Mel and Enid Zuckerman College of Public Health  
University of Arizona

SYLLABUS  
Spatial Epidemiology EPID/CPH 676  
Spring 2019

Time: Tuesdays 9:00-11:50

Location: Drachman Hall, A-122

Instructor: Heidi Brown, PhD, MPH  
Office: Drachman Hall, A-249  
E-mail: heidibrown@email.arizona.edu

Teaching Assistant: none

Office Hours: TBD

Catalog Description: This course familiarizes students with spatial analysis emphasizing epidemiologic and public health applications.

Course Prerequisites: CPH/EPID 576A or GEOG/PLNN 557 or equivalent. Permission by instructor. Students should have completed prerequisite coursework in basic introductory statistics and epidemiology. This course is not a replacement for introduction to geographic information systems.

Course Learning Objectives: Upon completion of this course, students should be able to identify and apply the following to epidemiologic and public health practice:
- basic concepts of spatial epidemiology
- basic methods of spatial epidemiology
- critically review spatial epidemiology literature
- identify pros and cons of a variety of analytic tools
- competently review and present (oral and written) spatial epidemiologic topics

Program Competencies Covered: Upon completion of this course, students should be able to
- Interpret these epidemiological analyses in the context of published literature and communicate key findings to various audiences. (EPID MPH #5)
- Organize and deliver clear presentations of research findings in varying professional formats to diverse audiences. (EPID MS #7/PhD #6)
- Describe sentinel events in humans, animals, and the environment for detection of hazardous exposures and prevention of long-term negative effects. (OH #4)
• Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate (MPH #3)
• Interpret results of data analysis for public health research, policy or practice (MPH #4)

**Course Materials and Notes:** Course materials, notes and required readings will be posted on D2L. Materials include: syllabus, schedule, readings, homework and in-class exercises.

**Required Textbooks:** Most of the required reading will be peer reviewed literature, but we will be completing the Tutorials from:


**Helpful other Textbooks:** These two texts are provided as the methodological background for topics we cover, you don’t need them, they’re just for reference if you want.


**Software:** Homework assignments and in-class examples will involve ArcGIS; R, ScapeToad, and STATA. You are welcome to also use other programs. There are a plethora of spatial programs/packages ([http://www.spatialanalysisonline.com/software.html](http://www.spatialanalysisonline.com/software.html)).

**You Need: ESRI’s ArcGIS**
Instructions for downloading ESRI’s ArcGIS are posted on D2L: 1 year student license codes will be provided on the first day of class.

Please download R, ScapeToad and SaTScan/CrimeStat (all free) in advance of those lectures.
R: [www.r-project.org](http://www.r-project.org)
ScapeToad: [https://scapetoad.choros.ch/](https://scapetoad.choros.ch/)

**Course Requirements:** Class participation, lead reading discussion, StoryMap, Presentation (ppt in class).

Each class will involve **active participation** by students. Please be present when you are present – if you have a deadline for a different class or a grant, go do that. Multi-tasking doesn’t work ([https://www.thoughtco.com/can-people-really-multitask-1206398](https://www.thoughtco.com/can-people-really-multitask-1206398)).

Each class session starts with 30 min for discussion. Students **lead the discussion** of readings. Papers must be posted by Monday the week before discussion. Readers must post questions/thoughts to D2L by Friday. Discussion leaders must be prepared to lead discussion for 15 minutes. Presenters will summarize the topic and provide a review of the paper (following the guidance on article critiquing).
This is a course meant to develop skills. Therefore we’ll be doing **tutorials** which must be submitted to D2L by Friday of the week it is assigned. The final portion of each class period is reserved for working on the tutorials, but students may choose to work on them on their own.

ADHS is our “client”. We are using their EPHT “Tracking” data for the course project. Our deliverables are a **StoryMap** that is of quality for them to post on their website and an **in-class presentation** which you might present at a scientific conference. The presentation must include at least 2 ‘tools’ learned in the course.

Students will learn methodological approaches to analysis of spatial data at a level of understanding sufficient to articulate when and how to apply each method. Student will develop specialized expertise in one or more methods, evidence in the final presentation.

Graduate students from a variety of backgrounds are welcome and encouraged to join the course.

**Class Attendance**: Class attendance is required. 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.

**Grading/Student Evaluation**: 15% on participation (timely posting of reading questions; participating in class; peer assessment of group participation), 20% leading reading, and assignments; 60% on the written term paper and oral presentation.

Final grades are based on the following point system:

- A = 90-100%
- B = 80-89%
- C = 70-79%
- D = 60-69%
- E = 59% or less

The instructor reserves the right to revise the course requirements, allocation of points and the grading scale.

**Class Participation (15% of grade)**
- 5% - reading discussion posted on time (1 lowest dropped)
- 5% - participating in class (1 lowest dropped)
- 5% - peer assessment of group participation

**Discussion Leaders (15% of grade)**
- 5% - peer evaluation
- 10% - instructor evaluation

**Homework/ Tutorials (20%)**
- Completed and submitted on time, (1 lowest dropped)

**Story Map (25%)**
- 5% - peer evaluation
- 10% - Instructor evaluation (professional, clear, relevant, complete)
- 10% - Client evaluation (on a scale of 1 – 10, would you post this on your website)
**Final Presentation (25%)**
- 5% - peer evaluation
- 10% - Oral presentation (professional, clear, relevant, complete)
- 10% - Presentation (slides clear, coherent, concise)

**OTHER INFORMATION**

**Email Etiquette:** Please be professional with respect to emails you send. Email is not texting. Email is a letter. It begins with a greeting and ends with a closing. Please use proper punctuation and remember to use spell check. Please include sufficient information in the email that I can respond appropriately (e.g., “can I meet with you” is not helpful to either of us). I respond to email as quickly as I can. I do not respond to emails on Tuesdays. If your email query is covered in the syllabus, you will receive an email stating “Please see syllabus.” If your email is not professional, it will be returned for you to revise. If you do not receive a reply to an email, check D2L - especially when your email is likely relevant to the whole class. This may be helpful: [http://www.101emailetiquettetips.com/](http://www.101emailetiquettetips.com/).

**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](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/2013%2D14/policies/disability.htm](http://catalog.arizona.edu/2013%2D14/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](http://deanofstudents.arizona.edu/codeofacademicintegrity)

**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.

**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](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/disruptive-behavior-instructional](http://policy.arizona.edu/disruptive-behavior-instructional) and the Policy on Threatening Behavior by Students found at: [http://deanofstudents.arizona.edu/sites/deanofstudents.arizona.edu/files/Disruptive_threat_bklt_2012.pdf](http://deanofstudents.arizona.edu/sites/deanofstudents.arizona.edu/files/Disruptive_threat_bklt_2012.pdf)

**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](http://grad.arizona.edu/academics/policies/academic-policies/grievance-policy)

**Grade Appeal Policy:** [http://catalog.arizona.edu/2013-14/policies/gradappeal.htm](http://catalog.arizona.edu/2013-14/policies/gradappeal.htm)

**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.

**Laptops and Electronic Devices (including cell phones):** Phones can be left on vibrate if needed, but no phone calls or texting are allowed during class. Laptops should only be used for course related activities. Students who misuse electronic devices will be dismissed from class.
**Article Critique and Presentation Format**

**Background Section**
- Introduce the broader topic, quickly provide key background material and shape the context for the research to be presented in section.
- Employ figures, text bullet points, a brief "chalk talk" or other approaches to make sure the class has a good foundation for the paper(s) to follow.
- Assume broad (but not nuanced) familiarity with the topic: textbook knowledge.
- Focus on moving from rudimentary understanding to appreciation of the science questions/debates and the particular question examined in the paper(s).

**Paper Review Section** - Summarize, emphasize key details. Do not reproduce the paper; lead your readers: explain what was done and why.

a. **Introduction**
   i. Discuss background rationale for study – why was the study done? **This likely requires background reading of additional papers.**
   ii. Review significance of research question
   iii. State hypotheses and/or aims

b. **Methods**
   i. General description
   ii. Explain complicated topics or things not well explained in the text
   iii. **This requires background reading of additional papers** so you understand and can summarize the methods

c. **Results**
   i. Synthesize and describe important results (often you’ll use the authors’ figures or tables)

d. **Discussion**
   i. Summarize key findings & relevance. **This also requires background reading of additional papers.**
   ii. Did the authors address their aims/hypotheses?
   iii. What are the limitations
   iv. State anticipated impact

e. **Discussion Questions**
   i. Is this work significant?
   ii. Is this work new?
   iii. Is the science well-designed and technically adequate?
   iv. Are the conclusions justified?
   v. Are there other papers out there that have reached different conclusions? Why are they different?
   vi. What would be some interesting follow-up research?
   vii. Any other relevant question(s) specific to the work

* Adapted from PNIJC Guidelines and Guidelines for Journal Club Presenters. And borrowed from A. Comrie