Course Outline

BIOS-497/897 (UNL)
IMED-749 (UNMC)

INTRODUCTION

This course explores principles of epidemiology and the evolution of their role in modern medicine. Our approach will combine theory and practice, and give you the opportunity to see the concepts you are learning about demonstrated in experiments with living populations. Readings, lectures, and field exercises will help you develop an understanding of how epidemiologists build simple ideas into useful techniques to examine the world around us.

COURSE FORMAT

A typical day will start out with a short quiz over the previous evening's reading assignment, followed by a lecture on the topic of the day. This will be followed by a field exercise and time in the laboratory for experimentation and measurement. The last week or so of the course will give you the opportunity to demonstrate your creativity with a project you design, carry out, and present to the group.

READINGS

The required text for the course is Epidemiology by Leon Gordis (3rd edition). The daily reading assignments will form the theoretical foundation for the course, and you should expect to spend at least a couple hours reading each day. The chapters are not particularly long, but are densely packed with ideas that will probably be new to you. The review questions at the end of each chapter are very useful, and you should re-read sections of the chapter until you find you can answer them all correctly. Most students will need to read each chapter at least twice to allow the material to "sink in" sufficiently.

QUIZZES

Each reading assignment will be followed by a classroom quiz consisting of 10 multiple-choice questions. The quizzes are difficult, and you should not be discouraged if you find yourself having trouble with some of the questions. After each morning quiz we will typically spend some time reviewing the most important concepts from the previous night's reading. Make sure to ask questions until you are confident you understand what is being discussed! The course topics build on one another, and it will be very difficult to move forward unless you are familiar with each day's material. Independent learning is a vital part of this course, and you should not expect to be spoon-fed each new idea!

LECTURES

The lectures in this course are meant to be enjoyable and to stimulate your thinking about the day's topics. Frequently, we will explore a specific historical episode. The lectures will not be a point-by-point recap of the reading assignments, and so it is vital that you arrive to class each day with a firm grasp of the material from the readings. Lecture handouts in an outline format will be provided to you for note-taking purposes, but it is not essential to take notes. You will get much more out of the lectures if you relax, listen to the story and think about what you would do in a similar situation. If you find yourself struggling to keep up while taking notes, you're missing the point!

FIELD EXERCISES

The field exercises distinguish this course from traditional introductory-level epidemiology courses. You and your assigned partner will have the chance to take the concepts covered in the reading assignments and lectures, apply them, and then observe and record the results. Hopefully this will help you gain a deeper understanding of how these ideas can be used to shed light on the complex interactions that surround us. The unpredictable nature of field biology means that the exercises may not always work out as planned! Indeed, the only thing we can be certain of is that unexpected learning opportunities will arise. Take advantage of what you find, and try to learn from everything that happens. You can rest assured that your instructors will be learning right along with you.

It is very possible that you may come up with an idea to improve the usefulness of the field exercises, or even a design for a completely new exercise. When this happens, speak up - your final grade will certainly not suffer for it! You will receive an outline prior to each exercise describing the goals for the day, and the plans for field collection and laboratory work. At the end of the day, you will be expected to turn in a written record of your work. The format and content for these lab reports will vary from day to day, but will be made clear in the materials provided to you.

GROUP PROJECT

The last portion of the course consists of a group project. You and a partner will have the opportunity to design an experiment to demonstrate what you've learned. The specifics of the project are up to you - this is your opportunity to be maximally creative. The only requirements are that you describe a (real or hypothetical) scenario, formulate a research question, collect and analyze data, and prepare a written report and (up to) 30 minute class presentation.

Once you have your project idea, you and the course instructor will meet to discuss and finalize it. You will then have a little more than a week of class time to

complete your project. The more course concepts you can include in your project, the better. The general format of the written report and class presentation will be given to you, but you should feel free to expand or modify them as needed.

GRADING

Grading for the course will be based on 3 equally-weighted components: the daily quizzes, participation in the field exercises, and the final project. In order to assess your performance on the daily quizzes (which are difficult), you should pay attention to the posted class average and standard deviation for each quiz. If you feel your performance on the quizzes isn't measuring up to what you would like, you would be wise to talk to the instructor at the beginning of the course - not the end! The instructor may be able to provide some study tips that will be helpful, but don't wait until it is too late.

Active class participation is very important, particularly during the field exercises. Very little passive learning can occur in a course like this, and you will discover that the more energy you put into the exercises, the more you will get out of them. Don't be afraid to ask questions or offer suggestions. As mentioned previously, you should always try to be alert and observant. The best learning opportunities tend to appear at unexpected moments, and typically aren't part of the advance plan. Make sure that the write-ups you turn in at the end of each exercise are clear and understandable, and you should be proud to put your name on them.

Your group project is your chance to move from student to teacher. You should imagine that you are preparing a presentation for a (very auspicious) scientific meeting, and are describing a previously unknown phenomenon that will amaze your audience. Creativity is very important, as is the clarity of your written materials and presentation.

SCHEDULE

A rough course schedule is attached. The reading assignments, quizzes and lectures will probably happen as planned. The field exercises may change in timing or topic, depending on the availability of suitable populations for study or the sudden appearance of a good idea.

INSTRUCTOR CONTACT INFORMATION

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WEEK 1

Day 1: AM	**Day 1: PM**
Classroom: Orientation Classroom: Pre-test Classroom: Death's Dispensary Field Exercise: Incidence & prevalence	Lab: Incidence & prevalence Lab: Tracking Outcomes Reading: Ch. 1-3
Day 2: AM	**Day 2: PM**
Classroom: Quiz #1 Classroom: Trouble in Paradise Lab: Tracking Outcomes	Field Exercise: Measuring mortality Lab: Measuring mortality Lab: Tracking Outcomes Reading: Ch. 4
Day 3: AM	**Day 3: PM**
Classroom: Quiz #2 Classroom: The Great Fog Lab: Tracking Outcomes	Field exercise: Test characteristics Lab: Test characteristics Lab: Measuring mortality Lab: Tracking Outcomes Reading: Ch. 5
Day 4: AM	**Day 4: PM**
Classroom: Quiz #3 Classroom: The Old Man's Friend Lab: Tracking Outcomes	Lab: Tracking outcomes Lab: Test characteristics Reading: Ch. 6
Day 5: AM	**Day 5: PM**
Classroom: Quiz #4 Classroom: 1 in 9 Classroom: Group project Lab: Tracking outcomes	Field Exercise: Randomized trials Lab: Randomized trials Lab: Tracking outcomes Reading: Ch. 7-8

WEEK 2

Day 6: AM Classroom: Quiz #5 Classroom: Rule, Britannia! Classroom: Group project	**Day 6: PM** Lab: Randomized trials Reading: Ch. 9
Day 7: AM Classroom: Quiz #6 Classroom: Our Town Classroom: Group project	**Day 7: PM** Field Exercise: Case-control studies Lab: Case-control studies Reading: Ch. 10
Day 8: AM Classroom: Quiz #7 Classroom: Not-So-Special Delivery	**Day 8: PM** Field Exercise: Measuring risk Lab: Measuring risk Lab: Group project ideas Reading: Ch. 11
Day 9: AM Classroom: Quiz #8 Classroom: Sick in Schenectady Lab: Group project ideas	**Day 9: PM** Field Exercise: Group project ideas Lab: Group project ideas Reading: Ch. 12-13
Day 10: AM Classroom: Quiz #9 Classroom: Group Project Classroom/Lab/Field: Group Project	**Day 10: PM** Classroom/Lab/Field: Group Project Reading: Ch. 14

WEEK 3

Day 11: AM Lab: Measuring risk Classroom/Lab/Field: Group projects	**Day 11: PM** Classroom/Lab/Field: Group projects Reading: Ch. 15
Day 12: AM Classroom: Quiz #10 Classroom: Through A Glass, Darkly Classroom/Lab/Field: Group projects	**Day 12: PM** Classroom/Lab/Field: Group projects
Day 13: AM Classroom/Lab/Field: Group projects	**Day 13: PM** Classroom/Lab/Field: Group projects
Day 14: AM Classroom/Lab/Field: Group projects	**Day 14: PM** Classroom: Group projects due
Day 15: AM Classroom: Group project presentation	**Day 15: PM** Classroom: Group project presentation Classroom: Post-test and wrap-up