

FYS 188Z
Medical Ecology
Spring 2008

A. Instructor and Staff Information

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B. Course Description

Everything is connected to everything else. In this course, you will explore the connections between changing environments and the distribution of disease organisms over time as well as the co-evolution of disease organisms with their human host. To understand the issues, we will use several primary examples of environmental and evolutionary changes with profound medical impacts. These include severe inbreeding depression in Florida panthers as a function of habitat isolation, the evolutionary success story of the 4 species responsible for malaria; why a vaccine for HIV is an unlikely event in the near future; the resurgence of tuberculosis; and what we can learn about bird flu from the influenza pandemic of 1918. You will also learn several simple bioinformatics techniques to determine if DNA samples from simulated patients contain normally occurring or pathogenic organisms, and how scientists study toxic chemicals using gas chromatography, flow cytometry, and microarrays. **Students who take this FYS must also co-enroll in at least one Natural Science distribution lab science.**

Class day and times: Tuesday/Thursday 10:10-11:40 Val 207
Thursday 12:40-2:10 Whitman 169 (computer room)

Course Goals

There are five major objectives in this course:

- a. To learn the elements, standards and intellectual traits of critical thinkers as well as skills in ethical reasoning;
- b. To read and understand different levels of literature (from primary to tertiary) that set the historical stage for your individual research projects;
- c. To collaborate, cooperate, research, write, and present issues of medical ecology based on intellectual traits and ethical reasoning as described by Paul and Elder;
- d. To utilize scientific method to augment your understanding of the issues discussed;
- e. To learn about issues that challenge your current understandings and develop personal responses to overcome obstacles in your interactions with people of different cultures.

Close reading, grammatically and compositionally correct writing, confidence in public speaking, consideration of what makes a good critical and ethical thinker and increased cultural competence are all “tools” of incalculable intellectual worth. The intent of learning these “tools” in this format is to orient your thinking in a way that prepares you to ask questions outside of regular course content and personal experience. Most importantly, our course will provide you with these additional “tools” to navigate your life journey with peoples from different cultures.

Skills Goals

Research, speaking, writing, and interpersonal interactions are related activities. You will:

- a. Use library resources to search collections, databases and on-line sources to develop an in-depth and critical understanding of assignment questions,
- b. Work with peers, mentors, faculty, and university staff in a professional manner to conduct this work,
- c. Demonstrate your understanding through a sequence of oral presentations and individual draft papers,
- d. Submit your assembled work in your personal end-of-semester portfolio in which you will describe your personal growth in all goals using your assembled work as evidence.

Required Texts: (listed in CBE Style). They are available for purchase at Brewer Bookstore or amazon.com:

Davis JP. 2004. The Rowman and Littlefield guide to writing with sources. 3rd ed. New York: Rowman and Littlefield Publishers, Inc.

Hacker D. 2004. A pocket style manual. 4th ed. Boston: Bedford/St. Martin's. 250 p.

Kidder T. 2003. Mountains beyond mountains. New York: Random House. 322p.

National Research Council, editor. 2001. Under the weather: Climate, ecosystems, and infectious disease. Washington, D.C.: National Academy Press. 146 p.

O'Brien SJ. 2003. Tears of the cheetah: The genetic secrets of our animal ancestors. New York: St. Martin's Griffin. 287 p.

Paul, Richard. and Linda Elder. 2003. Understanding the foundations of ethical reasoning. First ed. California: The Foundation of Critical Thinking. 48 p.

Walters, M.J. 2003. Six modern plagues and how we are causing them. Washington: Island Press. 212 p.

You must also have access to a college-level dictionary and thesaurus.

We will post **Additional readings and resources** to the Lauenders Science Library homepage (sciencelibrary.stlawu.edu) in lieu of a course packet. Log into the network using your SLU network ID and password, and go to Biology, Class = FYS 188Z Medical Ecology; click on the citation being sought and follow the instructions. Additional resources are available on the Angel course page.

C. Course Structure

The Plenary Session for FYP 188Z will meet T Th 10:10-11:40 in Val 207.

Rules for plenary:

- a. Attendance = you show up ready to work, notebook open, pen in hand, attentive and not bleary-eyed. I consider you a professional academic.
- b. Preparation = you have done the assigned readings/assignment, written your outlines/notes/reflections utilizing the elements and standards of critical thinking, and have thought about how you will share those ideas, questions, and reflections with the plenary group. You will keep organized records of these outlines/notes/reflections as evidence of your progress

- in critical thinking for inclusion in your portfolio, an end of semester, evidence-based document handed in for credit (see Major Assignments, Portfolio, below).
- c. Participation = active engagement in the activities of the plenary session. These activities will be varied and depend on the particular readings assigned.

The Seminar Session for FYP 188Z will meet on Th 12:40-2:10 in Whitman 169.

Rules for seminar = read rules for plenary and replace plenary with seminar.

The seminar will parallel the plenary but will be explicitly devoted to teaching the research skills necessary for writing college level papers using mostly primary literature as resources to document breadth and depth. The seminar will allow you time to work on your research assignment.

D. Major Assignments

1. **Portfolio** = end of semester document either hard text (collected in a three ring notebook) or digital (example ePortfolio).
Your portfolio contains two essential sections; the *narrative* and the *evidence*.
 - a. The *narrative* is a written paper that examines your progress in developing the eight essential intellectual traits of a critical thinker (humility vs. arrogance, courage vs. cowardice, empathy vs. close-mindedness, autonomy vs. conformity, integrity vs. hypocrisy, perseverance vs. laziness, reason vs. distrust of reason and evidence and fair-mindedness vs. unfairness) based on the elements and standards of critical thinking **OR your progress in ethical reasoning**.
 - b. The *evidence* is a collection of all your work done in this course over the semester usually placed as appendices at the end and in support of the narrative. You could present your evidence 1) chronologically, 2) by assignment types (ex. *Unit 1*: critical reflections on readings, research papers used vs. not used, paper development, oral presentation development, *Unit 2*: etc), or 3) by assignment type over the whole semester (example, technical and compositional improvements in your writing *over the course of the semester*, development of oral and written peer evaluations *over the course of the semester*, refinement of research note taking *over the course of the semester*, evolution of your close reading and critical reflections on readings *over the course of the semester*, etc.). It is your choice. Make your choice and the structure of your portfolio explicit in both the narrative and evidence sections.
2. **Term Project (abstract, outline, annotated bibliography, 2 drafts, 2 orals, poster and final paper)**
The focus of the course is a final, 12-page, double-spaced paper. The paper will be the result of your research on a thesis you develop. There are specific stages to the writing of a major research paper and we will work out the details of this process during the semester. Peers, mentors and instructors will review drafts of the stages for you to use to improve your final products. An absolutely integral aspect of writing well is getting feedback, feedback, feedback. Having done a thorough research analysis, you will be the resident expert on the specific question you researched. Peers will ask you, the resident expert, to make a formal presentation and impromptu remarks based on your understanding of your topic throughout the semester. **Students will write their own papers.**
3. **Oral Presentations (2-3 oral presentations)**
As the resident expert, you will share the basic science, cultural constructs, ethics, health policy including infrastructure and surveillance, and any other aspects related to your thesis during plenary and/or seminar time in an individual formal presentation. In addition, you will be responsible for 1-2 class readings and provide background, clarification, and context for the reading. You may construct a PowerPoint for this presentation. Again, performance of an oral presentation takes practice. We will assign tasks in a stepped manner to increase your confidence

and competence as the semester proceeds. You will submit your finished paper and a poster of your thesis presentation and the PowerPoint(s) for your reading(s) presentation just prior to your delivery.

E. Course Policies

Courtesy, Communication and Concern for Others These are attributes that you learned in elementary school. They apply here. A useful model for these behaviors is PEGS. P = positive regard for every person's worth, E = empathy (not sympathy), G = genuineness, and S = specificity concerning others' behaviors. It is always about behaviors, not judgment about a person's worth.

Attendance is mandatory because we rely on your expertise as a participant. There are, however, times when you will be unprepared. Perhaps you just had two exams the same day or, for unfortunate circumstances, you are ill. Out of courtesy, communicate your circumstances to me via email as soon as physically possible so that we can manage the daily exercise and not appear absolute fools. Our assumption is that you are an adult.

If you arrive late, we expect your entrance into class to be discreet, with an attempt not to disturb the flow of activity. You are responsible for joining the group and getting yourself up to speed. It is appropriate to discuss the reason for the lateness with a faculty person prior to leaving the classroom. This is part of communication.

Late Policy

- a. Due dates are hard deadlines.
- b. You are responsible for punctuality, completeness and integrity of all work done.
- c. I reserve the right to refuse late work.
- d. If I do accept late work, I will deduct one whole grade point. For example, a 3.0 paper will receive a 2.0.

Academic Misconduct You have signed a pledge of academic honesty. My assumption is that materials submitted by you are records of your voice. Please do not change this assumption. Again, my assumption is that you are an adult. The University Honor Council will address violations.

F. Grades

Contribution of Assignments to Final Grade

Portfolio	20%
Term Project	50%
Oral Presentations(2-3)	10%
Course Grade	20%
Total	100%

University Grading Scale

The University assigns grades based on a 4.0, 3.75, 3.5, 3.25, 3.0, 2.75 etc. scale. There are no curves.

Course grade = attendance, preparation, quality of class participation, quizzes, improvement.

First-Year Seminars

Research Project Learning Goals 2007-08

With respect to research skills specifically, our learning goals for the spring are that students should:

- Be introduced to ways of conducting productive and imaginative inquiry and research in order to become a part of the various conversations surrounding issues.
- Learn to differentiate among the various ways that information is produced and presented, between popular and scholarly journals and books, between mainstream and alternative publications, between primary and secondary sources.
- Learn how to evaluate and synthesize information, whether gathered from traditional sources, e.g., books and journals, or from websites or electronic media.
- Begin to develop the skills of critical analysis in the interpretation and use of information gathered from any source.
- Be introduced to the ethical obligations that scholars have to both responsibly represent their sources and inform their readers of the sources of their information, as well as learning, and being held responsible for the proper use of, the conventions of scholarly citation and attribution.
- Present the results of your research in written, spoken, visual and/or other forms that demonstrate the ability to communicate effectively using the conventions of the mode of communication adopted.

We ek	Date	Topic	Readings/Video/Internet Source/ Play
1	1/22	Medical Ecology - What is it? Case Study: Haiti; Choosing presentation topics	Paul and Elder; Kidder, <i>Mountains Beyond Mountains</i> ;
	1/24	Climate and Infectious Disease	National Research Council (NRC) Ch 1-2
	1/24	Formulating a Question; Sources and How to Find and Organize Them; Kidder assignment due.	Hacker, Davis; RefWorks Quick Start Guide
2	1/29	Linkages Between Climate and Specific Diseases	NRC Ch 3-4; Catastrophe (DVD)
	1/31	Quiz 1; Studying Climate/Disease Linkages	NRC Ch 5-6; GCMS, Microarray, and Flow Cytometry to Monitor the Environment
	1/31	Choosing Sources, Style Manuals	
3	2/5	Epidemic Early Warning Systems	NRC Ch 7-8; Guns, Germs, and Steel Part 3 (DVD)
	2/7	Quiz 2; Human Medical Ecology: Surveillance and Infrastructure: Mad Cow Disease	Walters Ch 1; Use RX for Survival: A Global Health Challenge (DVD); The Immune System
	2/7	From Reading Sources to Construction of an Outline	
4	2/12	HIV/AIDS	Walters Ch 2; O'Brien Ch 12-13
	2/14	Quiz 3; <i>Salmonella</i> DT104	Walters Ch 3
	2/14	Preliminary thesis and Outline due; Constructing an Annotated Bibliography	
5	2/19	Lyme Disease	Walter Ch 4
	2/21	Quiz 4; Hantavirus	Walter Ch 5
	2/21	Thesis and Annotated Bibliography Due	
6	2/26	West Nile	Walter Ch 6
	2/28	Quiz 5; Animal Medical Ecology: A Mouse that Roared	O'Brien Ch 1
	2/28	Thesis and Annotated Outline Due; 3-5 minute Oral	
7	3/4	Tears of the Cheetah	O'Brien Ch 2
	3/6	Quiz 6; Prides and Prejudice	Shilts, <i>And the Band Played On</i> ; O'Brien Ch 3
	3/6	First Draft Due; Peer Evaluation of Draft	
8	3/11	A Run for Its Life: The Florida Panther	O'Brien Ch 4,5
	3/13	Quiz 7; A Whale of a Tale	O'Brien Ch 6
	3/13	Second Draft Due; Reading/Writing Workshop 3	
9	3/17-25	Spring Break	
10	3/25	The Lion Plague	O'Brien Ch 7
	3/27	Tipping Points	Whitty, 2006.p1-9 , An Inconvenient Truth (DVD)
	3/27	How to construct a Poster	
11	4/1	Final Draft Due	
	4/3	Quiz 8; The Human Genome Project; CSQ	O'Brien Ch 10-11
	4/3	Bioinformatics Workshop	
12	4/8-10	Poster Construction	
13	4/15- 17	Oral Poster Presentations	
14	4/22-26	Poster Draft Due; Initial Oral Report 4/26	
15	5/1-3	Presentations; Final Paper Due	

Find additional materials on [Angel](#) and [SLU Science Library/Biology/Medical Ecology](#). The contents of this syllabus are subject to change in the event of extenuating circumstances and at the discretion of the instructor.