



**Division of Epidemiology and Biostatistics
Mel and Enid Zuckerman College of Public Health
University of Arizona**

SYLLABUS

**Basic Principles of Epidemiology (EPID 573A; CPH 573A)
Fall 2017**

Time: Monday, 2:00-3:15
Wednesday, 2:00-3:15

Location: Drachman Hall, A-118

Instructor: Eyal Shahar, MD, MPH
Professor
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Office Hours: By appointment (send an email; suggest 3 dates/times).

Teaching Assistant: TBA
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Office hours: TBA
or by appointment

Course Description: *“The course will introduce students to the basic concepts and principles of epidemiology and how these concepts are applicable for their own particular interests and career in epi related fields.”*

Course Prerequisites: EPI major or minor, MPH major, or consent of instructor.

Course Learning Objectives:

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.

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

- explain the studying of causation from association.
- calculate and interpret various measures of disease frequency and association.

- explain the usefulness and relative advantages and limitations of various study designs.
- identify sources of bias which can occur in various study designs, and
- constructively evaluate research and scientific reports from the literature.

MPH/Section Competencies Covered:

| Ref# | Competency |
|-------------|---|
| A1 | define a problem |
| A2 | determine the appropriate use and limitation of data |
| A3 | select and define variables relevant to public health problems |
| A6 | understand basic research designs used in public health |
| A7 | make relevant inferences from data |
| B2 | interpreting and presenting accurately and effectively demographic, statistical, and scientific information for professional and lay audiences adapting and translating public health concepts to individuals and communities |
| E1 | defining, assessing, and understanding the health status of population, determinants of health and illness, factors contributing to health promotion and disease prevention, and factors influencing the use of health services |
| E2 | understanding research methods in all basic public health sciences. |

Course Notes: All course material will be posted on d2l

Recommended Texts/Readings: No textbook. Readings provided on the website.

Course Requirements: Prepare for class and study the material after class. Complete homework assignments (on your own!) and submit on the due date. Take a mid-term exam and a final exam as scheduled.

Grading/Student Evaluation: Regular grades are awarded for this course (A, B, C, D, E.)

- A: $\geq 90\%$
- B: $\geq 80\%$
- C: $\geq 70\%$
- D: $\geq 60\%$
- E: $< 60\%$

Homework assignments (6) 25% [HW1,2,3,4,5, 4.5% each. HW6, 2.5%]

Should be turned in to the TA on the due date, before class starts!

Mid-term exam 35%

Final exam (cumulative) 40%

If you think we have made an error in grading an assignment or an exam, please tell us shortly thereafter (and not at the end of the course.) There are no extra-credit tasks and no “make-up” for a higher grade.

In the interest of equity, keep the following rule in mind: challenging the grading of “unfavorable” points might lead to re-grading of “favorable points” as well. Grades are not a matter of negotiation.

Class Attendance/Participation: Regular attendance is expected. If you miss a class, you should find a way to learn the material I taught. All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion. Absences pre-approved by the UA Dean of Students (or Dean’s designee will be honored.)

Course Schedule: shown below

Required Statements:

Communications: You are responsible for reading emails sent to your UA account from your professor 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. The official policy can be found at: <http://www.registrar.arizona.edu/emailpolicy.htm>

Disability Accommodation: If you anticipate issues related to the format or requirements of this course, please meet with me. I would like us to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with Disability Resources (621-3268; drc.arizona.edu) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations. The official policy can be found at: <http://catalog.arizona.edu/2015%2D16/policies/disability.htm>

Academic Integrity: All UA students are responsible for upholding the University of Arizona Code of Academic Integrity, available through the office of the Dean of Students and online: The official policy found at: <http://deanofstudents.arizona.edu/codeofacademicintegrity>

Classroom Behavior: (Statement of expected behavior and respectful exchange of ideas) The Dean of Students has set up expected standards for student behaviors and has defined and identified what is disruptive and threatening behavior. This information is available at: <http://deanofstudents.arizona.edu/disruptiveandthreateningstudentguidelines>

Students are expected to be familiar with the UA Policy on Disruptive and Threatening Student Behavior in an Instructional Setting found at:

<http://policy.arizona.edu/education-and-student-affairs/disruptive-behavior-instructional-setting>

and the Policy on Threatening Behavior by Students found at:

<http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>

Grievance Policy: Should a student feel he or she has been treated unfairly, there are a number of resources available. With few exceptions, students should first attempt to resolve difficulties informally by bringing those concerns directly to the person responsible for the action, or with the student's graduate advisor, Assistant Dean for Student and Alumni Affairs, department head, or the immediate supervisor of the person responsible for the action. If the problem cannot be resolved informally, the student may file a formal grievance using the Graduate College Grievance Policy found at:

<http://grad.arizona.edu/academics/policies/academic-policies/grievance-policy>

Grade Appeal Policy: <http://catalog.arizona.edu/2015-16/policies/gradappeal.htm>

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. The latest version of the policy is available at:

<http://policy.arizona.edu/ethics-and-conduct/smoking-and-tobacco-policy>

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.

Course Schedule: **Fall 2017**

| Date | Week # | Topics | In-class exercise (Read before class) | Homework assignment | Homework due |
|------------------|--------|--|--|---|--------------|
| Aug 21 Aug 23 | # 1 | Historical perspective; "Descriptive epi": person, place, time Measures of freq (measures of "risk") | Snow on cholera | HW #1: Computation of probability, odds, rate | |
| Aug 28 Aug 30 | # 2 | Incidence and prevalence Causes Study design and data layout (overview) | | | HW #1 (8/30) |
| Sep 4 Sep 6 | # 3 | <u>Labor Day</u> Study design and data layout (continued) Measures of association | Study tables (from articles); Create 2x2 tables; Compute measures of frequency and association | | |
| Sep 11 Sep 13 | # 4 | Association vs. effect Randomized trials | | HW #2: Identify the study design; Compute measures of association | |
| Sep 18 Sep 20 | # 5 | Cohort studies Cohort studies | | | HW #2 (9/20) |

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|----------------------|------|---|---|---------------------------------------|---------------|
| Sep 25 Sep 27 | # 6 | The idea of bias Causal diagrams (directed acyclic graphs) Confounding bias | Draw causal diagrams Illustrate confounding in causal diagrams | | |
| Oct 2 Oct 4 | # 7 | Review articles (TA) Methods to handle confounders (I) | Review two articles: "Prevention of stroke by antihypertensive drug treatment in older persons..." (randomized trial) "Stroke incidence and survival among middle-aged adults" (cohort study) | | |
| Oct 9 Oct 11 | # 8 | Methods to handle confounders (II) In-class exercise (TA) | Standardization | HW #3: Standardization | |
| Oct 16 Oct 18 | # 9 | Cross-sectional studies Ecological studies Review for midterm (TA) | | | HW #3 (10/18) |
| Oct 23 Oct 25 | # 10 | Mid-term exam (proctored by the TA) Screening | Calculations of various screening-related measures | | |
| Oct 30 Nov 1 | # 11 | Case-control studies (I) Case-control studies (II) | | HW #4: Select a good control group | |

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|-------------------------------|------|------------------------------------|---|---|---------------|
| Nov 6 | # 12 | Article review | Review an article (a case control study): "The association between head trauma and Alzheimer's disease" | | HW #4 (11/8) |
| Nov 8 | | Information bias | | | |
| Nov 13 | # 13 | Methods to handle confounders (II) | Computation of Mantel-Haenszel estimates | HW #5: Compute Mantel-Haenszel estimates | |
| Nov 15 | | | | | |
| Nov 20 | # 14 | Colliding ("selection") bias | Information bias; colliding bias | | HW #5 (11/20) |
| Nov 22 (pre-Thanksgiving) | | In-class exercise | | | |
| Nov 27 | # 15 | Effect (measure) modification | Detection by stratification | HW #6: Abstracts on effect modification | |
| Nov 29 | | | | | |
| Dec 4 | # 16 | Measures of "disease impact" | Outbreak investigation | | HW #6 (12/6) |
| Dec 6 | | Infectious disease epidemiology | Pre-exam Q&A | | |
| Dec 13 (Wednesday) | | Final Exam: 1:00-3:00 PM | | | |