Basic Principles of Epidemiology EPI 573A
FALL 2020
3 Units

Time: M/W 2:00 – 3:15 PM

Location: Live Online
Course sessions will be recorded. Students who do not wish to be identifiable on the records may keep their video off and change the name by which they are identified on zoom.

Covid-19
As the course will be held Live Online for the entire semester, no viral transmission will occur in conjunction with this course. I recognize that students may encounter the virus in other contexts. Students who have been placed in quarantine can continue this course with little or no disruption. Students who become ill can contact me by email so that we can arrange accommodations. To minimize the risk of infection, I remind students to social distance, wear a mask when out an about, and wash your hands thoroughly and often. Additional information on how the live online set up will work is available on the accompanying sheet: EPI 573a Live Online.

Instructor(s) and Contact Information:
Sydney Pettygrove, PhD
sydneyp@arizona.edu

Instructor Availability: Office Hours by zoom Mondays 3:30-4:30 (see sign-up sheet) or by appointment (email to schedule)

Teaching Assistants:
Magdiel Habila, Thomas Moore

TA Office Hours:
To be determined via D2L survey

Catalog Description: This course will introduce students to the basic concepts and principles of epidemiology and how these concepts are applicable for their own particular interests and careers in public health.

Course Prerequisites: EPI major or minor, MPH major, or consent of instructor.
Course Objectives and Expected Learning Outcomes:

- **Course Objectives**
  
  During this course students will:
  
  - compute basic measures such as incidence and prevalence and determine when each is appropriate.
  - synthesize information given in text format to calculate measures of frequency and association and then express the result in text.
  - define standardization of disease or mortality frequencies, explain the context for when standardization is desirable and perform standardization calculations.
  - assess the validity of the methods used in studies reported in the literature.
  - recognize, describe, and control for bias and determine in which direction it will shift results.
  - describe the role of chance in study results.
  - differentiate between screening and diagnostic tests and how to calculate the sensitivity, specificity, positive and negative predictive value of a screening test.
  - justify the importance of and identify basic methods of conducting public health surveillance.
  - identify and describe basic epidemiologic techniques for evaluating the role of genetics in disease etiology.
  - explain the development of epidemiology as a means to study infectious diseases.
  - evaluate methods of investigating outbreaks of infectious diseases.

- **Learning Outcomes (Competencies Obtained):** Upon successful completion of this course students will be able to:

  1) Apply epidemiological methods to the breadth of settings and situations in public health practice;
  2) Select quantitative data collection methods appropriate for a given public health context;
  3) Analyze quantitative data using biostatistics, informatics, computer-based programming and software, as appropriate;
  4) Interpret results of data analysis for public health research, policy or practice.
  5) Search, describe and summarize findings from the scientific literature to describe the epidemiology of a public health problem, identify health disparities and identify risk factors.
  6) Compare the relative strengths and weaknesses of epidemiological study designs, and choose the most appropriate design for specific research questions.
  7) Calculate appropriate measures of disease frequency and excess risk.
  8) Recognize and describe potential biases, confounding, and effect modification that can affect epidemiological studies and analyses.
  9) Select appropriate study design for assessing the association between a given exposure and an outcome, and then understanding advantages and limitations of these approaches.
  10) Critique published research findings
  11) Identify potential sources of bias for various study designs and their effect on study quality.
  12) Conduct descriptive and analytic analyses, including strategies to assess confounding and effect modification methods, to make statistical inferences.
13) Describe public health surveillance systems and their underlying data sources.

**Course Notes:** Lecture handouts and other notes will be available on D2L.

**Required Texts or Readings:**

Required:
- Essentials of Epidemiology in Public Health 3rd or 4th Edition, by A Aschengrau and GR Seage

Other books that may be useful for this course:
- A *Dictionary of Epidemiology* by Porta, M (ed.)
- *Epidemiology* by Gordis, L

**Required or Special Materials:**
Students will need a device with an internet connection and a webcam/microphone.

**Course Requirements:**
A total of 1,000 points are possible. Points are broken down as follows:

- Class Participation – 100 points
- Problem Sets – 55 points
- Projects
  - Critique of a Questionnaire – 70 points
  - Critique of an epi Paper – 100 points
  - Poster (group project) – 75 points
- Quizzes
  - 8 Quizzes - 400
- Final exam – 200 points

**Grading Scale/Student Evaluation and Policies:**
- Class Participation – students will have the opportunity to earn ½ point during each lecture day by answering zoom-polling questions, 1 point if the answer is correct. Student may earn 5-10 points for participating in class sessions labeled as “Active Learning”. Students must be logged into the class during lecture times to earn these points – *no alternate mechanism for earning these points will be offered.*
- Problem Sets – the course includes 11 problem sets, students who submit their completed problem set on time will be awarded full credit (5 points per problem set), otherwise no credit will be awarded. *Late problem sets will not be accepted.* Official answers for each of the problem sets will become available on D2L 10 minutes after they are due. It is the responsibility of the student to compare their answers to the official answers and to ask questions if their answer does not match.
- Projects
  - Critique of a Questionnaire – students will take the provided questionnaire themselves and administer it to 2 other people (1 male + 1 female) then answer a set of questions about the questionnaire. Answers will be submitted through a D2L quiz to facilitate grading.

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Critique of an Epidemiological Paper – students will choose 1 of 3 epi journal articles and answer a set of questions. Answers will be submitted through a D2L quiz to facilitate grading. Prior to submitting their individual critiques, the class will work together to go through the same questions on another paper.

Poster (group project) – students will groups of 5 or 6 to investigate the descriptive epidemiology of a health condition and present their findings as a set of power point slides. These slide sets will be available for viewing by the class. Students will be asked to provide feedback on the contributions of each student in their group and some adjustments to scoring will be made if appropriate.

Poster Session – each poster group will prepare 1 question on each of 2 posters besides their own. For the Poster Session the group will respond to the questions on their own poster.

Quizzes – all quizzes will be administered through D2L. Questions will include multiple choice, True/False, matching, and open text responses. We will use Respondus LockDown Browser for quizzes. The final exam will be proctored by Examity.

Students who submit their questionnaire or paper critiques late will be docked 20% for each day (24-hour period) or partial day they are late.

Up to 10 points of extra-credit will be offered for students who agree to facilitate a breakout session for the undergraduate epi course. Students will be required to attend a 1-hour training session prior to assisting with the breakout session. Interested students may contact Dr. Pettygrove for additional details.

Grades will be assigned as follows:

- A: 900 – 1000
- B: 800 – 899
- C: 700 – 799
- D: 600 – 699
- E: < 600

Scores will not be rounded. A score of 899.99 will be graded as a “B”.

Evidence of plagiarism or collaboration on exams will be documented and reported to the Assistant Dean in the Office of Student Services. In addition, the exam or assignment will receive a grade of zero with no option to make up the lost points.

Requests for incompletes (I) and withdrawal (W) must be made in accordance with University policies.

University policy regarding grades and grading systems is available at: http://catalog.arizona.edu/policy-type/grade-policies

Required examinations: The attached schedule includes the dates of 8 quizzes. The Final Exam will be held on Friday December 11 from 1 – 3 pm.

http://www.registrar.arizona.edu/staff/courses/final-exams?audience=staff&cat1=10

Absence and Class Attendance/Participation: (Expected attendance, participation levels)

Course participation will be assessed through zoom poll questions during each lecture.

The UA’s policy concerning class attendance, participation, and administrative drops is available at: http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop

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The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable. http://policy.arizona.edu/human-resources/religious-accommodation-policy. Accommodations are also available for insincere beliefs with prior approval of the instructor. Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored, http://deanofstudents.arizona.edu/

**Course Schedule**: See the attached schedule (suitable for posting)

**Communications**: You are responsible for reading emails sent to your UA account from your instructor and the announcements that are placed on the course web site. Information about readings, news events, your grades, assignments and other course related topics will be communicated to you with these electronic methods. Student emails will be answered by 5 pm on the business day after they are received. Note that this represents the latest time for a response; most will receive a reply more quickly. The official policy can be found at: https://www.registrar.arizona.edu/personal-information/official-student-email-policy-use-email-official-correspondence-students

**Accessibility and Accommodations**: At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, you are welcome to let me know so that we can discuss options. You are also encouraged to contact Disability Resources (520-621-3268) to explore reasonable accommodation. If our class meets at a campus location: Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable. For additional information on Disability Resources and reasonable accommodations, please visit http://drc.arizona.edu/students

**Code of Academic Integrity**: Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercise must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity, available through the office of the UA Dean Students: http://deanofstudents.arizona.edu/policies-and-codes/code-academic-integrity

**Classroom Behavior**: (Statement of expected behavior and respectful exchange of ideas: Present policies to foster a positive learning environment, including use of cell phones, mobile devices, etc.). Students are expected to be familiar with the UA Policy on Disruptive Student Behavior in an Instructional Setting found at: http://policy.arizona.edu/education-and-student-affairs/disruptive-behavior-instructional-setting

**Threatening Behavior Policy**: The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to one’s self, http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students

**Nondiscrimination and Anti-Harassment Policy**: The University of Arizona is committed to creating and maintaining an environment free of discrimination, http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

**UA Smoking and Tobacco Policy**: The purpose of this Policy is to establish the University of Arizona’s (University) commitment to protect the health of University faculty, staff, students, and visitors on its campuses and in its vehicles, http://policy.arizona.edu/ethics-and-conduct/smoking-and-tobacco-policy

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**Syllabus Changes:** Information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.

**Plagiarism:** What counts as plagiarism?
- Copying and pasting information from a web site or another source, and then revising it so that it sounds like your original idea.
- Doing an assignment/essay/take home test with a friend and then handing in separate assignments that contain the same ideas, language, phrases, etc.
- Quoting a passage without quotation marks or citations, so that it looks like your own.
- Paraphrasing a passage without citing it, so that it looks like your own.
- Hiring another person to do your work for you, or purchasing a paper through any of the on- or off-line sources.

**Gender Pronouns**
The UA provides instructors with a roster that lists each student’s preferred name. Students may share their preferred name and pronoun with members of the teaching staff and fellow students, as desired, and these gender identities and gender expressions will be honored in this course. As the course includes group work and in-class discussion, it is critical to create an educational environment of inclusion and mutual respect. In this class, to be inclusive of all gender identities and expressions, students will be referred to by their first or last names, the pronoun of their choice, or by default, the pronoun “they”.

**Content Advisory**
Examples and calculation exercises in this course include scenarios in which groups identified by “race”, “ethnicity”, or “gender” have different risks for health outcomes. Students who may find these examples or exercises evocative of prior traumatic experiences are encouraged to speak with the instructor at the beginning of the semester prior to course content engagement to voice these concerns.

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