HEAL 350: Epidemiology

CRN 13745, Section 03

Fall 2016

Class Meetings: MWF 11:00-11:50am, Johnson Physical Education Center J206

Instructor: Brian Bossak, PhD, MPH
Email: bossakbh@cofc.edu (preferred method of contact)
Office: Silcox Physical Education and Health Center, Rm 316
Office Hours: Tuesdays 1-5pm or by appointment

Course Prerequisites: HEAL 215

Course Catalog Description

This course introduces the basic concepts of epidemiology and biostatistics as applied to public health problems. Emphasis is placed on the principles and methods of epidemiologic investigation, appropriate summaries and displays of data, and the use of classical statistical approaches to describe the health of populations.

Course Learning Objectives

Upon completion of the course, the student should be able to:

1. Define epidemiology, explain its role in public health practice, and describe the differences between descriptive and analytic epidemiology.
2. Discuss important historical events and individuals in the field of epidemiology.
3. Define and distinguish among certain disease concepts, including those used in infectious and chronic disease epidemiology.
4. Distinguish among epidemic, endemic, and pandemic and describe different types of epidemics and disease models.
5. Characterize a public health problem according to person, place, and time.
6. Define ratio, proportion, and rate as well as certain measures of association.
7. Formulate steps of an epidemiologic field investigation.
8. Describe and use certain measures of health status.
9. Define and distinguish between case-control and cohort studies.
10. Distinguish between the concepts of association and causation.

**Student Learning Outcomes**

1. As a result of this course students will be able to analyze and summarize a case study on an epidemiological field investigation. All students are expected to score 80% or higher on group presentation per the rubric.
2. As a result of this course students will be able to evaluate a peer-reviewed manuscript of an observational epidemiological study. Students will be able to describe the study design and identify biases that could be present in the study. All students are expected to score 80% or higher on the journal article critical evaluation per the rubric.
3. At the end of the course students will be able to identify and describe the criteria for demonstrating causal relationships between exposures and outcomes. All students are expected to score an 80% or higher on final exam questions relating to this topic.

**CEPH and CHES Competency Descriptions**

The Council on Education for Public Health (CEPH) publishes guidelines regarding the knowledge and skills that should be presented to students enrolled in public health courses. These guidelines focus on outcomes, or competencies, that are linked to workforce needs as defined by employers and the public health profession as a whole. Each course in the College of Charleston Public Health program covers one or more of these competencies. As courses advance from introductory to more advanced, the competencies covered by these courses must also progress. That is, what you learn in higher level courses should build on, and extend beyond, what you learned in lower level courses. The following CEPH competency is covered by HEAL 350:

3. Explain principles of epidemiology necessary to understand health and impairments of health including the uses of rates, the meaning of causation, and the evaluation of the effectiveness of interventions. Apply principles of epidemiology to reading research articles including case-control, cohort studies and randomized clinical trials. (Competency 3)

For more information, please visit http://ceph.org/constituents/programs-baccalaureate-level/.

In addition to pursuing the general public health competencies set forth by CEPH, some students may be interested in pursuing certification as a Certified Health Education Specialist (CHES). This certification requires the individual to sit for – and pass – an exam offered by the National Commission for Health Education Credentialing, Inc. In order to qualify to sit for the CHES exam, the individual must complete coursework covering a variety of competencies and sub-competencies. The following competencies and sub-competencies are covered by HEAL 350:

1. Assess Needs, assets, and capacity for health education (Competency 1)
2. Implement health education (Competency 3)
3. Conduct evaluation and research related to health education (Competency 4)
For more information, please visit http://www.nchec.org/.

**Required Text**


**Recommended Readings**

Relevant articles/links will be posted on OAKS.

**Course Requirements**

1. **Class Attendance**: Class attendance is important for your success in this course but in order to receive full points for your attendance grade you must come to class as well as make an active contribution during class meetings. Students may miss three class sessions (one week of meetings) without penalty. Missing a fourth class session without a prior valid excuse will result in a deduction of ten points of the attendance grade. Missing a fifth class session without a prior valid excuse will result in a deduction of an additional twenty attendance points. Every effort will be made to administratively withdraw a student that misses more than five class meetings without prior approval or submission of a valid excuse for the absences. There are **two exceptions**: **All students must be present for BOTH group presentation dates or a thirty point attendance deduction will be awarded and students must be present for the in-class evaluation at the end of the semester.** All readings assigned on a particular day must be completed PRIOR to the beginning of class.

2. **Problem Sets (x4)**: These will be due at the beginning of class on dates indicated in the syllabus. Late work will NOT be accepted unless there is a valid excuse with documentation. The problem sets will consist of calculation-based, multiple choice, and short answer questions and are designed to help you practice material presented in lectures. You may work with your classmates to complete these problem sets but I encourage you to try them on your own first and each problem set must be turned in individually for grading.

3. **Exams (Midterm and Final)**: There will be two examinations. Exam dates are listed on the syllabus. The Final WILL BE CUMULATIVE. Exams will include multiple choice, true/false, short answer, and calculation-based questions. You will need to bring a non-cell phone calculator to class on exam days and you will be able to bring notes to class (1 page for in class exams and 2 pages for the final). If you will be absent on exam day, you must make PRIOR arrangements with me. Make-up exams will not be given without prior arrangement or a valid and documented reason for missing the exam. You should turn in the appropriate documentation to the Absence Memo Office at 67 George St.

4. **Outbreak Case Study Group Presentation**: Case study teams will present an example of an epidemiological outbreak investigation to the class. Additional details on the review and procedures for the assignment will be distributed later in the semester.

5. **Journal Article Critical Evaluation**: This is an individual assignment. You will be critically assessing a peer-reviewed epidemiological article of your choosing that
describes the results of a cross-sectional, cohort, or case-control study. Your write up should be 2-3 pages in length and follow guidelines that will be posted to Oaks during the semester.

Course Grade Breakdown (Total Possible Points = 500)

<table>
<thead>
<tr>
<th>Course</th>
<th>Points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>40</td>
<td>8%</td>
</tr>
<tr>
<td>Outbreak Case Study Group Presentation</td>
<td>50</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm</td>
<td>125</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>125</td>
<td>25%</td>
</tr>
<tr>
<td>Journal Article Critical Review</td>
<td>50</td>
<td>10%</td>
</tr>
<tr>
<td>Problem Sets (4 x 25 points)</td>
<td>100</td>
<td>20%</td>
</tr>
<tr>
<td>Syllabus Quiz</td>
<td>10</td>
<td>2%</td>
</tr>
</tbody>
</table>

Grading


Grading Scale:

- A 90-100
- A- 88-89
- B+ 85-87
- B 80-84
- B- 78-79
- C+ 75-77
- C 70-74
- C- 68-69
- D+ 66-67
- D 64-65
- D- 62-63
- F Less than 62

Numerical grades will be rounded to the nearest whole number and no additional rounding will occur. For example, a final point total of 447 out of 500 possible points would be an 89.4% course average, which would result in an A- final grade (89% course grade). Extra credit will not be provided, encouraged, or utilized on an individualized basis in this course. Any extra credit offered will consist of bonus exam questions available to all students and any such opportunity will be at the discretion of the instructor.

Course Policies

ATTENDANCE: Students may miss two class sessions (one week of meetings) without penalty. Missing a third class session without a prior valid excuse will result in a deduction of ten points of the attendance grade. Missing a fourth class session without a prior valid excuse will result in a deduction of an additional twenty attendance points. **Every effort will be made to administratively withdraw a student that misses more than four class meetings (two weeks of the**
semester) without prior approval or submission of a valid excuse for the absences. There are two exceptions: All students must be present for BOTH group presentation dates or a thirty point attendance deduction will be awarded and students must be present for the in-class evaluation at the end of the semester.

LATE WORK: I will NOT accept late work unless there is a valid reason (i.e. accident, major illness). Please contact me ahead of time if you know you will be absent on a day when an assignment is due.

ASSIGNMENT FORMATTING:
- 12 point font, Times New Roman
- 1” Margins, 1.5 spaced
- Page numbers at bottom right corner
- APA citation

TURNING IN ASSIGNMENTS: Assignments should be turned in as hard-copies at the beginning of class. I will NOT accept assignments through email.

WRITTEN ASSIGNMENTS: It is strongly encouraged for every student to utilize the services of the Writing Lab in the Center for Student Learning at the Addlestone Library (First Floor) for every written assignment. The Writing Lab can be reached at 843-953-5635. Additional information is available on the web at: csl.cofc.edu.

ELECTRONIC DEVICES: Cell phones should be on silent during class. They must remain out of sight during exams. Laptops/ tablets are acceptable during class as long as the volume is muted. Students causing a disruption to the class meeting as a result of the use of electronic devices may be asked to leave the classroom and/or referred to the Dean of Student’s Office for further action. No vaping is acceptable in-class.

**College of Charleston Honor Code and Academic Integrity**

All students are expected to adhere to the Honor Code, which forbids lying, cheating, attempted cheating, stealing, attempted stealing, and plagiarism. Any work you turn in must be your own and when incorporating outside references, proper citations must be provided. If there is evidence that you have violated any part of Honor Code [http://studentaffairs.cofc.edu/honor-system/index.php](http://studentaffairs.cofc.edu/honor-system/index.php), this violation will be reported to the Office of the Dean of Students. If the Honor Board finds you responsible for intentional academic dishonesty, you will receive an XF in the class, which signifies academic dishonesty on your transcript.

Copyright and Plagiarism: Please note that all materials used in this course are copyrighted. This includes, but is not limited to, handouts (i.e., syllabi, in-class materials, quizzes, exams, and other forms). Therefore, no student has the right to copy the handouts, unless permission is expressly granted. As commonly defined, plagiarism consists of passing off as one’s own the ideas, words, writings, of another person. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you have the permission of that person.
Statement on Disabilities

Students with disabilities are eligible for academic accommodations throughout the course. Please contact the Center for Disability Services/SNAP located on the first floor of the Lightsey Center, Suite 104 (843-953-1431) to register for these accommodations and they will provide me with a letter describing your individual needs.

Other Accommodations

Any student who needs special arrangements as a result of religious holidays or university-sponsored events, etc. must contact me within the first two weeks of class to make such accommodations as may be necessary.

Center for Student Learning

I encourage you to utilize the Center for Student Learning’s (CSL) academic support services for assistance in study strategies, speaking & writing skills, and course content. They offer tutoring, Supplemental Instruction, study skills appointments, and workshops. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at http://csl.cofc.edu or call (843)953-5635.

Changes to Syllabus

The schedule, policies, and procedures listed in this syllabus are subject to change, at the discretion of the instructor.

Final Exam Schedule

Final examination times are scheduled by CofC’s Office of the Registrar. No deviations are permitted and the examination will be held as scheduled. Any student missing the final examination for any reason (other than a seriously valid and legitimate excuse presented prior to the exam) will receive a grade of zero for that assignment.
Tentative Schedule (subject to modification, every effort will be made to announce scheduling changes in-class)

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Readings</th>
<th>Assessment</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>8/24, 8/26</td>
<td>Syllabus and Introduction</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>8/29, 8/31, 9/2</td>
<td>Chapter 1</td>
<td>Syllabus Quiz on 8/31</td>
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<tr>
<td>3</td>
<td>9/5, 9/7, 9/9</td>
<td>Chapter 2</td>
<td></td>
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<tr>
<td>4</td>
<td>9/12, 9/14, 9/16</td>
<td>Chapter 3</td>
<td></td>
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<tr>
<td>5</td>
<td>9/19, 9/21, 9/23</td>
<td>Chapter 4 / Problem Set #1</td>
<td>Problem Set #1 Due</td>
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<tr>
<td>6</td>
<td>9/26, 9/28, 9/30</td>
<td>Chapter 5</td>
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<td>7</td>
<td>10/3, 10/5, 10/7</td>
<td>Chapter 6</td>
<td></td>
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<tr>
<td>8</td>
<td>10/10, 10/12</td>
<td>Problem Set #2 / Review</td>
<td>Problem Set #2 Due</td>
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<td>9</td>
<td>10/17, 10/19, 10/21</td>
<td>Chapter 7</td>
<td>Group Assignments</td>
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<tr>
<td>10</td>
<td>10/24, 10/26, 10/28</td>
<td>Chapter 8</td>
<td></td>
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<tr>
<td>11</td>
<td>10/31, 11/2, 11/4</td>
<td>Chapter 9 / Problem Set #3</td>
<td>Problem Set #3 Due</td>
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<tr>
<td>12</td>
<td>11/7</td>
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<td>NO CLASS - BREAK</td>
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<tr>
<td>12</td>
<td>11/9, 11/11</td>
<td>Chapter 10</td>
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<tr>
<td>13</td>
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<td>Chapters 11 and 12</td>
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<td>14</td>
<td>11/21</td>
<td>Chapter 12</td>
<td>Literature Review Due</td>
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<td>14</td>
<td>11/23, 11/25</td>
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<td>NO CLASS - TKSGVG</td>
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<td>15</td>
<td>11/28, 11/30</td>
<td>Problem Set #4 / Review</td>
<td>Problem Set #4 Due</td>
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<td>15</td>
<td>12/02</td>
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<td>Group Presentations I</td>
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<td>16</td>
<td>12/05</td>
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<td>Group Presentations II</td>
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FINAL EXAM: MONDAY DECEMBER 12, 12:00pm-3:00pm

The final exam will be given in the same classroom as used for class meetings (J206). The exam starts promptly at 12:00pm.

For exam scheduling information, see the registrar’s exam schedule at: http://registrar.cofc.edu/pdf/exam-schedule-fall2016.pdf