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| **PUBHLTH 224: Epidemiology in Public Health**  **Integrative Learning Center S240**  **Tuesday & Thursday 1:00-2:15 PM**  **Fall 2019** |

**Instructor:** Cassandra N. Spracklen, PhD

**Office:** 429 Arnold House

**Office Hours:** M 10:00 AM - 11:00 AM (drop-in)

or by appointment (email to schedule)

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**COURSE DESCRIPTION:** Epidemiology, the study of the distribution and determinants of disease and health-related states in populations, is the foundational science of public health. To fully understand issues ranging from the etiology of cancer and heart disease to factors influencing public health policy, it is important for you to be familiar with basic concepts of epidemiology. This course is intended to introduce the science of epidemiology and to explore how epidemiologic methods are applied to solving public health problems. You will learn basic quantitative methods, study design concepts, and critical thinking skills relating to infections and chronic disease epidemiology.

**PREREQUISITES:** Open to Sophomore, Junior, and Senior public health majors only.

**COURSE OBJECTIVES:** After completing this course, you will be able to:

* Quantify the occurrence of disease and compare the disease experiences of populations
* Identify the common study designs and tools used by epidemiologists to evaluate risk factors for disease
* Detail infectious disease outbreak investigation and control strategies
* Critically read papers from the epidemiology literature
* Discuss how epidemiologic research is applied to the development of public health recommendations

**CEPH OUTCOME COMPETENCIES:** This course educates students in the following Council for Education in Public Health (CEPH) outcome competencies: 1) students will be able to utilize basic epidemiological skills to approach a community health problem and use basic data for program design and implementation; 2) students will have the ability to design and implement community health assessments and be able to understand community dynamics – political, economic, etc.—in order to completely comprehend why the health problems exist; and 3) students will be able to critically examine community needs through the use of group dynamic skills, identify and approach appropriate stakeholders in order to address community health problems, and provide support to public health managers addressing a variety of health issues on the community level.

**COURSE FORMAT:** Class meetings will involve a combination of lectures, readings, exercises, group discussions, and in class-writing. In class, we will apply the concepts covered in the reading assignment during that day. Therefore, completing the reading on time is **essential** for success in the course.

**REQUIRED TEXTS AND TOOLS:**

**Textbook:**

Oleckno WA. Essential Epidemiology. (1st edition). Long Grove, IL: Waveland Press, Inc., 2002.

**iClicker:**

You will need to register your iClicker in Moodle. For instructions, please refer to<http://www.oit.umass.edu/support/ars/register-your-iclicker-remote-moodle>

**Calculator:**

You will need a calculator that cannot transmit information to others. You may not use calculators on laptops, cell phones, PDAs, iPads, or other multi-functional electronic devices. In addition to the regular basic calculator functions (+, -, x, ÷), it needs to also perform exponentiation (*yx*) and logarithmic (*ex, loge*) functions. A calculator from the Texas Instruments TI-30X model group is adequate for this class and can be purchased at an office supply or campus book store for about $10-15. You should bring your calculator to all class periods, including lectures, discussions, and exams. You may not share calculators with other students during the exams.

**Lecture notes:**

Lecture notes will be posted to the course website prior to each class period. A course schedule appears at the end of this syllabus.

**Guided reading questions:**

To help facilitate comprehension of the assigned readings, I have created guided reading questions for each of the assigned readings. Completion of the guided reading questions is not required, and I will not be collecting or grading them. They are strictly intended for those who wish to use them. Guided reading questions will be available on the course website.

**Other instructional materials:**

All additional course materials will be posted to the course website or distributed in class as needed.

**Important Notes:**

*Late Assignments:* Assignments submitted after 1:00pm on the due date will be considered late and will not be accepted barring *exceptional circumstances*, for which appropriate documentation will be required.

*Extra Credit*: Your learning will be supported best by completing the readings and assignments described in this syllabus and on Moodle. I may provide opportunities for students to earn extra credit during the semester; if so, details will be posted on Moodle and discussed in class.

*Make-up Policy*: You are responsible for contacting Dr. Spracklen *in advance* if exceptional circumstances make it impossible to attend exams. I recognize that advance notice is not always possible, but please be in touch with me as soon as your circumstances allow. Make-up exams will be offered (at Dr. Spracklen’s discretion) for reasons including medical problems, emergency absences from campus, and religious observances. Appropriate documentation is required to schedule a make-up exam for any reason.

*Accommodation Policy and Inclusivity Statement:* If you have a disability and require accommodations, please let me know as soon as possible. You will need to register with Disability Services (161 Whitmore Administration Building; phone (413) 545-0892). Information on services and materials for registering are also available on their website: [www.umass.edu/disability](http://www.umass.edu/disability). Your success in this class is important to me. We all learn differently and bring different strengths and needs to the class. If there are aspects of the course that prevent you from learning or make you feel excluded, please let me know as soon as possible. Together we’ll develop strategies to meet both your needs and the requirements of the course. There are also a range of resources on campus, including:

* Writing Center: [www.umass.edu/writingcenter](http://www.umass.edu/writingcenter)
* Learning Resource Center: [www.umass.edu/lrc](http://www.umass.edu/lrc)
* Center for Counseling and Psychological Health: [www.umass.edu/counseling](http://www.umass.edu/counseling)
* English as a Second Language Program: [www.umass.edu/esl](http://www.umass.edu/esl)

*Academic Honesty:* We want our learning environment to be honest and fair. UMass Amherst has an Academic Honesty Policy that includes cheating and plagiarism as forms of dishonesty, among others. You can read the full policy and find other helpful resources here: <https://www.umass.edu/honesty/resources> . Unless otherwise specified, you are expected to work independently on all assignments. If you are unsure as to what actions specifically violate the academic honesty code, contact me immediately for clarification.

*Website*: I will post all course materials on Moodle. You need an account at OIT and must be officially enrolled in the course to access our course page. Because the website is an important class resource, make sure you have access to it early in the semester. If you have trouble accessing the course website, please let me know as soon as possible.

*Office Hours:* I am always happy to answer brief questions immediately before or after class. You can also drop-in to see me in my office (429 Arnold House) every Monday between 10:00-11:00am. Please email me if you would like to meet at a different time. Even if you don’t have specific questions, needs, or concerns, I would love to meet with you at least once during the semester. The office hours for the Graduate TA and Undergraduate Course Assistants will be announced during the first two weeks of class.

*Laptops, Cell Phones, and Electronic Handheld Devices*: Please be courteous to your fellow students and refrain from using your cell phones or other personal electronic devices during class time. You are welcome to use your laptop. You are asked to refrain from accessing email, social media, or non-course related websites during class. Avoiding these distractions will help you fully participate in the classroom discussions.

*Attendance*: It is expected that you attend and actively participate in class through active listening and by asking questions and providing helpful insightful dialogue to discussion. In my experience, students who do not come to lecture, or who sleep or text message during lecture, fail the exams and, subsequently, the course. Downloading the notes from the course website will not be sufficient preparation for passing the exams. It is in your own best interest to come to class.

*Email communications*: I will respond to emails within 24 hours of receiving them from you. I will respond to emails sent between Friday 4pm-Sunday evening on Monday.

*Valuing, Recognizing, and Encouraging Diversity***:** Promoting and valuing diversity in the classroom enriches learning and broadens everyone’s perspectives. Inclusion and tolerance can lead to respect for others and their opinions and is critical to maximizing the learning that we expect in this course. Our own closely held ideas and personal comfort zones may be challenged. The results, however, create a sense of community and promote excellence in the learning environment. Diversity includes consideration of (1) the variety of life experiences others have had, and (2) factors related to “diversity of presence,” including age, economic circumstances, ethnic identification, disability, gender, geographic origin, race, religion, sexual orientation, social position. This class will follow principles of inclusion, respect, tolerance, and acceptance that support the values of diversity.

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| **COURSE REQUIREMENTS** |

*Deadlines for all assignments are listed in the course calendar at the end of this syllabus.*

**Participation………………………………………………………………………………………………………………………..…40 points**

Your participation grade will be based on contributions to in-class activities including discussions, in-class exercises, and iClicker questions. Attendance at lectures is expected. Lecture will often cover concepts introduced in assigned readings; therefore, you should read all assigned readings prior to class to be able to participate in class discussions. I have built in an allowance of 3 missed days throughout the semester; this is also intended to cover days that you have iClicker issues. No further adjustments will be made relating to iClicker issues.

**Homework Assignments (10 points each)……………………………………………….………………………………60 points**

There will be 6 homework assignments as listed in the course schedule. Each emphasizes important topics that have been presented in lecture and/or class readings. Some homework assignments may also require you to read a posted journal article and answer questions based on the article and related material being covered in lecture. You may discuss the assignments with one another, but you are expected to turn in your own work. Answer keys will be posted on the course website prior to the next exam. Homework assignments must be turned in by the start of class (1pm) on the due date. Late homework will not be accepted, except by prior arrangement. Homework assignments must be typed and submitted through the course website. Emailed assignments will not be accepted except with prior permission from Dr. Spracklen.

**Pre-class Quizzes (5 points each)….……………………….………………………………………………………………100 points**

23 pre-class quizzes will be administered through the course website before each class period. Each quiz will include a few short questions about the information covered in the reading. Quizzes will be available for the 48-hour period prior to the start of each class. The 3 lowest scores will be dropped.

**Exam 1…………………………………………………………………………………………………………………………………100 points**

The first exam will cover all course materials from September 3 – October 1, 2019, including material covered in class, assigned readings, quizzes, and homework. A basic scientific calculator is allowed.

**Exam 2…………………………………………………………………………………………………………………………………100 points**

The second exam will cover all course materials from October 10 – November 5, 2019, including material covered in class, assigned readings, quizzes, and homework. A basic scientific calculator is allowed.

**Final Exam……………………………………………………………………………………………………………………………100 points**

The final exam will be cumulative and will synthesize information from the entire course, including material covered in class, assigned readings, quizzes, and homework. A basic scientific calculator is allowed.

**Total 500 points**

**Final course grades:** The relationship between numeric and letter grades is as follows:

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| --- | --- | --- | --- | --- | --- |
| Letter Grade | Numeric Grade | Letter Grade | Numeric Grade | Letter Grade | Numeric Grade |
| A | 465-500 | B- | 400-414 | D+ | 335-349 |
| A- | 450-464 | C+ | 385-399 | D | 315-314 |
| B+ | 435-449 | C | 365-384 | F | <315 |
| B | 415-434 | C- | 350-364 |  |  |
| **COURSE CALENDAR** | | | | | | |

*These dates are subject to change at the discretion of the instructor.*

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| **Day** | **Date** | **Agenda/Topic** | **Reading(s)** | **Assignment(s)** |
| Tuesday | 9/03 | Course Introduction | O: Chapter 1 & 2 | PCQ #1 |
| *Module 1: Epidemiologic Methods* | | | | |
| Thursday | 9/05 | Descriptive Studies | O: p. 38-41  M: Grimes 2002 | PCQ #2 |
| Tuesday | 9/10 | Quantitative Methods I: Measuring Disease | O: Chapter 5 | PCQ #3 |
| Thursday | 9/12 | Case Study: Teen Pregnancy in Massachusetts | M: CDC teen pregnancy website | PCQ #4; HW #1 Due |
| Tuesday | 9/17 | Introduction to Analytic Study Designs | O: Chapters 4 & 7 | PCQ #5 |
| Thursday | 9/19 | Quantitative Methods II: Comparing Populations | O: Chapter 6 | PCQ #6 |
| Tuesday | 9/24 | Problem Solving in Epi I |  | PCQ #7 |
| Thursday | 9/26 | Error and Bias | O: p. 137-147 | PCQ #8; HW #2 Due |
| Tuesday | 10/01 | Confounding and Generalizability | O: p. 148-155 | PCQ #9 |
| Thursday | 10/03 | Catch-up and Exam Review |  | PCQ #10 |
| Tuesday | 10/08 | **Exam #1 (material through 10/01/19)** | | |
| *Module 2: Epidemiologic Study Designs* | | | | |
| Thursday | 10/10 | Case-control Studies | O: Chapter 11 | PCQ #11 |
| Tuesday | 10/15 | *No class – University following Monday schedule* | | |
| Thursday | 10/17 | Ecological and Cross-sectional Studies | O: Chapter 10 | PCQ #12; HW #3 Due |
| Tuesday | 10/22 | Cohort Studies | O: Chapter 12 | PCQ #13 |
| Thursday | 10/24 | Case Study: Tanning and Melanoma | M: Lazovich 2010 | PCQ #14 |
| Tuesday | 10/29 | Randomized Controlled Trials | O: Chapter 13 | PCQ #15 |
| Thursday | 10/31 | Catch-up and Exam Review |  | PCQ #16; HW #4 Due |
| Tuesday | 11/05 | **Exam #2 (material through 10/31/19)** | | |
| *Module 3: Topics in Epidemiology* | | | | |
| Thursday | 11/07 | Screening | O: Chapter 9 | PCQ #17 |
| Tuesday | 11/12 | Guest Lecture: Andrew Lover, Infectious Disease Epidemiology | TBA | PCQ #18 |
| Thursday | 11/14 | Outbreak Investigations | O: Chapter 14; M: Gastroenteritis at Univ Texas | PCQ #19 |
| Tuesday | 11/19 | Problem Solving in Epidemiology 2 |  | PCQ #20; HW #5 Due |
| Thursday | 11/21 | Genetic Epidemiology | TBA | PCQ #21 |
| Tuesday | 11/26 | *No class – Thanksgiving recess* | | |
| Thursday | 11/28 | *No class – Thanksgiving recess* | | |
| Tuesday | 12/03 | Critiquing Epidemiologic Literature | M: McGrath 2003 | PCQ #22 |
| Thursday | 12/05 | Epidemiology and the Media |  | PCQ #23; HW #6 Due |
| Tuesday | 12/10 | **Final Exam 1:00-2:15pm** | | |

Abbreviations used: HW, homework; M, Moodle; O, Oleckno text book; PCQ, pre-class quiz; TBA, to be announced