HSCI 488 – Epidemiology: Introduction to Study of Disease (3.0 Units)
California State University, Northridge
Spring 2015

Instructor: Kaitlin O’Keefe, Ph.D., M.P.H.
Contact: kaitlin.okeefe@csun.edu
Lectures: Tuesdays and Thursdays, 9:30am – 10:45am
Location: Jacaranda Hall (JD) 2520
Office Hours: Mon 1:45-3:45pm, Tues 12:30-1:30pm, Thurs 12:30-1:30pm, or by appt. in JD 2554

Course Description
This course is designed to introduce students to the basic concepts and measurements used in epidemiology. Nature, transmission, prevention and control of disease from a public health approach will be covered, as well as the historical background, current problems and trends in disease control. Students will be presented with an overview of methods to describe disease occurrence, risk factors and prevention in population groups. Students will learn components of different study designs and how to calculate key measurements used to describe health problems in populations.

Course Objectives
Upon completion of this course, students should be able to:

• Describe the history and uses of epidemiology, including implications for disease prevention and control
• Explain how host, risk factor, and environment characteristics may interact to cause disease
• Measure the occurrence of disease in a population including the calculation of incidence, prevalence, and mortality rates
• Describe the steps involved in investigating an outbreak
• Describe the processes, purposes and limitations of various study designs and calculate their respective measures of effect/association
• Define and measure the validity and reliability of diagnostic and screening tests
• Determine causality and association in epidemiologic studies
• Explain how bias and confounding can influence epidemiologic investigations
• Describe the importance of surveillance systems and different methods for the collection of epidemiologic data
• Describe the role of ethics in epidemiology and how epidemiologic data can be used to influence public policy

Required Text:

OR

<table>
<thead>
<tr>
<th>Grade Components</th>
<th>Grading Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm 1</td>
<td>A  93 – 100</td>
</tr>
<tr>
<td></td>
<td>A- 90 – 92</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>B+ 87 – 89</td>
</tr>
<tr>
<td>Final Exam</td>
<td>B  83 – 86</td>
</tr>
<tr>
<td>Homework</td>
<td>B- 80 – 82</td>
</tr>
<tr>
<td>Writing Assignment</td>
<td>C+ 77 – 79</td>
</tr>
<tr>
<td>Group Presentation</td>
<td>C  73 – 76</td>
</tr>
<tr>
<td>Attendance and Participation</td>
<td>C- 70 – 72</td>
</tr>
<tr>
<td></td>
<td>D+ 67 – 69</td>
</tr>
<tr>
<td></td>
<td>D  63 – 66</td>
</tr>
<tr>
<td></td>
<td>D- 60 – 62</td>
</tr>
<tr>
<td></td>
<td>F Below 60</td>
</tr>
</tbody>
</table>

Grades will be rounded to the nearest whole number. For example, a final grade of an 89.50% would be rounded to a 90% (A-) and a grade of an 89.49% would be rounded to an 89% (B+).

**Exams**

There will be two midterm exams and one final exam during the course. Each exam will cover the material directly preceding that exam and questions will be based on material covered in lecture and in the readings. Exams will not be cumulative, however much of the material throughout the course builds upon concepts covered early on.

All exams will be closed-note, closed-book and in-class. A calculator is strongly encouraged on exams. No talking with fellow classmates, texting or use of internet-capable devices (e.g. cell phones, tablets) will be allowed during exams. Failure to comply with the above guidelines and/or any instances of cheating during an exam will result in loss of credit, up to and including a 0, for the exam and may additionally result in a failing grade in the class and/or disciplinary action with the University.

**DURING EXAMS:**

Rescheduled or make-up exams will only be considered in extreme circumstances upon prior consultation with the instructor and sufficient evidence of such circumstances must be provided.

**Homework**

There will be a total of six homework assignments due throughout the course. Homeworks will generally be assigned and posted 1-2 weeks before they are due and will cover material from recent weeks.

Homeworks may be handed in to the instructor in class or completed electronically/scanned and emailed. Students are responsible for checking Moodle and the syllabus for homework assignment due dates.

Homeworks will be graded based on accuracy and effort and will be **due by 11:59pm on the due date** listed. Homework turned in after the deadline will receive a late deduction of 10% of the assignment grade per day late. For example, a homework assignment due on Tuesday and turned in Thursday of that week will receive a maximum of 80% of the assignment grade.
Class Attendance and Participation

Students are expected to attend all class meetings and participate in classroom discussions and activities. Regular absences or tardiness/leaving early will count negatively towards the attendance and participation grade. Attendance will be taken each lecture and two unexcused absences will be allowed throughout the course. After two absences, each additional absence will deduct 10% of the points from the attendance/participation grade. If a student expects to miss more than two classes due to extreme circumstances such as illness, injury or personal emergency, consultation with the instructor is required and sufficient evidence of such circumstances must be provided to prevent deduction of points for attendance/participation.

Recommended reading is expected to be completed by the date it is listed and students should come to class prepared to discuss the assigned reading. Please silence all cell phones before class begins. Texting during class is not permitted. The use of laptops is permitted during class for note-taking and academic purposes only. Lack of compliance with these policies may result in deductions from class attendance and participation and/or assignment grades.

Writing Assignment – Epidemiology in Popular Media

This assignment will allow you to examine how epidemiology is presented in popular news sources designed for the general public.

You will select a current article (must be from January 2015 and after) from a news source that deals with a public health topic (e.g. disease, morbidity, mortality) and includes at least one of the principles that we have covered in this course (e.g. study design, epidemiologic measures, causation). The chosen article MUST come from a reliable news organization such as the LA Times, New York Times, CNN or Newsweek (e.g. no blogs).

You will then write an essay at least 2 full pages long (double spaced with one inch margins) which includes the following information:

- A brief summary of the article
- Your opinion of the article, including comprehensive discussion of the following points:
  - Does the author do a good job describing the topic? Is there any additional information that could have been useful for the author to have included?
  - Are they using epidemiologic terms (e.g. incidence, risk) properly?
    - If yes, what leads you to this conclusion? Describe the terms/context used in detail.
    - If not used properly, discuss more appropriate terms that could have been used and how.
    - If few terms are used, describe what additional terms could have been used and how.
  - Does the author appear to have any bias for/against the topic or research? Why/why not?

You MUST include a link to (or copy of) the complete article, as well as the source of the article, including date and author, however you do not need to have a “Works Cited” page. The assignment is to be turned in via Moodle using Turnitin and will be due by 11:59pm on the due date listed.

Assignments turned in after the deadline will receive a late deduction of 10% of the assignment grade per day late. The writing assignment will be graded based on effort, accuracy and thoughtfulness of discussion. Further explanation of the assignment will be provided closer to the due date.
**Group Presentation** – 7-10 minute presentation in groups of 4

The principles of epidemiology can be used in a variety of different fields when evaluating any type of association between an “exposure” and an “outcome”. You and your fellow group members must pick a specific exposure/outcome association that interests you. Your group will design an appropriate study to investigate your chosen association using many of the epidemiologic concepts covered in class. You will then prepare a brief presentation of your proposed study to the class, ensuring you cover the following points:

- A background of both the “exposure” and “outcome” including descriptive information.
- What study design have you chosen? Why? Which measures would you calculate?
- What are the potential benefits and drawbacks to your chosen study design?
- What methods would you utilize to collect your data? What are potential benefits/drawbacks?
- Which biases and/or limitations would you be concerned about in your study?

Further explanation of the presentation will be provided closer to presentation dates.

**Academic Honesty**

As stated in the CSUN catalog: The maintenance of academic integrity and quality education is the responsibility of each student within this University and the CSU system. Cheating or plagiarism in connection with an academic program at a CSU campus is listed in Section 41301, Title V, California Code of Regulations as an offense for which a student may be expelled, suspended or given a less severe disciplinary sanction. Academic dishonesty is an especially serious offense and diminishes the quality of scholarship and defrauds those who depend on the integrity of the University’s Programs. Such dishonesty includes: Cheating, Fabrication, Facilitating Academic Dishonesty, and Plagiarism. Further information about the policy on academic dishonesty at CSUN can be found in the University Catalog: [http://catalog.csun.edu/policies_/academic-dishonesty/](http://catalog.csun.edu/policies_/academic-dishonesty/). There is also a link to specifics on CSUN policies on the course Moodle website.

Any instances of cheating or plagiarism (including self-plagiarism by using work previously/simultaneously turned in for other classes) will result in loss of credit, up to and including a 0, for the assignment or exam, and may additionally result in a failing grade in the class and/or disciplinary action with the University. For more information, refer to the University Catalog.

**Disability Resources Available**

The California State University does not discriminate on the basis of disability in admission or access to, or treatment or employment in, its programs and activities. Sections 504 and 508 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, and various state laws prohibit such discrimination.

If you need extra assistance with aspects of this course, please contact the Students with Disability Resources Office (818) 677-2578, located in the Student Services building (SB 110) or the Disability Resources and Educational Services at (818) 677-2684. Reasonable and effective accommodations and services will be provided to students if the requests are made in a timely manner and with appropriate documentation in accordance with federal, state, and university guidelines. Please let me know if you need further information or assistance from me in order to facilitate your learning experience.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/20</td>
<td>Administrative Details and Course Outline Definition and Applications of Epidemiology</td>
<td>Ch. 1</td>
</tr>
<tr>
<td></td>
<td>1/22</td>
<td>Historical Figures in Epidemiology</td>
<td>Ch. 1</td>
</tr>
<tr>
<td>2</td>
<td>1/27</td>
<td>Natural History of Disease</td>
<td>Ch. 2</td>
</tr>
<tr>
<td></td>
<td>1/29</td>
<td>Dynamics of Disease Transmission and Describing Disease Incidence</td>
<td>Ch. 2</td>
</tr>
</tbody>
</table>
| 3    | 2/3   | Procedures for Investigating an Outbreak 
**Homework 1 Due**                                                                                                                        | Ch. 2   |
|      | 2/5   | Investigating an Outbreak Activity                                                                                                      |         |
| 4    | 2/10  | Measuring the Occurrence of Disease – Morbidity                                                                                          | Ch. 3   |
|      | 2/12  | Measuring the Occurrence of Disease – Mortality                                                                                          | Ch. 4   |
| 5    | 2/17  | Control of Disease Transmission                                                                                                          |         |
|      | 2/19  | Disease Prevention 
**Homework 2 Due**                                                                                                        | Revisit Ch. 1 |
| 6    | 2/24  | Review for Midterm 1                                                                                                                    |         |
|      | 2/26  | MIDTERM 1                                                                                                                               |         |
| 7    | 3/3   | Introduction to Study Design 
Primary Data Collection                                                                                                                                   |         |
|      | 3/5   | Using Existing Data Sources                                                                                                               |         |
|      | 3/12  | Cohort Studies 
**Homework 3 Due**                                                                                                          | Ch. 9   |
|      |       |                                                                                                                                        | Ch. 11  |
| 9    | 3/17  | Case-control Studies                                                                                                                     | Ch. 10  |
|      | 3/19  | Randomized Trials/Experimental Studies                                                                                                  | Ch. 7   |
|      |       |                                                                                                                                        | Ch. 8   |
| 10   | 3/24  | Review for Midterm 2 
**Homework 4 Due**                                                                                                        |         |
<p>|      | 3/26  | MIDTERM 2                                                                                                                               |         |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 3/31</td>
<td>CESAR CHAVEZ HOLIDAY: NO CLASS CAMPUS CLOSED</td>
</tr>
</tbody>
</table>
| 12 4/2 | Review of Midterm 2  
Group Presentation Description  
Writing Assignment Due |
| 12 4/7 | SPRING RECESS: NO CLASS CAMPUS CLOSED |
| 12 4/9 | SPRING RECESS: NO CLASS CAMPUS CLOSED |
| 13 4/14 | Ethics in Epidemiology  
Ch. 20 |
| 13 4/16 | Evaluating Programs, Tests and Measures  
Ch. 5 |
| 14 4/21 | Bias  
Ch. 15 |
| 14 4/23 | Association and Causation  
**Homework 5 Due**  
Ch. 14 |
| 15 4/28 | Reliability and Validity  
GROUP PRESENTATIONS  
Revisit Ch. 5 |
| 15 4/30 | Epidemiology and Public Policy  
GROUP PRESENTATIONS  
Ch. 19 |
| 16 5/5 | GROUP PRESENTATIONS  
**Homework 6 Due** |
| 16 5/7 | Final Exam Review |
| FINAL 5/12 | **FINAL EXAM – 8am – 10am**  
Jacaranda 2520 (Lecture classroom) |

*Tentative schedule; may be modified at instructor’s discretion; any changes made during the semester will be announced in lecture*