.edu](mailto:sarc.connect@wku.edu). Please do not request accommodations directly from the professor or instructor without a faculty notification letter (FNL) from The Student Accessibility Resource Center.

## Title IX/ Discrimination & Harassment

Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding WKU’s [Sex and Gender-Based Discrimination, Harassment, and Retaliation](#) (#0.070) and [Discrimination and Harassment Policy](#) (#0.2040). Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX Coordinator, Deborah Wilkins, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121. Please note that while you may report an incident of sex/gender based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are “Responsible Employees” of the University and MUST report what you share to WKU’s Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU’s [Counseling and Testing Center](#) at 270-745-3159.



## MPH Competencies

This course contributes to the following MPH competencies:

MPH COMPETENCY	Obj.
Evidence-based Approaches to Public Health	
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	1-8
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	9, 10
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	5-7, 11, 12
4. Interpret results of data analysis for public health research, policy or practice	12
Public Health & Health Care Systems	
5. Compare the organization, structure and function of health systems across national and international settings	
6. Discuss the means by which structural bias, social inequities, and racism undermine health and create challenges to achieving health equity.	
Planning & Management to Promote Health	
7. Assess population needs, assets and capacities that affect communities’ health	
8. Apply awareness of cultural values and practices to the design, implementation, or critique of public health policies or programs	
9. Design a population-based policy, program, project or intervention	
10. Explain basic principles and tools of budget and resource management, specifically after funding for a project is secured	
11. Select methods to evaluate public health programs	
Policy in Public Health	
12. Discuss the policy-making process.	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations	
15. Evaluate policies for their impact on public health and health equity	
Leadership	
16. Apply leadership and/or management principles to address a relevant issue; such principles may include creating a vision, empowering others, fostering collaboration, and guiding decision making	
17. Apply negotiation and mediation skills to address organizational or community challenges	

MPH COMPETENCY	Obj.
<b>Communication</b>	
18. Select communication strategies for different audiences and sectors	13, 14
19. Communicate audience-appropriate (i.e., non-academic, non-peer audience) public health content, both in writing and through oral presentation	12, 15
20. Describe the importance of cultural competence in communicating public health content	15
<b>Interprofessional and/or Intersectoral Practice</b>	
21. Integrate perspectives from other sectors and/or professions to promote and advance population health	
<b>Systems Thinking</b>	
22. Apply a systems thinking tool to visually represent a public health issue in a format other than standard narrative	16
<b>WKU MPH Program Competencies</b>	
23. Apply health behavior theories and models to address public health problems.	
24. Locate, cite, and integrate credible and/or peer-reviewed literature into professionally written products.	
25. Apply methods of field epidemiology.	1-14
26. Describe the impact and importance of social determinants of health.	
27. Identify the direct and indirect population health effects of environmental hazards (biological, chemical and physical) on humans, animals and the ecology.	1

## Foundational Knowledge

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

Profession & Science of Public Health	Obj
1. Explain public health history, philosophy and values	
2. Identify the core functions of public health and the 10 Essential Services.	
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health	
4. List major causes and trends of morbidity and mortality in the US or other community relevant to the school or program	
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.	
6. Explain the critical importance of evidence in advancing public health knowledge	
<b>Factors Related to Human Health</b>	
7. Explain effects of environmental factors on a population's health	1, 16
8. Explain biological and genetic factors that affect a population's health	1, 16
9. Explain behavioral and psychological factors that affect a population's health	
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities	
11. Explain how globalization affects global burdens of disease	
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (eg, One Health)	1, 16