Mel and Enid Zuckerman College of Public Health
University of Arizona

SYLLABUS

Maternal and Child Health Epidemiology
EPI 630
(Fall 2019)

Time: Thursday 9:30 – 12:20 p.m.

Location: Drachman Hall A119

Instructor Name and Contact Information:

Sydney Pettygrove, PhD
Associate Professor of Public Health
1295 N. Martin
Drachman Hall, A244
Tucson, AZ 85724
Telephone: 626-3704
sydneyp@email.arizona.edu

Instructor Availability: By appointment, schedule via email

Teaching Assistant: none

TA Office Hours: not applicable

Catalog Description:

This course will cover methodologic issues in epidemiologic research on reproduction, childhood conditions, and women's health including topical information specific to conditions in each of these areas. The course will also cover National MCH databases and Surveillance Systems. The class will include classroom lectures, discussions and student presentations.

Course Description:

Through discussion, writing, and data analysis students will gain a sophisticated understanding of methodologic issues in studying the epidemiology of maternal and child health conditions.
Course Prerequisites:

EPID 573A, enrolled in the MPH, MS EPID or PhD EPID programs or consent of instructor.

Course Objectives and Expected Learning Outcomes:

- **Course Objectives**
  This course will introduce students to methodological issues in epidemiologic research on reproduction, childhood conditions, and women's health and cover information specific to conditions in each of these areas. The class will include classroom lectures, discussion, and student presentations.

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

  1) Discuss methodological considerations for the conduct of epidemiologic research in areas of Maternal & Child Health
  2) Have a general knowledge of the descriptive epidemiology of issues affecting women and children
  3) Constructively evaluate research and scientific reports from the literature
  4) Formulate a research question, analyze a dataset, and present analytic results in a table.

Competencies Covered and Assessed for Each Education Program:

**MPH in Epidemiology (EPI) – In person program**

1. 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.

**Directed writings** – students will research a MCH-relevant health condition: describing the anatomy/physiology, incidence/prevalence, risk factors/exposures, and spatial or temporal variations in risk then provide an evaluation of how these specific details of the condition affect the design and interpretation of epidemiologic work on the condition.

2. Compare the relative strengths and weaknesses of epidemiological study designs, and choose the most appropriate design for specific research questions.

**Directed writings** – students will research a MCH-relevant health condition: describing the anatomy/physiology, incidence/prevalence, risk factors/exposures, and spatial or temporal variations in risk then provide an evaluation of how these specific details of the condition affect the design and interpretation of epidemiologic work on the condition.

3. Recognize and describe potential biases, confounding, and effect modification that can affect epidemiological studies and analyses.

**Discussion facilitation** - students will lead the class in discussion of a published paper presenting an epi study including review of bias, confounding, and effect modification.

4. Interpret these epidemiological analyses in the context of published literature and communicate key findings to various audiences.

**Directed writings** – students will present the findings and conclusions of their writings to the class.

**Discussion facilitation** - students will lead the class in discussion of a published paper presenting an epi study including review of bias, confounding, and effect modification.

**MS Epidemiology (EPI)**

1. Select appropriate study design for assessing the association between a given exposure and an outcome, and then understanding advantages and limitations of these approaches.

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Data analysis project – students will use vital records data to develop a hypothesis, request variables, clean their dataset, and evaluate the relationship between their chosen exposure and outcome. They evaluate and account for the potential confounding or effect modification by another variable.

2. Critique and synthesize appropriate literature and research findings to address a research question.

Directed writings – students will research a MCH-relevant health condition: describing the anatomy/physiology, incidence/prevalence, risk factors/exposures, and spatial or temporal variations in risk then provide an evaluation of how these specific details of the condition affect the design and interpretation of epidemiologic work on the condition.

3. Identify potential sources of bias for various study designs and their impact on study quality.

Discussion facilitation – students will lead the class in discussion of a published paper presenting an epi study including review of bias, confounding, and effect modification.

4. Conduct descriptive and analytic analyses, including strategies to assess confounding and effect modification methods, to make statistical inferences.

Data analysis project – students will use vital records data to develop a hypothesis, request variables, clean their dataset, and evaluate the relationship between their chosen exposure and outcome. They evaluate and account for the potential confounding or effect modification by another variable.

6. Demonstrate ability to manage and analyze epidemiological data from a variety of sources.

Data analysis project – students will use vital records data to develop a hypothesis, request variables, clean their dataset, and evaluate the relationship between their chosen exposure and outcome. They evaluate and account for the potential confounding or effect modification by another variable.

7. Organize and deliver clear presentations of research findings in varying professional formats to diverse audiences.

Discussion facilitation – students will lead the class in discussion of a published paper presenting an epi study including review of bias, confounding, and effect modification.

PhD Epidemiology (EPID)

3. Design appropriate studies using causal inference principles for testing hypotheses in specific populations, after evaluating specific design advantages and limitations.

Directed writings – students will research a MCH-relevant health condition: describing the anatomy/physiology, incidence/prevalence, risk factors/exposures, and spatial or temporal variations in risk then provide an evaluation of how these specific details of the condition affect the design and interpretation of epidemiologic work on the condition.

5. Lead group interactions competently, ethically, respectfully and professionally to diverse audiences.

Directed writings – students will present the findings and conclusions of their writings to the class.

Discussion facilitation – students will lead the class in discussion of a published paper presenting an epi study including review of bias, confounding, and effect modification.

6. Organize and deliver clear presentations of research findings in varying professional formats to diverse audiences.

Directed writings – students will present the findings and conclusions of their paper to the class. Students lead the class in discussion of a published paper presenting an epi study including review of bias, confounding, and effect modification.

Required Textbook: No textbook is used for this class.

Recommended Textbooks:
Other Readings:

Journal articles for class are available on D2L or as a reader purchased from the Health Sciences Library. A list of references is provided below.

Required or Special Materials:
Students will need a laptop, mobile device, or “clicker” with a subscription to the service in order to respond to interactive material during lectures.

Course Requirements:

A total of 1,000 points are available. Points will be awarded as follows:

17% CONTRIBUTING IN CLASS & MISCELLANEOUS

<table>
<thead>
<tr>
<th>Points</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Epi Review Quiz</td>
</tr>
<tr>
<td>20</td>
<td>Class Participation – measured through clicker quizzes on the readings</td>
</tr>
<tr>
<td>40</td>
<td>Facilitate Discussion</td>
</tr>
<tr>
<td>40</td>
<td>Detective Work – bringing in specific information</td>
</tr>
<tr>
<td>40</td>
<td>Final Presentation - VoiceThread</td>
</tr>
<tr>
<td>20</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>

18% DATA ANALYSIS (STUDENTS WILL WORK INDEPENDENTLY)

<table>
<thead>
<tr>
<th>Points</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Quiz on Making Tables</td>
</tr>
<tr>
<td>20</td>
<td>Univariable/Descriptive Analysis</td>
</tr>
<tr>
<td>20</td>
<td>Exposure – Outcome Relationship</td>
</tr>
<tr>
<td>40</td>
<td>Potential Confounder Relationship to Exposure and to Outcome</td>
</tr>
<tr>
<td>40</td>
<td>Stratified Analysis</td>
</tr>
<tr>
<td>20</td>
<td>Results Table</td>
</tr>
<tr>
<td>30</td>
<td>Abstract</td>
</tr>
</tbody>
</table>

65% WRITING ON YOUR CHOSEN TOPIC (STUDENTS WILL WORK IN PAIRS)

<table>
<thead>
<tr>
<th>Points</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Writing Exercises (online)</td>
</tr>
<tr>
<td>100</td>
<td>Health condition (Each Student works/submits independently)</td>
</tr>
<tr>
<td>100</td>
<td>Magnitude (Student A) / Spatial OR Temporal (Student B)</td>
</tr>
<tr>
<td>100</td>
<td>Exposures / Risk Factors (Students A &amp; B collaborate to submit 1)</td>
</tr>
<tr>
<td>5</td>
<td>Methodological Worksheet</td>
</tr>
<tr>
<td>5</td>
<td>Methodological Topic Sentences</td>
</tr>
<tr>
<td>200</td>
<td>Methodological (Each Student works/submits independently)</td>
</tr>
<tr>
<td>100</td>
<td>Final Submission (Each Student works/submits independently)</td>
</tr>
</tbody>
</table>

1,000 TOTAL POINTS POSSIBLE

Grading Scale/Student Evaluation and Policies: The course will be organized as a combination of lecture and seminar sessions. Class participation is required. In general, class will begin with an overview of the week’s topic presented by course instructor with student input. The second part of each class will be dedicated to in-depth discussion of the week’s readings. Class will conclude with a discussion of how the specific details of the health condition determine the epidemiologic approach to studying the condition. Students will be required to lead the class discussion at least twice during the term. Each student will be expected to have thoroughly read the material assigned each week and to participate in the weekly discussions.

Students’ activities:

Preliminaries

- Take the Syllabus Quiz. Students may retake this quiz as often as necessary to score 100% but may not submit any assignments until a perfect score has been achieved.
- Complete an online instructional module on recognizing plagiarism. All written work will be submitted

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through D2L Assignment folders with TurnItIn.com plagiarism checking enabled – TurnItIn results are available to students.

- Complete Human Subjects Training through the Collaborative Institutional Training Initiative (CITI).
- Sign a Data Confidentiality Agreement.

Detective Work
- Locate specific information on health topics covered in the course and present during the discussion of those topics (2 times during the semester).

Class Participation
- In each week that a health outcome is discussed, class will begin with a clicker quiz on the course readings.
- Students will present information on a specific aspect of one of the health conditions discussed in class as assigned (detective work – see description above).
- Students will lead the discussion of an epi paper once during the term.

Data Analysis Project
- Formulate a research question to be addressed through analysis of birth certificate data - matched to infant death certificate where necessary (provided by the instructor), select variables needed for the analysis, conduct the analysis, produce tables and write an abstract of the results.

Directed Writings
- Students will form pairs, agree on a topic in Maternal & Child Health on which to focus for the semester, and write a series of essays on this topic covering:
  - Health condition – biology, pathology (each member of the pair writes and **submits separately and independently**)
  - Magnitude – prevalence and incidence (**Student A**)
  - Spatial OR Temporal Aspects – changes in magnitude through time or across space that give clues about causes of the health condition (**Student B**)
  - Exposures / Risk Factors – this is a table summarizing the literature on environmental exposures and host characteristics that influence the health condition (**Students A&B collaborate to submit 1 table**)
  - Methodological Issues – the implications of the specific characteristics of the health condition and populations that affect epidemiological work on the topic (each member of the pair writes and **submits separately and independently**)
- Respond to instructor comments on each essay then assemble these sections into a final review of the epidemiology of the chosen health condition (~8-10 pages, strictly enforced maximum of 3000 words)
- Each pair of students will work together to make a voicethread presentation to teach the class about their health condition at the end of the semester.
- Student voicethread presentations will be the source of questions for the final exam which will be held in class on the official exam day assigned to our class.

No extra-credit assignments will be offered.

Grades will be assigned as follows:

- A: 900 – 1000
- B: 800 < 900
- C: 700 < 800
- D: 600 < 700
- E: 500 < 600

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

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Students’ final grade is determined by the components listed in the following table. This information is available as a single sheet in the CRUCIAL INFORMATION folder on D2L:

<table>
<thead>
<tr>
<th>Week</th>
<th>Assignment</th>
<th>Due*</th>
<th>Pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Writing Topic</td>
<td>9/5</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Hypothesis</td>
<td>9/5</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Variable selection</td>
<td>9/12</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Epi Review Quiz</td>
<td>9/12</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Making Tables Quiz</td>
<td>9/12</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Health Condition</td>
<td>9/19</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>Data: Univariable_Descriptive</td>
<td>9/26</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>Data: Exposure_Outcome</td>
<td>10/3</td>
<td>20</td>
</tr>
<tr>
<td>7</td>
<td>Magnitude or (Spatial or Temporal)</td>
<td>10/10</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>Exposures &amp; Risk Factors</td>
<td>10/17</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>Methodological Worksheet</td>
<td>10/17</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>Data: Confounder with Exposure; with Outcome</td>
<td>10/24</td>
<td>30</td>
</tr>
<tr>
<td>10</td>
<td>Methodological Topic sentences</td>
<td>10/31</td>
<td>5</td>
</tr>
<tr>
<td>11</td>
<td>Data: Stratified</td>
<td>11/7</td>
<td>40</td>
</tr>
<tr>
<td>12</td>
<td>Methodological</td>
<td>11/14</td>
<td>200</td>
</tr>
<tr>
<td>13</td>
<td>Data Table</td>
<td>11/21</td>
<td>20</td>
</tr>
<tr>
<td>13</td>
<td>Abstract</td>
<td>11/21</td>
<td>30</td>
</tr>
<tr>
<td>15</td>
<td>VoiceThread Presentation</td>
<td>12/5</td>
<td>40</td>
</tr>
<tr>
<td>16</td>
<td>Final Revisions</td>
<td>12/12</td>
<td>100</td>
</tr>
<tr>
<td>All</td>
<td>Clicker Questions</td>
<td>weekly</td>
<td>30</td>
</tr>
<tr>
<td>-</td>
<td>Detective Work</td>
<td>various</td>
<td>40</td>
</tr>
<tr>
<td>-</td>
<td>Facilitation</td>
<td>various</td>
<td>40</td>
</tr>
<tr>
<td>-</td>
<td>Writing exercises - online</td>
<td>weeks 2 - 10</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Final Exam</td>
<td>12/17 8-10 am</td>
<td>20</td>
</tr>
</tbody>
</table>

1000
**Course Schedule:** this information is available in a superior, calendar format, suitable for posting, in the Administrative Items folder on D2L

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic*</th>
<th>Assignments**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/29</td>
<td>Intro: Assignments / Biostats / Analysis / Epi Review</td>
<td>Epi Review Questions</td>
</tr>
<tr>
<td>2</td>
<td>9/5</td>
<td>Epi Review / Library</td>
<td>Writing Topic</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Data: Hypothesis</td>
</tr>
<tr>
<td>3</td>
<td>9/12</td>
<td>Subfertility &amp; Spontaneous Abortion</td>
<td>Data: Variable Select</td>
</tr>
<tr>
<td>4</td>
<td>9/19</td>
<td>Data Analysis - Computer Lab A319</td>
<td>Health Condition</td>
</tr>
<tr>
<td>5</td>
<td>9/26</td>
<td>Birth Defects</td>
<td>Data: Univariable</td>
</tr>
<tr>
<td>6</td>
<td>10/3</td>
<td>Sudden Infant Death Syndrome (SIDS)</td>
<td>Data: X_O</td>
</tr>
<tr>
<td>7</td>
<td>10/10</td>
<td>Child Abuse &amp; Neglect</td>
<td>Magnitude or Spat/Temp</td>
</tr>
<tr>
<td>8</td>
<td>10/17</td>
<td>Asthma</td>
<td>Exposures/Risk Factors; Meth Worksheet</td>
</tr>
<tr>
<td>9</td>
<td>10/24</td>
<td>Autism Spectrum Disorders (ASD)</td>
<td>Data: Confounder with Exposure &amp; with Outcome</td>
</tr>
<tr>
<td>10</td>
<td>10/31</td>
<td>Stratified Analysis - Computer Lab A319</td>
<td>Meth topic sentences</td>
</tr>
<tr>
<td>11</td>
<td>11/7</td>
<td>Writing workshop</td>
<td>Data: Stratified</td>
</tr>
<tr>
<td>12</td>
<td>11/14</td>
<td>Adverse Childhood Experiences (ACE)</td>
<td>Methodology Issues</td>
</tr>
<tr>
<td>13</td>
<td>11/21</td>
<td>Teen Pregnancy</td>
<td>Data: Table, Abstract</td>
</tr>
<tr>
<td>14</td>
<td>11/28</td>
<td>THANKSGIVING</td>
<td>-</td>
</tr>
<tr>
<td>15</td>
<td>12/5</td>
<td>Maternal Depression</td>
<td>VoiceThread</td>
</tr>
<tr>
<td>16</td>
<td>12/17</td>
<td>Oral Final Exam 8- 10 am</td>
<td>Final Revisions</td>
</tr>
</tbody>
</table>

*Assigned readings are listed below by topic. Students are expected to have read all listed articles on a topic prior to class the day each topic is discussed.

**Assignments are due by Thursdays at 9:00 am

Reading list for 2019

**Subfertility & Spontaneous Abortion (56 pages)**


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**Birth Defects (38 pages)**


**Sudden Infant Death Syndrome (SIDS) (52 pages)**


**Child Abuse (46 pages)**


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**Childhood Asthma (35 pages)**


**Autism Spectrum Disorders (ASD) (45 pages)**


Adverse Childhood Experiences (ACES) (54 pages)


Teen Pregnancy (58 pages)


Hamilton, B. E., & Ventura, S. J. (2012). Birth rates for US teenagers reach historic lows for all age and ethnic groups. NCHS Data Brief, 89


Maternal Depression (53 pages)


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. The official policy can be found at: https://www.registrar.arizona.edu/personal-information/official-student-email-policy-use-email-official-correspondence-students

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 campuses and in its vehicles. The official policy can be found at: http://policy.arizona.edu/ethics-and-conduct/smoking-and-tobacco-policy

University Course Policies: (please see the following URL):
https://academicaffairs.arizona.edu/syllabus-policies

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.
• Any 10 consecutive words in students’ writing that match anything on the internet will be considered evidence of plagiarism with the exception of bibliographic information in the reference section. Students are to write their papers entirely in their own words without quoting others. The consequence of plagiarism will be an “E” in the course.

Gender Pronoun Guideline
It is recommended that instructors address, in one way or another, pronoun usage in their classroom, and that this be done the first day of class. It can be done in a fashion each instructor prefers, but for many, the following statement could work:

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“It is already UA policy that class rosters are provided to instructors with a 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”.”

The application of this guideline in all instructional settings involving group interactions is strongly encouraged, but the means of carrying it out are left to each faculty member.

**Content Advisory Guideline**

It is recommended that instructors use “content advisories” when assigning certain kinds of course materials. The purpose of these advisories is to alert students to the possibility of unexpected exposure to content evocative of prior traumatic experiences. So alerted, students can talk with the instructor about alternate materials, if such is possible, since students will remain responsible for requirements of the course. The policy is not meant to restrict course content in any way, but to provide ample information about course content in advance, enabling students with legitimate concerns to plan better. Students are encouraged to speak with the instructor at the beginning of the semester prior to course content engagement to voice concerns.