

DISEASE AND THE ENVIRONMENT: HEALTH DISPARITIES IN THE BORDER REGION (BIOL 1107) – FALL 2017

Instructor: Drs. Jennifer Apodaca and Jeffrey Olimpo

Office: B226C Biology Building (Fri. 11:00am - noon)*

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*These are hours when I am **guaranteed** to be in my office. If these times do not work for you, please send me an e-mail, and we can arrange another time to meet. I'm here to help!

COURSE DESCRIPTION

Welcome to *a study of life*! This course offers students a unique opportunity to explore the relationship between disease, the environment, and public health through an intensive, self-driven research experience. As opposed to traditional laboratory coursework, this means that *you* will be determining your own research questions, methods to use, types of experiments to perform, and “next steps” in the research process based on obtained conclusions. We (as your instructors) seek to promote an environment where (reasonable) risk is rewarded, overcoming failure is part of true scientific inquiry, and the contributions *you* make to science are invaluable.

COURSE OBJECTIVES

This course is designed to provide students with an authentic research opportunity in the biological sciences. Upon completion of the course, students will be able to:

- Compare and contrast the various descriptive and analytic study designs utilized in the fields of epidemiology, public health, and biological sciences
- Utilize scientific process skills to make informed decisions throughout all aspects of the experimental process
- Apply principles of scientific inquiry to conduct a descriptive and/or analytic study of their choosing within the fields of health disparities, environmental health, molecular epidemiology, and public health bioinformatics
- Demonstrate an increased understanding of qualitative and quantitative research methods, as evidenced in written and oral deliverables
- Make meaningful empirical connections between diseases and the environment
- Describe, succinctly, the results of their research to both lay and scientific audiences

COURSE MATERIALS & CO-REQUISITES

1. *Health Disparities in the Border Region* laboratory manual (available in PDF on our Blackboard site; Olimpo *et al.*, 2017)
2. Laboratory notebook (a *non-spiral* bound composition book will suffice) and pen
3. Personal Protective Equipment (PPE) needed: laboratory coat; goggles

ACADEMIC INTEGRITY

As members of a scholarly community dedicated to healthy intellectual development, students and faculty are expected to share the responsibility of maintaining high standards of honesty and integrity in their academic work. All material for this course must be your work and no one else's. **Cheating or plagiarism in any form will not be tolerated.** This includes, but is not limited to, copying someone else's work on an assignment. Please note that all suspected instances of plagiarism or academic dishonesty will be referred to the Dean of Students' Office, in accordance with UTEP policies and procedures.

The honor code also states that all members of the UTEP community are entrusted with the responsibility to uphold and promote five fundamental values: Honesty, Trust, Respect, Fairness, and Responsibility. These core elements foster an atmosphere, inside and outside of the classroom, which serves as a foundation and guides the UTEP community's academic, professional, and personal growth. Endorsement of these core elements by students, faculty, staff, administration, and trustees strengthens the integrity and value of our academic climate.

COMMUNICATIONS

When you e-mail me, please include a proper subject, any message you are responding to, the course name and CRN, as well as your name. Please use your UTEP account to ensure the e-mail is not blocked by the university's spam filter. If you e-mail directly from the Blackboard course, essential information like the course name and section will automatically be included. I will do my best to respond to your e-mail within 24-48 hours. If you do not receive a response within this timeframe, I ask that you please re-send your e-mail. Please be sure to regularly check the e-mail account listed for you in Blackboard, as this is where all course correspondence will be sent.

CENTER FOR ACCOMMODATIONS AND SUPPORT SERVICES

Students needing special accommodations in this course must be registered with the Center for Accommodations and Support Services (CASS) Office in Room 106 of the Union East Bldg. You may contact them at (915) 747-5148 or cass@utep.edu for more information. Once you are registered with the CASS Office, please notify me as soon as possible so that we may meet to discuss appropriate accommodations, as recommended by CASS.

The IT Support Team can assist with Blackboard, password resets, and student e-mail accounts. Hours and other helpful information can be found at <http://www.helpdesk.utep.edu>.

COURSE GRADING & EXPECTATIONS

COURSE GRADING:

- Structured Homework Assignments 10%
- Participation/Attendance 5%
- Research Question 5%
- Preliminary Proposal 5%
- Rough Draft of Proposal 10%
- Final Draft of Proposal 15%
- Laboratory Notebook 10%
- Final Presentation 20%
- Final Laboratory Report 20%

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

ATTENDANCE

Your attendance is **required** for all laboratories, unless otherwise noted. Class will begin promptly at **4:30pm** and will run no later than **6:50pm**. If, for whatever reason, you cannot make it to class on time, please do your best to enter quietly when you do arrive. More than two absences will result in an automatic grade of “F.”

LABORATORY CONDUCT

Please make every effort to be courteous to your fellow students and myself. Policies regarding responsible conduct of research and ethics are expected to be adhered to (we will discuss these in class) and are essential not only in a “local” sense but in a broader, professional sense as well. Transparency and open lines of communication in the laboratory are critical. Therefore, please report all laboratory accidents, suspected instances of research misconduct, etc. to me ASAP.

BLACKBOARD

This course makes extensive use of Blackboard® (<https://adminapps.utep.edu/blackboardlearn>). You will use Blackboard to download the laboratory manual, submit assignments, download or print additional course materials, and check your grades. Please note that your login and password are the same as you would use to access your UTEP e-mail account.

STRUCTURED HOMEWORK ASSIGNMENTS

In an effort to provide you with the necessary training and skills required for successful completion of your independent research projects, a series of ten (10) structured homework assignments will be administered this semester. These assignments correspond with the series of confirmatory laboratory exercises that occur at the start of the semester. All completed homework assignments are due at the beginning of the following class (see laboratory schedule below).

RESEARCH PROPOSAL, FINAL PRESENTATION/REPORT, AND NOTEBOOK

Details regarding expectations and grading criteria for the research question and proposal, final research presentation/report, and notebook can be found as appendices within the laboratory manual. We will discuss these items in greater detail throughout the course.

LABORATORY SCHEDULE

| Wk. | | Date | Laboratory Topics | Assignment(s) Due |
|-----|-----|----------|---|--------------------|
| 1 | T/R | Aug. 29 | -- NO LABS -- | - |
| 2 | T | Sept. 5 | Introduction to Laboratory | - |
| | R | Sept. 7 | Lab #1: Scientific Inquiry | - |
| 3 | T | Sept. 12 | Lab #2: Research Prop. Dev. | HW #1 |
| | R | Sept. 14 | Lab #3: Pop. Literature Lab #4: Eval. of Databases | Prelim. Prop. |
| 4 | T | Sept. 19 | Lab #5: Qualitative Methods | HW #2 |
| | R | Sept. 21 | Lab #6: Quantitative Meths. | HW #3 |
| 5 | T | Sept. 26 | Lab #7: Peer Review + Ethics | HW #4 |
| | R | Sept. 28 | Lab #8: Biotechnology I | HW #5: Rough Draft |
| 6 | T | Oct. 3 | Lab #9: Biotechnology II | HW #6 |
| | R | Oct. 5 | Lab #10: Microscopic World | HW #7 |
| 7 | T | Oct. 10 | Lab #11: Bioinformatics I | HW #8; Final Prop. |
| | R | Oct. 12 | Lab #12: Bioinformatics II | HW #9 |
| 8 | T | Oct. 17 | Independent Research | HW #10 |
| | R | Oct. 19 | Independent Research | Notebook |
| 9 | T | Oct. 24 | Independent Research | - |
| | R | Oct. 26 | Independent Research | Notebook |
| 10 | T | Oct. 31 | Independent Research | - |
| | R | Nov. 2 | Independent Research | Notebook |
| 11 | T | Nov. 7 | Independent Research | - |
| | R | Nov. 9 | Independent Research | Notebook |
| 12 | T | Nov. 14 | Independent Research | - |
| | R | Nov. 16 | Independent Research | Notebook |

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|----|---|---------|------------------------|------------------|
| 13 | T | Nov. 21 | Independent Research | - |
| | R | Nov. 23 | ~~ THANKSGIVING ~~ | - |
| 14 | T | Nov. 28 | Independent Research | Notebook |
| | R | Nov. 30 | Analysis Workshop | - |
| 15 | T | Dec. 5 | Final Presentations | Presentation |
| | R | Dec. 7 | Wrap-Up + “Next Steps” | Final Lab Report |

* *Please note that the course drop date is Nov. 3rd.*

** *Disclaimer: I reserve the right to change the contents of this syllabus due to unforeseen circumstances. Students will be given notice of relevant changes through Blackboard and e-mail. Assignment due dates will **NOT** change.*