Syllabus

Semester: Fall 2017
Course Number: 10:832:335:05
Course Title: Epidemiology
Course Day and Time: Monday 6:40 PM - 9:30 PM
Location: Livingston Campus- Tillett Hall- Room: 252
Course Instructor: Mohamed I. Elsaid MPH, ALM, LEED-GA
Contact Information: Email: Mohamed.Elsaid@Rutgers.edu
When you email me, please specify “Epi class” in your message to facilitate my reply

Course Website: https://onlinelearning.rutgers.edu/ecollege-student-login

Class lectures, readings, homework assignments, quizzes, syllabus updates, and resources will be posted and updated regularly. It is critical that you check the eCollege site regularly to ensure that you don’t miss important updates or supplementary class material.

Help with technical problems with eCollege is available 24/7: Email help@ecollege.rutgers.edu or call: 877-778-8437

Office Hours and Location: In person meetings are by appointment
Office hours: Tuesdays 2:00-3:00 PM
Medical Education Building
1 Robert Wood Johnson, Room 479
New Brunswick, NJ 08903
I will also be available for meetings after class.

Recommended Text:
Note: See erratum sheet correcting a formula that appears on page 130. The correct formula should read: Specificity: d/b+d

Other resources:
Principles of Epidemiology in Public Health Practice, Third Edition – CDC

http://www.epidemiolog.net/evolving/FundamentalsOfEpidemiology.pdf
Course Description:

Study of the principles and methods of epidemiology; the study of the distribution (patterns of occurrence) and determinants (causes) of disease and injury in human populations.

Public Health Learning Goals

*Students Will:*

1. Think critically in public health
2. Effectively communicate public health information
3. Develop, apply, and analyze concepts from research methods and basic statistics
4. Utilize information literacy skills in public health
5. Understand the role and importance of professional development
6. Understand and apply professional ethics

Core Competencies Addressed¹

1. a. Public Health History
1. b. Public Health Philosophy
1. c. Core PH Value
1. d. Core PH Concepts
1. e. Global Functions of Public Health
1. f. Societal Functions of Public Health
2. a. Basic Concepts of Data Collection
2. b. Basic Methods of Data Collection
2. c. Basic Tools of Data Collection
2. d. Data Usage
2. e. Data analysis
2. f. Evidence-based Approaches
3. a. Population Health Concepts
3. b. Introduction to Processes and Approaches to Identify Needs and Concerns of Populations
3. c. Introduction to Approaches and Interventions to Address Needs and Concerns of Populations
4. a. Science of human health and disease
5. a. Socio-economic Impacts on Human Health and Health Disparities
5. b. Behavioral Factors Impacts on Human Health and Health Disparities
5. c. Biological Factors Impacts on Human Health and Health Disparities
5. d. Environmental Factors Impacts on Human Health and Health Disparities

Course Overview:

This course covers the principles and methods of epidemiology, the study of the distribution and determinants (causes) of disease and injury in human populations. Upon completion of this course,

¹ As required by the Council on Education in Public Health (CEPH) for accreditation of undergraduate programs in public health.
students will have an understanding of common study designs, be able to calculate typical outcome measures, and be able to critically read the public health literature and evaluate the results of epidemiologic studies.

**Learning Goals**

By the end of this course, students will be able to:

1. Discuss the history of epidemiology and its relation to the scientific method.
2. Explain the dynamics of disease
3. Use rates and proportions to express numerically the amount and distribution of health- and non-health-related outcomes.
4. Use the distribution of a health-related outcome in groups to generate hypotheses that might provide a causal explanation.
5. Explain basic statistical and epidemiologic concepts of estimation, inference, and adjustment to establish association.
6. Explain how to use evidence of an association to make a judgment about whether an association is causal using the principles of contributory cause.
7. Describe the basic epidemiologic study designs that are used to test hypotheses, identify associations, and establish causation.
8. Describe the concepts of measurement of test performance and be able to apply the concepts of testing and screening in different settings.
9. Apply the concepts of benefits, harms, and cost to a public health decision.
10. Describe the broad applicability of epidemiologic methods to clinical and basic science as well as public policy.
11. Explain how ethical principles affect epidemiologic research.

**Academic Integrity**

Academic Integrity is vital to the mission of Rutgers, to education at Rutgers and membership in the Rutgers community. It is a core value that supports trust among students, and between students and teachers. It is also a shared value; administration, faculty and students each play a vital part in promoting, securing and nurturing it.

Academic dishonesty is not an individual act that affects only the students involved. It violates communal trust, impacts other members of the community, and is an offense against scholarship. For this reason, any instance of cheating or plagiarism will be dealt with harshly.

Honesty matters. As a shared value, administration, faculty and students each play a vital part in promoting, securing and nurturing it. See the Rutgers Academic Code and Academic Oath at:

[http://academicintegrity.rutgers.edu/](http://academicintegrity.rutgers.edu/)
Course Assessment

The following assignments will assess learning goals. Additional information on specific assignments is described below and/or is available on our eCollege website.

**Class Participation** is required. Students will be expected to attend class and engage in classroom discussions. **Attendance will be taken every class.** In-class activities will take place after lecture during some class periods and will be graded based on completion and effort as part of the Participation grade.

**Homework Assignments** will be posted and completed/submitted on eCollege. Web homework assignments have no time limit. All assignments must be completed and submitted by the specified due date and time. Late submissions will result in the following deductions:

- 15% automatic deduction if submitted **within 24 hours** following the due date/time
- 30% automatic deduction if submitted **within 48 hours** following the due date/time
- Homework will **NOT** be accepted after **48 hours** following the due date/time

**Two Timed Quizzes** will be completed on eCollege. Both quizzes will have a time limit and can only be submitted once. **Students are expected to work independently on timed quizzes.** Failure to do so will be considered a violation of Rutgers’ Academic Integrity Policy. (See above for details). **Late quizzes will not be accepted, no exceptions!**

**Midterm Timed Exam** will include all material covered in the first half of class (lectures 1 to 6). The exam will be given online and need to be completed within the time window assigned. These tests are largely a combination of true and false, multiple choices, matching, short responses questions and will include calculations similar to the online quizzes. **Each student’s exam is a random mix of questions that are presented to you one at a time.** The questions are drawn from various pools that ensure each student receives a unique but comparably difficult exam. While you are able to page back through and answer unfinished questions, there is not adequate time for you to look up answers while the exam is in progress. **Prepare for it as you would any in-class exam and use your time wisely.** As you will see on the schedule, you can determine when you take the exams within a multi-day period. **Pausing a timed exam once in progress is NOT possible.** Make sure you have a stable Internet connection and your browser is compatible. If you have any doubts about your browser, please contact the eCollege help desk to starting the exam. Questions on the exams that are skipped or left blank will register as a zero towards the score you receive. In order to give you greater support during exam, I will be “on call” for large blocks of time during exam days, and I strongly encourage you to take the exam during one of these blocks. That way, if you need clarification on a question or experience a problem with the internet, you can call me immediately **BEFORE exiting the exam!!** **Make-up exams are only given under extreme situations including technical failure and may carry up to a 15% penalty.** Please note: technical failures due to documented eCollege/Rutgers CAS issues are exempt from penalty. Also, **due to end of semester grading pressures, penalty-period extensions on the timed exam are not possible.**

**Final Timed Exam** is cumulative, with emphasis on post-midterm materials. The exam will be given online and need to be completed within the time window assigned. These tests are largely a combination of true and false, multiple choices, matching, short responses questions and will include calculations similar to the online quizzes. **Each student’s exam is a random mix of questions that are presented to you one at a time.** The questions are drawn from various pools that ensure each student receives a unique but
comparably difficult exam. While you are able to page back through and answer unfinished questions, there is not adequate time for you to look up answers while the exam is in progress. Prepare for it as you would any in-class exam and use your time wisely. As you will see on the schedule, you can determine when you take the exams within a multi-day period. Pausing a timed exam once in progress is not possible. Make sure you have a stable Internet connection and your browser is compatible. If you have any doubts about your browser, please contact the eCollege help desk PRIOR to starting the exam. Questions on the exams that are skipped or left blank will register as a zero towards the score you receive. In order to give you greater support during exam, I will be “on call” for large blocks of time during exam days, and I strongly encourage you to take the exam during one of these blocks. That way, if you need clarification on a question or experience a problem with the internet, you can call me immediately BEFORE exiting the exam!! Make-up exams are only given under extreme situations including technical failure and may carry up to a 15% penalty. Please note: technical failures due to documented eCollege/Rutgers CAS issues are exempt from penalty. Also, due to end of semester grading pressures, penalty-period extensions on the timed exam are not possible.

Final Project is a critique of an assigned article. Instructions for the group project will be announced during the second half of the class.

Course Assessment Cont.

The following assignments will assess learning goals. Additional information on specific assignments is described below and/or is available on our eCollege website.

Think critically in public health

Example: Weekly in class and online assignments range from exercises to increase comprehension and understanding to synthesis, evaluation and analysis.

Effectively communicate public health information

Students are required to prepare a critique of a published paper in the field of epidemiology. During the weekly assignments, students are asked to review and provide feedback on an influential published paper in the field of epidemiology. Students also write short essays on key issues to accompany each exam.

Develop, apply, and analyze concepts from research methods and basic statistics

Example: Students will apply the skills they learned during class in the final project, which is a critique of an assigned article in epidemiological topic related to public health. In addition, many online and several in class exercises are geared to developing this learning outcome.

Utilize information literacy skills in public health

Example: Students must conduct research for the final project. Students must also research issues on untimed short reply assignment questions.

Understand the role and importance of professional development
Example: Professional writing and communication is assessed with the final project, weekly assignment and timed exams.

Understand and apply professional ethics

Example: Many of the weekly topics include controversial subjects, which we will discuss in class. In addition, students are asked to understand and apply professional ethics on examinations. In addition, the ethics of using human subjects for medical research is explicitly discussed and tested upon.

Course Grading:

The course is based on a total of 500 points, as follows:

- In-class Midterm covering lectures one to six = 105 points total
- One timed online final exam (Cumulative with a focus on the second half) = 100 points total
- Two online timed quizzes = 80 points total
- Eight homework assignments = 115 points total
- Final Project = 50 points total
- Class Participation = 50 points total

Grading is based on the timely and correct submission of all assignments, exams and in class participation.

Final Grade cut-points:

Use caution when viewing your rolling average in eCollege. Remember, how you do on an untimed assignments may not be a good indicator of how you will do on a timed quiz or a comprehensive exam.

This course is based on a total of 500 possible points. Your final grade for this class will be assigned using this system:

- A: 455 to 500 points (91 – 100 %)
- B+: 430 to 454.9 points (86 – 90.9 %)
- B: 400 to 429.9 points (80 – 85.9 %)
- C+: 380 to 399.9 points (76 – 79.9 %)
- C: 350 to 379.9 points (70 – 75.9 %)
- D: 300 to 349.9 points (60 – 69.9 %)
- F: 299.9 or less points (59.9 % or lower)

I automatically round up to the next grade if you are within 0.5 points of the next cut-point. So, an average of 429.5 = 430 points = B+. Note: this refers to the point count, not the percent average.

Attendance and Cancellation of Classes

In accordance with Rutgers University regulations, attendance is expected at all regularly scheduled meetings of a course and individual courses may set policies for maximum absences. Please refer to the link below for more specific information:

http://sasundergrad.rutgers.edu/academics/courses/registration-and-course-policies/attendance-and-cancellation-of-class
Electronic Devices

I believe we all learn as well as teach better with fewer distractions. In general, cell phones are prohibited during class. Please turn off all ringers and notifications before entering the room. Laptops and tablets will be permitted provided you use them to access course content and not text, do Facebook or engage in other non-course related activities.

Disaster Plan

During cyberattacks and other disasters affecting the campus network, eCollege sets up an alternative access for students so that we may complete the semester as planned. In the event that Rutgers CAS experiences an interruption of service this semester, please make sure you have:

- Access to the Internet outside of Rutgers University (such as through an off campus friend or family member. It is also freely available at Panera, Starbucks, and the public library)
- You may also need access to a laptop or other fully functional computer devise that allows you to get online outside of Rutgers CAS. Mobile devices such as iPhones or tablets may not be enough to complete all assignments, including exams.

Students with Disabilities:

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: https://ods.rutgers.edu/students/documentation-guidelines. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. To begin this process, please complete the Registration form on the ODS web site at: https://ods.rutgers.edu/students/registration-form. Please notify me as soon as possible if you are in the process of obtaining documentation and turn your paperwork in to me at least two weeks prior to the first exam.

Privacy statement:

The course web site may contain student information that is protected by the Family Educational Rights to Privacy Act (FERPA). Disclosure to unauthorized parties violates the federal privacy laws. Email sent via our course website may make student names and email addresses visible to other students in class. Please remember that this information is protected by these federal privacy laws and must not be shared with anyone outside of class.
<table>
<thead>
<tr>
<th>Date</th>
<th>In class Lecture &amp; Exam schedule</th>
<th>Homework</th>
<th>Suggested Readings in Recommended Text:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Please print and bring lecture slides and/or other materials to class</td>
<td>Unless otherwise indicated, all work is due on Mondays on the dates and times you see below</td>
<td>Schneider &amp; Lilienfeld (S&amp;L)</td>
</tr>
<tr>
<td>Week 1 (9/11-9/17)</td>
<td>Class 9/11</td>
<td>(Class Overview)</td>
<td>CH 1 &amp; 2</td>
</tr>
<tr>
<td>Class 9/11</td>
<td>Class Overview</td>
<td>(Scope and History of Epidemiology)</td>
<td>CH 5 &amp; 7</td>
</tr>
<tr>
<td>Class 9/18</td>
<td>The Scientific Method in Relation to Epidemiology</td>
<td>(Measure of Disease Occurrence (Morbidity &amp; Mortality))</td>
<td>CH 5 (77-79)</td>
</tr>
<tr>
<td>Week 2 (9/18-9/24)</td>
<td>Class 9/25</td>
<td>(Measures of Disease Occurrence (Morbidity &amp; Mortality))</td>
<td>CH 7 (135-143)</td>
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<tr>
<td>Class 9/18</td>
<td>Epidemiology in (Person, Place &amp; Time)</td>
<td>(HW 1 (10 Points) (Due 9/25 at 6:30 PM)</td>
<td>CH 5 (80-93)</td>
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<tr>
<td>Class 9/25</td>
<td>Rates and Standardization</td>
<td>CH 6</td>
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<tr>
<td>Week 3 (9/25-10/01)</td>
<td>Week 4 (10/02-10/08)</td>
<td>(HW 2 (15 Points) (Due 9/25 at 6:30 PM)</td>
<td>CH 3 (39-50)</td>
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<tr>
<td>Class 10/02</td>
<td>The Dynamics of Disease</td>
<td>(Inferring cause and preventing disease)</td>
<td>CH 4</td>
</tr>
<tr>
<td>Class 10/02</td>
<td>(HW 3 (15 Points) Due 10/02 at 6:30 PM)</td>
<td>CH 7 (128-134)</td>
<td></td>
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<tr>
<td>Week 5 (10/09-10/15)</td>
<td>(Screening)</td>
<td>(Timed Quiz 1 (1-4) (35 Points) (Opens 10/03 12:00 AM)</td>
<td>CH 13</td>
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<tr>
<td>Class 10/09</td>
<td>(Screening)</td>
<td>(HW 3 (15 Points) Due 10/02 at 6:30 PM)</td>
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<tr>
<td>Week 6 (10/16-10/22)</td>
<td>Week 7 (10/23-10/29)</td>
<td>(HW 4 (15 Points) (Due 10/16 at 6:30 PM)</td>
<td>CH 5 (73-77)</td>
</tr>
<tr>
<td>Class 10/16</td>
<td>Midterm review (1-6)</td>
<td>CH 7 (119-128)</td>
<td></td>
</tr>
<tr>
<td>Class 10/23</td>
<td>On-line Midterm (1-6) (100 Points)</td>
<td>Opens 10/24 at 12:00 AM</td>
<td></td>
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<tr>
<td>Class 10/23</td>
<td>(Timed Quiz 1 (1-4) (Closes 10/08 at 11:59 PM)</td>
<td>Closes 10/28 at 11:59 PM</td>
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<tr>
<td>Week 8 (10/30-11/05)</td>
<td>Week 8 (10/30-11/05)</td>
<td>Measures of Association</td>
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<tr>
<td>Class 10/30</td>
<td>(HW 5 (15 Points) (Due 11/06 at 6:30 PM)</td>
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<tr>
<td>Week 9 (11/06-11/12)</td>
<td>Week 9 (11/06-11/12)</td>
<td>Intro to Study Designs (case reports, ecologic and cross sectional studies)</td>
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<tr>
<td>Class 11/06</td>
<td>Case Control Studies</td>
<td>(HW 5 (15 Points) (Due 11/06 at 6:30 PM)</td>
<td>CH 10</td>
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<tr>
<td>Week 10 (11/13-11/19)</td>
<td>Class 11/13</td>
<td>(Case Control Studies)</td>
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<tr>
<td>Class 11/19</td>
<td>Cohort Studies</td>
<td>(HW 6 (15 Points) (Due 11/16 at 6:30 PM)</td>
<td>CH 9</td>
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<tr>
<td>Week 11 (11/20-11/26)</td>
<td>Class 11/20</td>
<td>(Cohort Studies)</td>
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<tr>
<td>Class 11/26</td>
<td>Experimental designs &amp; data control issues</td>
<td>(HW 7 (15 Points) (Due 11/20 at 6:30 PM)</td>
<td>CH 11 &amp; 12</td>
</tr>
<tr>
<td>Class 11/20</td>
<td>(Experimental designs &amp; data control issues)</td>
<td>(Timed Quiz 2 (8-12) (45 Points) (Opens 11/28 12:00 AM)</td>
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<tr>
<td>Week 12 (11/27-12/03)</td>
<td>Week 13 (12/04-12/10)</td>
<td>(Timed Quiz 2 (8-12)</td>
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<tr>
<td>Class 11/27</td>
<td>Class 12/04</td>
<td>(Closes 12/02 at 11:59 PM)</td>
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<tr>
<td>Class 12/04</td>
<td>Bias, Confounding and Interaction</td>
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<tr>
<td>Week 14 (12/11-12/17)</td>
<td>Class 12/11</td>
<td>Strategies for Epidemiology</td>
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<tr>
<td>Class 12/17</td>
<td>Infectious disease Epidemiology</td>
<td>(Final Project Posted (12/04)</td>
<td>CH 14</td>
</tr>
<tr>
<td>Class 12/12</td>
<td>(Final Review)</td>
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<td>CH 3 (50-54)</td>
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<tr>
<td>Week 15 (12/15-12/20)</td>
<td>Week 15 (12/15-12/20)</td>
<td>Online Timed Final Exam (Cumulative)</td>
<td>Final Project</td>
</tr>
<tr>
<td>Finals Week</td>
<td>Finals Week</td>
<td>Exam will be open on 12/16 at 12:00 AM and is due 11:59 PM on 12/20</td>
<td>(Due 12/15 at 11:59 PM)</td>
</tr>
</tbody>
</table>

For Add Drop dates, see the Office of Academic Services: [http://sasundergrad.rutgers.edu/academics/registration/index.html](http://sasundergrad.rutgers.edu/academics/registration/index.html)

The Academic Calendar is available from the Registrar at: [http://scheduling.rutgers.edu/calendar.shtml](http://scheduling.rutgers.edu/calendar.shtml)