# Syllabus
# Epidemiology 759 Spring 2017
# Methods in Field Epidemiology

## Overview

This introductory course will cover the purpose and implementation of the steps in an outbreak investigation, and corresponding public health roles and responsibilities. Not only will you learn outbreak investigation methods; you will acquire the technical skills to use the Centers for Disease Control and Prevention's Epi Info relational database software as a data management tool during outbreak investigations.

## Course Objectives

After completing this course you will:

- Describe data sources and methods for detecting an outbreak
- Recognize key formatting and content considerations for designing questionnaires
- Recognize sound interviewing techniques for questionnaire administration
- Explain when to use different study designs (case control, cohort, cross-sectional)
- Summarize the methods and role of the environmental health investigation within an outbreak investigation
- Recognize the potential contribution of a traceback investigation during an environmental health investigation
- Describe laboratory specimen collection, handling, and testing methods
- Recognize key strategies for effective risk and crisis communication plans
- Recognize key formatting and content considerations for outbreak investigation reports and corresponding slide presentations
- Use Epi Info software to assess time (Epi Curves) and person (Line Listings) two components of descriptive epidemiology
- Use Epi Info software to generate analysis output to test a research hypothesis
- Interpret descriptive (measures of central tendency and frequencies) and analytic (measures of association) data analysis output

## Teaching Methods

The lecture method of teacher-centered expository discourse relegates students to the role of listeners who are not actively engaged in the learning process. In this course, higher-level learning requires the student to become actively involved in applying concepts and methods to problems and to exercise critical judgment by attempting to reach a solution or draw conclusions when faced with a complex set of findings. These higher-level thinking skills will be continuously called upon in the cooperative learning classroom method, used throughout this course.

Cooperative learning is an instructional technique that brings students together in small, fixed groups to work on structured learning tasks. It enables all students to become more involved with the course material and to articulate their understanding of this material through problem-solving exercises with other members of their group. Students "who become involved in active discussion of their ideas with other students are more likely to have less irrelevant or distracting thoughts and spend more time synthesizing and integrating concepts than students who listen to lectures" (Bligh DA. What's the Use of Lectures. Penguin Press, 1992). Student-to-student interaction is positively related to critical thinking outcomes and to study habits characterized by more active thinking and less rote memorization (Smith DG. College classroom interactions and critical thinking. J Educ Psych 1977;69:180-190.)

Based on these pedagogical principles, this course has been organized such that:

- All course materials are found on the Internet.
- Students will be assigned to small learning groups, typically 8 to 10 students per group. These learning groups will meet in our "virtual" classroom on the Internet.
- Evaluation of student performance is based on:
    - Completing course modules (Please check your schedule for dates.)
    - Three group projects (Please check your schedule for dates.
    - There are two individual projects but no final exam in this course. (Please check your schedule for dates).

REMEMBER: In most real-life problems, there is no one "right" answer but several different ways to address problems; some of these ways are more efficient, more constructive, and more long-lasting than others. An important lesson to learn from the experience of cooperative learning is that most solutions to community problems are more effective when the solution is reached by a team effort that actively engages all members of the team in addressing the problem and encourages creative thinking of the team in proposing a solution. This process converts learning from an individual to a social activity and draws on the collective wisdom of those attempting to reach a solution.

Because of the independent nature of this class, teams must learn to function largely independently using the lecture materials and the experience and knowledge of team members as their major resource to engage in each exercise. The best professional teams know how to use the resources of consultants, the literature, and the wisdom of the team to arrive at their own solutions. The point is, the faculty and TAs are not going to give you answers, but they are there to steer you, as a consultant would, on a path toward reaching your own team answers.

## Course Format

### Five Modules

The modules are a combination of self-paced and/or group activities. There are also two individual projects.

### Self-paced Activities

For each module you have a certain amount of time to complete the individual activities (lectures, readings, case studies and short module quizzes). This time varies per module but falls between two and three weeks. You can work at your own pace during that time to complete the activities. There are no weekly group discussion forums in this course. However, in the first module you have an opportunity to introduce yourself to your group in the "Introductions" discussion forum and do a team-building exercise. This forum is also a good place to discuss your schedules for the semester in regards to the group projects. Please check the course schedule for due dates for all individual activities.

- Lectures: Each module has audio lectures.
- Readings: The required and suggested readings are either downloadable documents or URLs linked in the course website.
- Case studies: Each module has one or more case studies.
- Module quiz: Most modules have a short self-grading quiz.

### Group Projects

There are three group projects during the semester (in Modules 1, 3, and 4). The group projects make use of group discussion forums and/or Google Docs. The completed group project document is handed in to the faculty, with the exception of Module 1, where the end product is a document which will be posted on a special discussion board where all students in the course can view and make comments. Details about each project will be found in the module folder when it is available.

### Individual Projects

The two individual projects fall between Modules 3 and 4 and after Module 5. These projects are governed by the UNC Honor Code.

## Course Resources

All course resources are located on the course Sakai website: FOCUS on Field Epidemiology (practice-based epidemiology methods periodical), ERIC Notebooks (basic epidemiology methods periodical), additional handouts and readings; links to journal articles or other readings on the Internet; instructions for case studies, individual assignments and project, and group projects.

## Course Policies and Expectations

### Time Commitment for this Course

We'd like to take a bit of time to explain the time commitment that will be involved for this course. An Internet course, while convenient for those who reside all over the world, can sometimes be thought of as an "easier" course than a classroom course. However, an Internet course requires at least the same time commitment from students as residential courses. You will

be embarking on case studies, learning a software program, working on multiple group projects (with group discussion forums), and completing two individual projects. These activities require time and thought, and we do not suggest waiting until the last minute to complete a module.

On average, previous students in this course spent **approximately 9 to 12 hours per week** on coursework. However, some weeks require more time than others, such as weeks coinciding with one of the individual projects.

### Adequate Computer Access and Working Email

Please make sure that you have adequate computer access. You should be checking the course Web site at least every other day or so. Email will also be sent frequently from Dr. Yeatts, so please make sure that your inbox is not full. Note: If you haven't received email in more than a week, you should probably check your email to make sure it is working or not full.

### Computer Problems

Because module activities and individual and group projects are many weeks in length, computer problems are ***not*** considered emergencies. If you're working on a project, be sure to save your work to a back-up CD, flash drive, or something equivalent so that you'll be able to submit it using another computer.

### Minimum Technical Requirements

Please read over the minimum technical requirements for this course.

## Course Schedule

Sometimes unexpected events occur (snow storms, power outages, etc.); we reserve the right to modify the syllabus. These modifications will be announced as quickly as possible so that students can adjust their schedules. The weekly course schedule is provided on the syllabus page in Sakai.

## Grading and Evaluation

### Grading Policy, Formatting Policy, Due Dates, and Late Penalties

*Unless otherwise noted, everything is due by **11:59:00 PM Eastern Time (ET)** on the due date.*

No late group projects will be accepted without a previously agreed-on extension from Dr. Yeatts. Out of consideration for classmates and their grades, all group members should contribute their best effort to assuring that the project is completed on time.

Your first project is due at **11:59:00 PM ET on the date in the course schedule**, and your second project is due at **11:59:00 PM ET on the date in the course schedule**. You will have access to the projects for at least two weeks and should be able to complete them in a way that

fits your schedule. Late projects will have 10 points deducted for every day that they are late. In the event of an emergency, exceptions to this policy will be made. Considering the length of time you have to work on the projects, computer problems are ***not*** considered emergencies. If you're working on a project, be sure to save it to a back-up CD, flash drive, or something equivalent so that you can submit it using another computer.

*Group Project Grades:* Students who do not participate at all on the group project will not receive any group project points. Students who do participate but do not add substantial content may also receive a significant reduction in their group project score. (An example of a 'not substantial' contribution would be 'good job group or I agree'). In both of the scenarios described above, students in these categories may also receive poor evaluation scores.

## Withdrawing from the Course

If you decide to withdraw from the course at any time, you must notify:

Karin Yeatts (Karin_Yeatts@unc.edu) and the registrar for your program

## Grading Scale for the Course

| | |
|---|---|
| 94.0 and | H |
| 70-93.9 | P |
| 50-69.9 | L |
| Below 50 | F |

## Evaluation of Student Performance

Your grade in the course will be determined as a weighted average of your scores (after each is converted to a 0-100% scale) for the following activities:

***20% from the Project I (Individual Activity)***

The first project is designed to measure your newly acquired skills using Epi Info to conduct a simulated outbreak investigation. The UNC honor code applies when you are working on an individual project.

***20% from the Project II (Individual Activity)***

At the end of the semester you will hand in your second project. This involves analyzing an outbreak data set using Epi Info, preparing a report, and putting together a presentation in PowerPoint to communicate the results of your investigation. The UNC honor code applies when you are working on an individual project.

***10% from the Case Studies (Includes Epi Info Activities)***

You are asked to complete on-line the module case studies at the end of each module. You will be given a pass or fail (1 or 0) based on your case study answers. Answers will be reviewed for completeness. You'll receive the correct answers upon case study completion. The course professor, Dr. Yeatts will review the class's performance and depending on the level of comprehension, may send out one email to all students with a brief discussion of common mistakes and problems. If, after reviewing the email, you have any questions about the case study, please send an email to Dr. Yeatts. For case studies turned in late, you will receive a zero.

***10% from the End of Module Quizzes***

End of Module Quizzes will be based on the case studies in the module and will generally be in the form of multiple choice questions. Upon completion you will receive your grade. If you have any questions about your quiz grade please email Dr. Yeatts. Quiz late submission penalty: 1 point deducted per day late. 3 days after the quiz due date the quiz will be closed and no submissions will be accepted.

***40 % from the Three Group Projects***

Icebreaker = 10%
Questionnaire Critique = 15%
Traceback = 15%

Each group project grade will be based on two components. These are (1) the document Itself and (2) the peer evaluation. First, the Instructors will evaluate the product of the group work. Then, your peers will evaluate you on your contributions to the group project, which range from bringing up salient points for group consideration to finding important information on the Web to calculating odds ratios. If you fail to complete peer evaluations, you will lose 15% from your group project grade. Summarized, the breakdown is as follows:

Document itself 85%
Peer evaluation 15%

***Note there is no final exam in this course***

## Course Assignment Formatting Requirements

Unless otherwise indicated in an assignment use single space 12 point font Arial with 1" margins. Page length will be indicated in assignment instructions.

**Peer Evaluation Criteria**

At the end of each of the group projects, you will be required to complete and submit a peer evaluation for each of your group members (see the course schedule for dates to submit the peer evaluations). The purpose of the peer evaluation is to evaluate each of your group members on her/his performance as a group member in completing group assignments. The peer evaluation is completed once after each group project. Failure to complete peer evaluations will result in the loss of a quarter point from the five possible points from your grade for that group project.

In the peer evaluation, you will be asked to rate individual group members on each of the following five statements:

- This group member actively participated in group assignments.
- This group member accomplished tasks on time.
- This group member's work reflected an acceptable level of thought and effort.
- This group member functioned as a valuable member of the group by supporting the efforts of fellow group members.
- This group member would make an excellent project manager for this group.

You will evaluate group members using the following five-point Likert scale:

- Strongly Agree = 5
- Agree = 4
- Neither Agree nor Disagree = 3
- Disagree = 2
- Strongly Disagree = 1
- Not Applicable = 0

In addition to the five statements, the peer evaluation has an open-ended question in which you can write specific comments on the performance of each of your group members.

## Honor System

As part of the UNC Honor Code, students pledge to maintain ideals of academic honesty, personal integrity, and responsible citizenship. Please review the UNC Honor System and make sure you understand and adhere to these policies in this course.

## Valuing, Recognizing, and Encouraging Diversity

This class will follow principles of inclusion, respect, tolerance, and acceptance that support the values of diversity.

## Competencies Addressed

This course was developed using both the Applied Epidemiology Competencies developed by CDC/CSTE and the Public Health Epidemiology Competency Set developed by the Northwest Center for Public Health Practice at the University of Washington. Upon completion of this course a student should be able to demonstrate competencies as listed below in each of following four domains (Assessment and Analysis, Basic Public Health Sciences, Communication, and Community Dimensions of Practice). Through successful completion of coursework, students can document progress toward achieving these competencies.

**Assessment, Analysis and Interpretation**

1. Identify public health problems pertinent to the population*
2. Be able to design and conduct an outbreak investigation**
3. Be able to design and implement surveys and questionnaires**
4. Investigate acute and chronic conditions or other adverse outcomes in the population*
5. Apply principles of good ethical/legal practice as they relate to study design and data collection, dissemination, and use*
6. Analyze data from an epidemiologic investigation or study*
7. Summarize results of the analysis, and draw conclusions*
8. Data organization, preparation, and display**

**Basic Public Health Sciences**

1. Know how causes of disease affect epidemiologic practice*
2. Identify the role of laboratory resources in epidemiologic activities*
3. Apply principles of informatics, including data collection, processing, and analysis, in support of epidemiologic practice*
4. Understand the role of epidemiology in public health**

**Communication**

1. Prepare written and oral reports and presentations that communicate necessary information to professional audiences, policy makers, and the general public*
2. Demonstrate the basic principles of risk communication*
3. Incorporate interpersonal skills in communication with agency personnel, colleagues, and the public*

*Copied verbatim from CDC/CSTE Applied Epidemiology Competencies, http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/Workforce/AECTier2.pdf

**Copied verbatim from Public Health Epidemiology Competency Set Developed by: Northwest Center for Public Health Practice http://www.nwcphp.org/training/tools-resources/uw-epidemiology-competencies/