GIS for Public Health
GEOG 5229: Special Topics in GIS

Department of Geography, The Ohio State University
Lecture/Lab: Tuesday & Thursday 12:45-2:05pm
Location: 135 Derby

Professor:
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Required Materials:
- Cromley, Ellen K., and Sara McLafferty. *GIS and Public Health 2nd edition*. Guilford Press, 2012.

Course description:
The goal of this course is to leave students with appreciation of the power of Geographic Information Systems (GIS) to explore and analyze spatial health and medical data. The course will focus on organizing health data in a GIS, clustering detection methods, and basic spatial statistics. We will also have a brief introduction to the field of Health & Medical Geography and learn how to communicate to people in the field of public health. Lab work will provide hands on experience with example data, leaving students with a firm grasp of contemporary health and medical problems and a skill set of spatial analytical methods that can be used to solve them.

Learning Outcomes:
Given the completion of the course requirements, students will be able to:
1. Understand the scope of medical and health geography and how the discipline relates to the fields of geography, medicine, public health, and environmental health;
2. Implement a variety of common statistical and computational methods used to understand the geography of health; and
3. Produce high quality, professional maps that communicate a variety of health and medical topics.

Prerequisite:
Students must have taken GEOG5210 (Fundamentals of GIS) or GEOG 5200 (Cartography and Map Design) and GEOG5222 (GIS Algorithms) or GEOG5223 (Design and

Implementation of GIS). Basically, you should already be comfortable working with data in ArcMap before taking this class.

Analytical methods in Geography (GEOG5100 – Spatial Data Analysis) or a basic statistics course from another department is helpful, but not required. If you find any of the simple math (there's not much but there is some) presented in this course is difficult, please come see me.

Grading:
Lab Assignments (40%)
Lecture Assignments (15%)
Midterm Exam (15%)
Final Project (30%)

Labs will be graded for completeness and accuracy. There are 4-5 lab assignments. Labs are cumulative and missing a lab can have major consequences for your ability to succeed in the class. Lab assignments are due the Tuesday following lab.

Lecture assignments are low-stakes writing assignments that will be handed out in class. Some of these will be handed in after their completion in class, while others are to be handed in at the beginning of the next class. Generally, these assignments will consist of a short 250-500 word discussion write-up of one of the case studies covered in class.

Midterm exam will be taken in class and will consist of the concepts we've learned in class.

Final Project is a major component of your overall grade. The final project is a group project that consists of 10 phases. A full description of the phases and deadlines is posted on Carmen.

I will use the scale below to calculate final grades. I adhere to strict percentage guidelines for final grades; I do not round up. The only exception is if you are within 0.3% of a higher letter grade, I will round up **if** you have turned in all the lecture assignments.

Percent	Letter Grade
94-100	A
90-93.9	A-
87-89.9	B+
83-86.9	B
80-82.9	B-
77-79.9	C+
73-76.9	C
70-72.9	C-
67-69.9	D+
69-66.9	D
< 60	F

Lecture and Lab Organization:
This course will have lecture every Tuesday at 2:45, and about a third the weeks will have a lab on Thursday. There are 3-4 weeks during the semester where we will have two lecture periods. During the lecture I will present information on a variety of GIS and health geography topics, as well as discuss the assigned readings and relevant current health events.

Reading Schedule:
I expect all reading to be completed prior to class on Tuesday. This includes chapters from *GIS and Public Health* and any additional articles or case studies that I assign.

Absences, Late Assignments and Make-ups:
Every day an assignment is late, it will be docked 5% per day. Up to a maximum of 50%. So, even if you get to the end of the semester and haven't turned something it, it's still worth it because you can get 50% credit. Make up tests or exams will not be given, unless a student produces legitimate documentation which excuses their absence.

Legitimate excused absences include: participation in a scheduled activity of an official University organization, verifiable confining illness, verifiable family emergencies, subpoenas, jury duty, and military service. If you miss a lab, assignment or midterm for any of these reasons, you must provide me with verifiable documentation (a note from your University organization, a doctor's note, etc.). The documentation must include a name and a telephone number for someone who can explain your absence.

In addition to providing official documentation, I will require that you also fill out the University's official absence excuse form at www.shc.osu.edu/posts/documents/absence-excuse-form2.pdf.

Academic integrity and plagiarism
Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research and other educational and scholarly activities. The Ohio State University and the Committee on Academic Misconduct (COAM) expects that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and in this syllabus may constitute "Academic Misconduct."

The Ohio State University's Code of Student Conduct (Section 3335-23-04) (http://oaa.osu.edu/coam.html) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism (see below), collusion (unauthorized collaboration), copying the work of another student and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an "excuse" for academic misconduct, so I

recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

As defined by University Rule 3335-31-02, plagiarism is the representation of another's works or ideas as one's own; it includes the unacknowledged word for word use and/or paraphrasing of another person's work, and/or the inappropriate unacknowledged use of another person's ideas. Plagiarism is one of the most serious offenses that can be committed in an academic community; as such, it is the obligation of this department and its instructors to report all cases of suspected plagiarism to the Committee on Academic Misconduct. After the report is filed, a hearing takes place and if the student is found guilty, the possible punishment ranges from failing the class to suspension or expulsion from the university.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the COAM. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal. If you have any questions about this policy or what constitutes academic misconduct in this course, please contact me.

Disability Accommodations
The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. You are also welcome to register with Student Life Disability Services to establish reasonable accommodations. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. **SLDS contact information:** slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Outline of Course (adjustments may be made to ensure all material is covered):

Week	Class Dates	Lecture Topic/Readings	Readings	Thursday Session	Assignments
1	8/23 & 8/25	Overview of Course Intro to Health & Medical Geography	GIS&PH: Introduction Emch, Root & Carrel, 2016		
2	8/30 & 9/1	GIS and Spatial Data	GIS&PH: Chapter 1 & 2 Cohen et al, 1999		
3	9/6 & 9/8	Spatial Databases for Public Health GPS Technology in Health Surveys	GIS&PH: Chapter 3 Tanskanen, et al, 2012 Chuc, et al, 2003	Lab #1	
4	9/13 & 9/15	Mapping Health Information	GIS&PH: Chapter 4 Brooker et al, 2000	Lightening Talk #1	Lab #1 Due 9/13
5	9/20 & 9/22	Detecting Clusters of Health Events	GIS&PH: Chapter 5 Parker et al, 2006	Meetings	Research Topic Due 9/20
6	9/27 & 9/29	Environmental Hazards	GIS&PH: Chapter 6	Lab #2	Full Project Description Due 9/29
7	10/4 & 10/6	Disease Diffusion	GIS&PH: Chapter 7 MMRW, 2015		Lab #2 Due 10/4
8	10/11	**Midterm 10/11** **NO CLASS 10/13**		NO CLASS	
9	10/18 & 10/20	Ecology of Vectored Diseases	GIS&PH: Chapter 8 Mondini et al, 2008	Lab #3	Database Design Due 11/20
10	10/25 & 10/27	Access to Health Services I	GIS&PH: Chapter 9		Lab #3 Due 10/25

Week	Class Dates	Lecture Topic/Readings	Readings	Thursday Session	Assignments
11	11/1 & 11/3	Access to Health Services II	GIS&PH: Chapter 10 Fairbanks & Candelaria, Chapter 11	Lightening Talk #2	
12	11/8 & 11/10	Health Disparities	GIS&PH: Chapter 11	Lab #4	
13	11/15 & 11/17	GPS & GIS for Physical Activity & Obesity Studies	Miller et al, 2015 Vazquez-Prokopec et al, 2009	Meetings	Lab #4 Due 11/15 Map Visualization Due 11/17
14	11/22	Public Participation GIS and Health **NO CLASS 11/24**	GIS&PH: Chapter 12 Stewart et al, 2015	NO CLASS	
15	11/29 & 12/1	Catch up/Wrap-up Project Presentations		Presentations	
16	12/6	Project Presentations		Presentations	**Final Poster Due 12/6**