

**Western Kentucky University  
Department of Public Health**

**Principles of Environmental Health  
(PH 584)**

---

Instructor:	Ritchie D. Taylor, PhD, MS EOHS Office: AC 236 D Phone: (270) 745-8975 E-mail: <a href="mailto:ritchie.taylor@wku.edu">ritchie.taylor@wku.edu</a>
Office Hours:	Appointments upon request
Course Format:	This course will be taught online through WKU's Blackboard site. The course will include video lectures, online discussions, materials, a midterm exam and a term paper.

---

**Required Textbook**

Frumkin, Howard (Editor). Environmental Health from Global to Local. 2016. 3<sup>rd</sup> Edition. John Wiley & Sons, Inc. 858 pp. (This text is not available at the WKU Bookstore. You may purchase or rent the second edition (2010) to save money. You can rent this text (2<sup>nd</sup> edition) through VitalSource \$64 or you can rent through a retailer like Amazon for \$40 or less. There are even options to buy used 2<sup>nd</sup> edition volumes for under \$50.

**Optional Textbook**

Friis, Robert H. Essentials of Environmental Health. 2019. 3<sup>rd</sup> Edition. Jones and Bartlett Learning, LLC. (available at the WKU Store and online – a suggested textbook for background and introductory information – this is a supplemental text to support the topics and information in the course – you can get a used version of the 2007 or 1<sup>st</sup> Edition for \$15 or less via Amazon)

**Additional Readings**

Material provided by the instructor through Blackboard.

**Course Description**

A study of the traditional, emerging and controversial issues associated with environmental health. Biological, chemical and physical threats to human health are included.

**Environmental Health**

Environmental health comprises those aspects of human health that are determined by interactions

with physical, chemical, biological and social factors of the global environment. This course surveys all aspects including the traditional, emerging and controversial issues associated with environmental health, while focusing on issues most relevant today. Students are able to explore the relationships between population, natural resources, agriculture, emerging diseases and food borne illnesses, risk assessment, toxicology, industrialization, water and air pollution. The course emphasizes physical, chemical, and biological sources of pollution and available methods of prevention and control. Learning methods include lectures, discussions, readings, videos, presentations, and in-class or small group activities.

### **Course Objectives**

1. Discuss an environmental health topic based on research of current literature (Discussions and Term Paper).
2. Explain principles of environmental health that relate to the effects of environmental factors, chemical, physical, and biological, on a population's health (Midterm Exam).
3. Examine the use of toxicity data and endpoints, and the mechanisms of toxicity to assess the potential effects of environmental exposures (ToxTutor, Term Paper, Midterm Exam).
4. Demonstrate knowledge of past, present, and future environmental health disparities as influenced by history, place, and social inequalities (Term Paper).
5. Analyze the functions and regulatory authority of environmental health agencies, including application of environmental health regulations and laws (Exercise).
6. Create a written report that investigates a topical area of interest in environmental health, including a literature review, analysis of a policy, explores social and ethical aspects of the problem, and describes prevention strategies (Term Paper).
7. Analyze the functions of environmental health practice at the local, regional, and global scales (Term Paper).
8. Demonstrate the methods of occupational safety and health, including industrial hygiene, to reduce exposures to hazards in the workplace (Presentation).
9. Investigate the ethical, political and environmental justice issues related to a particular environmental health problem or policy (Term Paper, Midterm Exam).
10. Interpret results and findings of qualitative and quantitative environmental health research (Discussion, Exercise, and Term Paper).
11. Examine environmental health methods to determine a data collection strategy to evaluate a specific environmental health hazard (Term Paper).
12. Demonstrate use of statistical software to explore an environmental health dataset, including exposure assessment software (Exercise).

### **Assessments**

Class attendance will be measured by your participation in the Blackboard Course. Exercises and discussions will be 60% of the course grade (300 points). The mid-term accounts for 20% of the course grade (100 points total). The mid-term exam will cover material through July 15<sup>th</sup>. Material covered after July 15<sup>th</sup> will be on exercises and a part of the term paper. Each student is required to choose a problem relevant to Environmental Health and prepare a term paper. This will account for 20% of the course grade (100 points). Term Paper grades will be based on: (1) relevance to Environmental Health, (2) accuracy of information and analysis of the problem (3) how well the paper is organized, cohesiveness, and level to which it provides a concise, but inclusive, summary of

the problem; and (4) the extent to which the specified requirements are followed.

### **Final Course Grade**

90% and above: A  
80% to 89% : B  
70% to 79% : C  
60% to 69% : D  
59% and below: F

### **Course Topics**

<b>Topics covered</b>	<b>Text Chapter(s)/ Posted Material (PM)</b>
Introduction to Environmental Health Science (Section 1)	Frumkin 1, 2, and 3, PM
Environmental and Occupational Epidemiology (Section 2)	Frumkin 4, PM
Toxicology (Section 2)	Frumkin 6, PM
Exposure Science, Industrial Hygiene, and Exposure Assessment (3)	Frumkin 8, PM
Environmental Health Ethics and Environmental Justice (Section 3)	Frumkin 10 and 11, PM
<b>Midterm Exam</b>	<b>Material Covered by July 15</b>
Climate Change and Human Health (Section 4)	Frumkin 12
Air Pollution (Section 4)	Frumkin 13
Water and Health (Section 4)	Frumkin 16
Solid and Hazardous Waste (Section 5)	Frumkin 17
Food Systems the Environment and Public Health (Section 5)	Frumkin 19
Work, Health, and Well-being (Section 6)	Frumkin 21
Environmental Public Health Practice (Section 6)	Frumkin 26
Risk Assessment in Environmental Health (Section 7)	Frumkin 27
Communicating Environmental Health (Section 7)	Frumkin 28
<b>Term Paper</b>	<b>Comprehensive</b>

**\*\*\*Frumkin (2016) 3<sup>rd</sup> Edition\*\*\***

### **Term Paper:**

A term paper will be prepared by each student. A topic will be selected by each student and approved by the instructor. Examples of topics will be given in Section 2 that illustrate the scope that is considered appropriate for the task and the available time. Term paper topics will be developed through a five-slide presentation that will be submitted in Section 2 by each student. Students are encouraged to discuss topics with the instructor, via email, and are expected to put forth considerable effort in researching their topic and preparing their paper. Your topic must be approved and it should be a topic of current relevance in Environmental Health.

## **Requirements for Term Papers (See Blackboard Course site)**

1. 10 page maximum, not including a title page, references, or material in an appendix (for figures and tables).
2. Double spaced, 1" margins, 12 point font, pages numbered.
3. The text should avoid technical jargon and be written under the assumption that the reader has no prior knowledge of the subject.
4. Figures and Tables may be included in the body of the text or attached as an appendix but must be numbered and referred to in the text. Remember the 10 page maximum for the body of the paper.
5. Ten references are considered a minimum number. References from Peer-reviewed journals are highly recommended. Cite all references in the body of the text using APA style. The "Reference" section must include all references given in the paper (no more, no less) with proper citations for books, articles, etc. All information obtained from web sites should be referenced by the URL address of the site (page title, URL address, date if known).
6. Any figures taken from journals, books, or web sites should contain a reference under the figure as it appears in the text or the appendix.
7. The text should be thoroughly checked and proofread for spelling and grammatical errors, the word processor's spell-checker should be used to eliminate all spelling errors.
8. Maintain consistency through the text when dealing with commonly used expressions (for example, don't mix 3%, three percent, and 3 percent interchangeably in the paper.)
9. Use subject headings to delineate various sections of the paper. A *suggested* format for the term papers is:
  - I. Introduction
    - I.1 Background
    - I.2 Concise Statement of the Problem
  - II. Presentation of the Issues and Relevance to Environmental Health
  - III. Discussion
    - III.1 Discussion of Applicable Laws and Policies
    - III.2 Technological, Social, and Ethical Aspects of the Problem
    - III.3 Presentation of Current Research, Solutions, and Prevention Strategies
    - III.4 Other Relevant Discussion
  - IV. Conclusions
  - V. References

## MPH Competencies

This course contributes to the development of the following MPH competencies:

Evidence-based Approaches to Public Health	Obj.
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	
4. Interpret results of data analysis for public health research, policy or practice	
Public Health & Health Care Systems	
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings	5, 7
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels	4, 9
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 or implementation 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	
11. Select methods to evaluate public health programs	
Policy in Public Health	
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence	
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 principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making	
17. Apply negotiation and mediation skills to address organizational or community challenges	
Communication	
18. Select communication strategies for different audiences and sectors	
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	1, 6
20. Describe the importance of cultural competence in communicating public health content	
Interprofessional Practice	
21. Perform effectively on interprofessional teams	
Systems Thinking	
22. Apply systems thinking tools to a public health issue	
WKU MPH Program Competencies	
23. Apply health behavior theories and models to address public health problems.	

24. Describe the role of budgeting; methods of seeking extramural funding; and methods of financial analysis in making decisions about policies, programs and services.	
25. Describe the roles of history, power, privilege and structural inequality in producing health disparities.	4
26. Integrate social determinants into public health science, practice, and research.	
27. Identify the direct and indirect population health effects of environmental hazards (biological, chemical and physical) on humans, animals and the ecology.	1, 3, 6

### **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.	2
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health	2, 3, 8
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	
Factors Related to Human Health	
7. Explain effects of environmental factors on a population's health	1, 2, 3, 6
8. Explain biological and genetic factors that affect a population's health	2
9. Explain behavioral and psychological factors that affect a population's health	1, 2,
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities	5, 6
11. Explain how globalization affects global burdens of disease	1, 2, 3,
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (eg, One Health)	2, 3, 6

### **Academic Offenses (As in WKU's Student Handbook)**

*The maintenance of academic integrity is of fundamental importance to the University. Thus it should be clearly understood that acts of plagiarism or any other form of cheating will not be tolerated and that anyone committing such acts risks punishment of a serious nature.*

#### *Academic Dishonesty*

*Students who commit any act of academic dishonesty may receive from the instructor a failing grade in that portion of the course work in which the act is detected or a failing grade in a course without possibility of withdrawal. The faculty member may also present the case to the Office of the Vice President for Student Affairs. for disciplinary sanctions. A student who believes a faculty member has dealt unfairly with him/her in a course involving academic dishonesty may seek relief through the Student Complaint Procedure.*

## *Plagiarism*

*To represent written work taken from another source as one's own is plagiarism. Plagiarism is a serious offense. The academic work of a student must be his/her own. One must give any author credit for source material borrowed from him/her. To lift content directly from a source without giving credit is a flagrant act. To present a borrowed passage without reference to the source after having changed a few words is also plagiarism.*

## *Cheating*

*No student shall receive or give assistance not authorized by the instructor in taking an examination or in the preparation of an essay, laboratory report, problem assignment or other project which is submitted for purposes of grade determination.*

## *Other Types of Academic Dishonesty*

*Other types of academic offenses, such as the theft or sale of tests, should be reported to the Office of the Vice President for Student Affairs. for disciplinary sanction.*

## **Plagiarism Detection Software**

In this course we will be using an electronic plagiarism detection tool, Safe Assign (through WKU's Blackboard), to confirm that you have used sources accurately in your reports/ papers. All written assignments are subject to submission for text similarity review to Safe Assign. Assignments submitted to Safe Assign will be included as source documents in Safe Assign restricted access database solely for the purpose of detecting plagiarism in such documents.

It is your responsibility to make sure that your file will be properly formatted when it is opened by your instructor. Any student found guilty of plagiarism, fabrication, cheating on an exam, or purchasing papers, speeches, or other assignments will immediately receive a failing grade on the assignment and potentially in the course, and will be reported for disciplinary action. Falsified medical excuses and presenting another student's work as your own violate the principles of academic integrity as per the guidelines of the academic integrity policy of WKU and the department of Public Health. Such academic misconduct will not be permitted and appropriate disciplinary measures will be taken. If you have any questions about whether you may be plagiarizing in your work, please be sure to contact me well in advance of the due date for your assignment.

## **Academic Dishonesty**

Students who commit any act of academic dishonesty may receive from the instructor a failing grade in that portion of the course work in which the act is detected or a failing grade in a course without possibility of withdrawal. The faculty member may also present the case to the Office of Judicial Affairs for disciplinary sanctions. A student who believes a faculty member has dealt unfairly with him/her in a course involving academic dishonesty may seek relief through the Student Complaint Procedure.

## **Title IX Sexual Misconduct/Assault**

Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding WKU's Title IX Sexual Misconduct/Assault Policy (#0.2070) at

<https://wku.edu/eoo/documents/titleix/wkutitleixpolicyandgrievanceprocedure.pdf> and

Discrimination and Harassment Policy (#0.2040) at

[https://wku.edu/policies/hr\\_policies/2040\\_discrimination\\_harassment\\_policy.pdf](https://wku.edu/policies/hr_policies/2040_discrimination_harassment_policy.pdf).

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, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121.

## **Disability 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, 1074. 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.