



Department of Public Health

M.S. Environmental and Occupational Health Science

PH 501 Research Methods

Professor:

Ritchie D. Taylor, Ph.D.
Professor and CHHS Faculty Fellow for Research
Principal Investigator, Center for Environmental and Workplace Health
Principal Investigator, CDC/NIOSH WKU Training Program Grant

College of Health and Human Services
Department of Public Health
Environmental and Occupational Health Science Programs
Address: WKU, 1906 College Heights Blvd., AC 128B, Bowling Green, KY 42101
Phone: Office (270)745-8975
Email: ritchie.taylor@wku.edu
Website: Course Website on Blackboard

Office Hours, Appointments, and Class Meetings:

- Dr. Taylor maintains office hours throughout the week with meetings held via a Zoom video conference or a conference call.
- To Arrange an appointment please email or call Dr. Taylor. If you leave a message at the number above, an email will automatically be sent to his inbox.
- This is a hybrid Zoom based course. Synchronous Zoom video class meetings will be held. However, all meetings will be recorded and made available to online students.
- Additional non-mandatory meetings may be provided to assist students with course material, research, and assignments. These will be recorded and posted on the course site, if these occur.
- There will be the potential for nonmandatory opportunities to assist with research in the field. For online students, data sets or other opportunities will be provided to engage in the application of research methods.



Course Description:

Methods, materials, techniques, and planning of research studies used and conducted by the profession.

Course Statement:

This course provides students with an introduction to research methods in the health sciences, with emphasis in environmental and occupational health science. The course is designed for students with little or no prior academic coursework in this area. Course content will be especially useful for students contemplating a thesis, research project, capstone, or a career applying research methods of the profession. Specific topics will include applying research skills to design a project, determine research questions, goals and objectives, develop a research budget, and write a research or project proposal.

Course Objectives:

Students will:

1. Explain principles of research methods applied to the environmental and occupational health science field.
2. Explore concepts of health science research, based on course readings and information.
3. Compare research methods used to investigate health science problems.
4. Examine the research components of journal articles, projects, and technical reports.
5. Formulate research questions, hypotheses, and goals/objectives for environmental and occupational health science research problems.
6. Examine an environmental compliance issue by developing a mind map of the problem.
7. Create an annotated bibliography.
8. Develop a literature review.
9. Design a budget to meet planned research goals and objectives.
10. Author a proposal to conduct research or a project on a specific environmental and occupational health science problem.
11. Communicate a research proposal of a specific environmental and occupational health science problem using public speaking.



Course Credit:

Three (3) hours of college credit at the graduate level.

Course Format:

- ◆ Online course with opportunities for Zoom video meetings
- ◆ Recorded Zoom video meeting and Lectures
- ◆ Exercises
- ◆ Experiential learning
- ◆ Web course through Blackboard
- ◆ Review of research literature
- ◆ Blackboard Discussion Board participation
- ◆ Research or project budget
- ◆ Research or project proposal
- ◆ Student presentations through Blackboard

Course Calendar:

- Review the course outline
- The list of tasks for each section on Blackboard will serve as the calendar for the course and the list of tasks you need to complete.
- Each section of the course posted in Blackboard will have a list of tasks that can be found under the specific Section folder in Blackboard.
- Complete each task by the due date given in the list of tasks for each section.
- Each section will be completed before the next Section is posted on Blackboard.

Course Outline:

- **Introduction**
 - Introduction
 - Syllabus review
 - Course Discussion – Create a dictated PowerPoint (how to video on Blackboard) and Discuss the following – 3 to 5 – Zoom presentation recording
 - What is research?



- How is research important to your education in Environmental and Occupational Health Science/Public Health?
 - How important is the ability to conduct research to your future career?
 - Review of Chapter 1
 - Critical Thinking Discussion - What would you tell your governor is the greatest health problem facing the citizens of your state today? How would you accumulate evidence to support your contention?
- **Section 1: Research and Practice**
 - Read Chapter 1
 - What is evidence-based practice?
 - What is research?
 - Public Health, Environmental Health, and Environmental Science Research
 - Research and Policy
 - Review of Practical Application
 - The Research Question
 - The Research Proposal
 - Discussion: Blackboard
 - Exercises
 - Near Your Home: Discovering a research problem
 - Research questions, hypotheses, and research map
 - Quiz
- **Section 2: Framing a Research Question**
 - Read Chapter 2
 - What is a Literature Review?
 - Assessing Research Gaps
 - The Four-Step Method
 - Secondary Research, is it Useful?
 - The Research Question is the Guide
 - Discussions: In class and Blackboard
 - Exercises
 - Literature review table: minimum six references on a chosen topic
 - Annotated Bibliography
 - Ethics case study
 - Quiz
- **Section 3: Ethical Standard for Practice and Research**
 - Read Chapter 3
 - Why is History Important?



- Issues of Ethics in Human Subjects Research
- Autonomy, Justice, and Beneficence
- What are the Various Types of IRB Committee Reviews?
- Data Security Options
- The IRB Application
- Become CITI Trained
- AIHA and other Organizations
- Discussions: Blackboard
- Exercise
 - CITI Training Certificate
 - WKU IRB Application: Filing the IRB Application
- Quiz
- **Section 4: Community Based Participatory Research**
 - Read Chapter 4
 - The Essentials of CBPR Research
 - Nine Principles of CBPR
 - CBPR vs. Traditional Research vs Applied Research
 - Building a Coalition
 - Discussion: Blackboard
 - Exercise: Defining a CBPR Approach to Research
- **Section 5: Research Methods in Public and Environmental Health**
 - Read Chapters 5 and 6
 - Qualitative Methods
 - Quantitative Methods
 - Observational Research Study Designs
 - Exercise: Defining a Study and Outlining the Methods with a Mind Map
- **Section 6: Experimental and Quasi-Experimental Designs**
 - Read Chapters 7 and 8
 - Internal Validity
 - Difficulties that May Arise
 - Randomized Controlled Design
 - Matched Pairs
 - Nonequivalent Groups
 - Control Groups
 - Other Designs
 - Exercise: COVID-19 and Testing the Vaccine
- **Section 7: The Research Proposal and Research Techniques**
 - Read Chapter 9, 10, and 11



- Review of WKU graduate school proposal requirements
- Outline of a research project
- Project timeline
- Developing a project budget
- Exercises
 - Review the WKU graduate school proposal requirements
 - Proposed research topic
- Draft WKU research proposal
- **Section 8: An Environmental Compliance Issue**
 - Mind Mapping the problem
 - Environmental regulations and a project problem
 - Designing the study
 - The timeline
 - Developing a budget
 - The proposal
 - Communicating with the client
 - Presenting the proposal to the client
 - Scheduling and execution of the project
 - Leadership, leadership, leadership
- **Section 9: Managing, Analyzing and Interpreting Data**
 - Read Chapters 12, 13, and 14
 - Discussions
 - Exercises
 - Research proposal data analysis plan
 - Quiz
- **Section 10: Data Presentation and Communicating Your Research**
 - Read Chapter 15
 - Discussions
 - Final WKU research proposal
 - Research proposal presentation
- **Final Proposal and Presentation**
 - **Student research proposal presentations – By recording a Dictated Zoom presentation**
 - **10 minute (maximum) oral presentation**

Required Texts and Materials:

Crosby, R.A. and L.A. Salazar. 2020. Essentials of Public Health Research Methods. Jones and Bartlett Learning, LLC. Burlington, MA. 243 pp. (ISBN: 978-443-5000)



APA Style Manual – 7th Edition - <https://apastyle.apa.org/>

*****Other texts and readings will be provided through the course Blackboard site.*****

Online Resources:

- Course Web Site: use the WKU blackboard website to access course tasks, materials, discussions, quizzes, assignments, and information.
- You will need access to the WKU Blackboard course site via an internet connection – student labs are available on campus.
- Please check the course Blackboard site and your WKU email for messages.
- Additional course materials will be provided through Blackboard and in class.

Expectations and Important Information:

- Please review the course outline and check the tasks for each section to determine what needs to be completed for each section. The task list for each section can be found in the specific Section that is under study under the Content tab.
- All tasks to be completed will be posted under the task to complete list in each section on Blackboard. This will allow you to determine what tasks you have and have not completed.

Course Requirements and Points:

- Discussions – 10% of final grade – 100 points possible
- Class exercises – 50% of final grade – 500 points possible
- WKU Graduate School Research Proposal on an Environmental and Occupational Health/Public Health topic: Each student will complete a research or project proposal. The grade for the proposal will include completing an outline, timeline, research mind map, budget, draft proposal, final proposal, and presentation. A final presentation will be completed that highlights the proposal. This presentation will be a maximum of 15 slides and a 10 minute dictated PowerPoint presentation or screen recording - 40% of final grade – 400 points possible
- 1000 points total

Course Grading:

- ★ All assignments will be given a due date.
- ★ Late assignments will not be accepted.



- ★ Assignments can be submitted prior to the class meeting via email or turned in on the due date.
- ★ Assignments will be graded within one week of completion
- ★ Grade Scheme
 - a. A = 895 points or greater
 - b. B = 894 to 795
 - c. C = 794 to 695
 - d. D = 694 to 595
 - e. F = 594 or less

Syllabus Changes:

The professor reserves the right to make syllabus changes, dependent upon the needs of the class. For example, the class may dictate only two exams and more emphasis on applied environmental toxicology research.

Attendance Policy:

You will be expected to review all materials, complete assignment, tests, and the final project. The Blackboard site will be checked for your participation. Assignments and completion of tests will be taken as your participation.

WKU Policy on Plagiarism:

To represent ideas or interpretations taken from another source as one's own is plagiarism. Plagiarism is a serious offense. The academic work of students must be their own. Students must give author(s) credit for any source material used. To lift directly from a source without giving credit is a flagrant act. To present a borrowed passage after having changed a few words, even if the source is cited, is also plagiarism.

Note that you will be required to cite all references in your coursework or in your assignments. All assignments and work will be checked for plagiarism. If you copy material from the internet, a book, or elsewhere, it will be discovered. One incident of copying information and using it as your own will result in a failing grade for the assignment or work. Two or more cases of plagiarism will result in a failing grade for the course and possible academic repercussions according to WKU's policy.

WKU Policy on Cheating:



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

WKU COVID-19 Statement for Face Coverings

All students are strongly encouraged to get the COVID-19 vaccine. Students who are fully vaccinated will not be required to wear masks or to quarantine if exposed to the virus. Based on the latest CDC and KY public health guidance, WKU will require the wearing of masks while indoors for those who have not been fully vaccinated to protect themselves and others. Persons not fully vaccinated must quarantine if exposed to someone with Covid-19. Accommodations can be requested in special cases through the Student Accessibility and Resource Center (SARC): [270-745-5004](tel:270-745-5004) (voice), [270-745-3030](tel:270-745-3030)(TTY), or [270-288-0597](tel:270-288-0597) (video).

All students must immediately report a positive Covid-19 test result or close contact with a person who has tested positive to the Covid-19 Assistance Line at 270-745-2019. The assistance line is available to answer questions regarding any Covid-19 related issue. This guidance is subject to change based on requirements set forth by public health agencies or the office of the governor. Please refer to the Healthy on the Hill website for the most current information. www.wku.edu/healthyonthehill

WKU ADA Accommodation

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. Please do not request accommodations directly from the professor or instructor without a faculty notification letter (FNL) from The Student Accessibility Resource Center.

WKU Title IX – Discrimination and Harassment

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

Important Links to Review

<https://www.wku.edu/syllabusinfo/>