[ADVANCED STUDY DESIGN IN MEDICAL GEOGRAPHY]

[GEO 4938/6398]

[3 HOURS]

[FALL 2017]

** [CLASS LOCATION] TUR 3018

** [CLASS MEETING TIME(S)] TUES 4-7; (11:45 HRS – 14:45 HRS)

INSTRUCTOR: *Gregory E. Glass*

Office: Turlington 3139, gglass@ufl.edu, Phone: 352-294-7521

OFFICE HOURS: *Office hours: Turlington 3139 for one hour after lectures. If not possible, contact by email for mutually convenient arrangement. Emails will be answered as quickly as possible but may not generate an immediate response. If more than 48 hours pass without a response then please resend the message.*

COURSE TA OR COORDINATOR: *N/A*

**COURSE WEBSITE: *N/A*

** COURSE COMMUNICATIONS:

Communication regarding course materials can be dealt with either in class, during office hours or by email. If of general concern and asked outside the class period, questions will be answered during subsequent class times.

Communication relating to attendance, presentations and examinations should be provided as soon as possible to the instructor. The need to miss presentations and examination will be excused only under the most significant of reasons and require adequate documentation (see Attendance).

**COURSE DESCRIPTION: We examine the philosophy of problem solving in medical geography by focusing on the assumptions underlying methods and strategies to analyze the relationships between health outcomes and delivery with environmental conditions in a spatially explicit manner. Alternative methods of detection, analyses, data and study design are reviewed and the implicit and explicit limitations are examined.

**PREREQUISITE KNOWLEDGE AND SKILLS: GIS 3420C/6425C or equivalent; GEO 3452/6421 or equivalent, or consent of instructor.

PURPOSE OF COURSE: Medical Geography focuses on using spatio-temporal variation in disease risk or health outcomes to better understand the causes of disease, targeting of interventions and the success of health delivery. It merges methods and approaches from disparate fields including diagnostics and modern biology with environmental characterization in a geographic framework. This course assumes students have at least a beginning level understanding of the methodologies used with geographical approaches to gather and manipulate data. It reviews the modern approaches to data gathering and study designs in ancillary fields to provide an overview of the current state of the art. Students will review published papers that highlight the various components of modern Medical Geography and learn to identify the strengths and weaknesses of alternative approaches. The purpose is to make students conversant with why studies are designed as they are, and to be able to identify limitations of studies and the options for problem solving in medical geography.

COURSE GOALS AND/OR OBJECTIVES: *By the end of this course, students will:*

- Learn approaches to measure health outcomes for infectious and chronic diseases
- Describe measures and methods to characterize spatial/temporal scale of environment conditions
- Identify assumptions of alternative study designs of health outcome relationships with environment
- Describe the strengths and limitations of different study/analytical approaches
- Characterize methods to infer causal relationships between spatial variability in environment and health outcomes

REQUIRED TEXT: *There are no required texts for the course. Most readings will be derived from recent or key historical publications and accessed in Canvas. Background readings to provide needed information can be recommended for those believing that they lack sufficient knowledge of some specific topic and will be suggested at the student's request.*

**ADDITIONAL RESOURCES:

Medical Geography interfaces several fields of study. It is not expected students to be completely conversant in all these areas. Students sometimes prefer to have textbooks and reviews that summarize knowledge. Below are some texts that previous students have found helpful and are suggested but not required for students. Oftentimes, published review articles on specific topics may be satisfactory for the lecture. Students should be familiar with performing primary literature searches either specifically on the UF system or more generally (e.g. Google Scholar). If not, please contact the course instructor

A general text in Medical Geography such as: Meade, M, J Florin, W Gesler. 1988. Medical Geography. Guilford Press, London OR Meade, MS, M Emch 2014. Medical Geography 3rd Edition. Guilford Press for background in Medical Geography.

Study design and background biology – selected chapters in: Nelson, KE, CM Williams. 2007. Infectious Disease Epidemiology: Theory and Practice. Jones & Bartlett, Boston.

Spatial analyses: Lawson, A, A Biggeri, D Bohning, E Lesaffre, J-F Viel and R Bertonllini. 1999. Disease Mapping and Risk Assessment for Public Health. Wiley & Sons, Chichester.

** HOW THIS COURSE RELATES TO THE STUDENT LEARNING OUTCOMES IN MEDICAL GEOGRAPHY:
This course focuses on the identified skills in the Medical Geography SLO by reinforcing previous training to:

1. *define the earth's physical environment and the geographic relationship between environment and society;*
2. *train students to identify geographic techniques, skills and concepts;*
3. *develop expertise in the analysis and interpretation of data involved in problem solving and;*
4. *modeling in medical geography and global health while identifying the social and economic impacts from a spatial perspective.*

**TEACHING PHILOSOPHY: Learning in an advanced level class is primarily self-directed and self-motivated. Advanced topics are driven by learning key principles that are often assumed by experts in the field and consequently not communicated. The course attempts to go beyond the mechanics of methods to the underlying questions that are being asked by researchers in the field as a way to gain proficiency in Medical Geography. The primary goal of the instructor, therefore, is to provide strategies used to gain knowledge, and reinforce the implications derived from key principles. The remainder of the course is the student becoming comfortable with manipulating the ideas so that they can reach valid conclusions in their own work. Thus the overall purpose of the course is to give students those experiences necessary to advance in the application of medical geography.

**INSTRUCTIONAL METHODS: Background materials and basic skills for medical geography are presented in a lecture format. Typically, slides used to illustrate topics are maintained for the students to review. Important aspects of topics are illustrated by discussing relevant literature in medical geography. Students will gain experience in evaluating the methods and interpretation of results in this field by oral presentations to the class. These presentations will be evaluated by the instructor and the other students using a standardized format. There will be a midterm in-class examination that reviews the student's understanding of the basic topics and a final written and orally presented topic review of a relevant medical geography problem that will be presented to the instructor and the class.

UF POLICIES:

COURSE POLICIES:

ATTENDANCE POLICY: A class roll will be recorded at the beginning of class. If a student is late, she or he may sign the roll after class. Please arrive on time. Attendance is strongly encouraged, as classroom participation both in presentations and reviews of other students' work is part of the course grade. Failure to attend and participate necessarily reduces one's grade.

Please minimize distractions to yourself and others during class time (cell phones at least on vibrate, no ancillary conversations, quiet typing only). Emergencies do sometimes occur so, if necessary, please leave class to deal with them as quietly as possible.

Please contact the instructor by email if you know you will be absent especially if you are presenting during the class. You will be responsible to find an alternative student to present during your missing time.

NO CLASSES: Not applicable*.*

**QUIZ/EXAM POLICY: In-class exams are 'closed book' and performed individually by each student. The instructor will correct any arithmetical errors associated in grading the exams. Students should confirm the accuracy of such scores upon receiving the graded material and bring any errors to the instructor's attention as soon as is practical. Otherwise, interpreting the instructor's scoring of exam and other materials will only be reviewed at the end of the term and only to the extent that it alters the final, assigned grade for the course*.*

MAKE-UP POLICY: There are no make-up exams without written approval of the instructor. These will be limited to situations, such as prior medical excuses.

**ASSIGNMENT POLICY: Students are expected to read assignments prior to class and be prepared to discuss the methods and interpretations of the papers. This may require students to independently identify needed background readings, such as review articles of specific methods if students believe they need additional information. Students should anticipate the need for outside of class effort. The instructor will assist with suggestions as time permits.

Student leaders of papers/discussions will be responsible for outlining the rationale for the studies, the basic methodological approaches, why these approaches were chosen, the results and whether such results are warranted. IT IS STRONGLY ENCOURAGED, THOUGH NOT REQUIRED, THAT STUDENT LEADERS USE ASSIGNED OFFICE HOURS TO REVIEW QUESTIONS THEY MAY HAVE WITH THE INSTRUCTOR PRIOR TO LEADING GROUP DISCUSSION.

Mid-term exams will be short answer, in-class, closed-book analyses of various approaches and study methods used in medical geography that are reviewed in lectures and reading.

The final project will be a short (less than 10 page) design analyzing a health problem in medical geography. Alternative methods and approaches to data collection, analysis and interpretation are to be evaluated. Students will present the results of their analyses in class for evaluation. Details of the format and examples of topics will be provided during the second week of class.

**COURSE TECHNOLOGY: N/A

UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES: Students with disabilities requesting accommodations must first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Please be aware that the University Counseling Center (392-1575, http://www.counseling.ufl.edu/cwc/ Default.aspx), the Student Health Care Center (392-1161) and Student Mental Health (392-1171) can assist students as they work through personal, academic and social issues. Please take care of your health. Provide advance notice and obtain documentation for excused absences where possible.

If needed, University Police Department can be contacted at 392-1111 or Dial 9-1-1 for emergencies.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT: Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at http://www.dso.ufl.edu/students.php.

To briefly summarize, UF students are bound by The Honor Pledge; "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that violate this code and the possible sanctions.

Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor for this class.

You are encouraged to help each other with projects by discussing general aspects of the topics, but you must turn in your own work. If you have a question or need clarification please contact the instructor.

All suspected cases of honor code violations will be reported to the Dean of Students Office and actions such as lowering of the course grade, and/or other penalties may be assigned.

NETIQUETTE: COMMUNICATION COURTESY: All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chatshttp://teach.ufl.edu/docs/NetiquetteGuideforOnlineCourses.pdf

GETTING HELP:

For issues with technical difficulties for E-learning in Sakai, please contact the UF Help Desk at:

- Learning-support@ufl.edu

- (352) 392-HELP - select option 2

- https://lss.at.ufl.edu/help.shtml

** Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem.

Other resources are available at http://www.distance.ufl.edu/getting-help for:

- Counseling and Wellness resources

- Disability resources

- Resources for handling student concerns and complaints

- Library Help Desk support

Should you have any complaints with your experience in this course please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.

EVALUATIONS: Students may provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at https://evaluations.ufl.edu
Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results

GRADING POLICIES:

Assignment	Percentage of Final Grade
Class room Participation	10%
Leading Discussion/Review	20%
Mid-term Exam	30%
Final Project	40%

GRADING SCALE: A = 92 or above; A- = 90-91.9; B+ = 88-89.9; B = 82-87.9; B- = 80-81.9; C+ = 78-79.9; C = 70-77.9; C- = 68-69.9; D+ = 66-67.9; D = 60-65.9; D- = 58-59.9; E = < 58
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

COURSE SCHEDULE:

**FINAL EXAM:

For students taking GEO 6938, there is a final, in-class, presentation (approximately 30 minutes) of a project by students that is given orally to the class. These students, as well as students taking GEO 4938 will generate a 10 page or less final report that describes the background and results of the project. Examples of such projects are to design a research study that identifies why there is spatial or spatio-temporal variation in a specific infectious disease, OR, how space-time variation helps identify the mechanisms of a chronic disease such as a specific cancer. This exercise is intended to use approaches highlighted in the course to identify alternative methods to solve the specific challenge and should weigh the practicalities, advantages and disadvantages of different alternatives.

 Shortly after the mid-term the student should provide a brief commentary (< 1page) to the instructor on the chosen topic to improve the likelihood of successfully completing the project. The report will be turned in to the instructor for review. Details will be provided during the course introduction and topic reviewed by the instructor. During subsequent weeks drafts of

various portions of the report will be turned in, as assigned, with comments and reviews provided for later drafts.

Week	Topic
1	Introduction: Challenges & Potential Value of Medical Geography; Why are the Rules Different in Medical Geography
2	Measuring Health Effects: If this is the outcome, how does it come about and what do alternative measures mean?
3	Studies to Measure Effects (Alternative approaches, types of errors and things to be concerned about)
4	How do you measure the environment? Remote Sensing, Ground stations, Integrated systems, Time steps in the data and what they hide
5	How do you establish a causal relationship between outcomes and the environment? From Koch's postulates, to epidemiologic inference, to Granger causality, and Feedback Systems
6	How do you predict effects of environment on health outcomes (Types of Models) Spatial Autocorrelation and Traditional Approaches, What do Traditional Analyses Implicitly Assume?
7	Tracking and Surveillance; Nontraditional Data Streams; Mid-term review
8	Mid-term exam
9	Advances in large data; Integrating at Different Times and Spatial Scales
10	Inference/Causation
11	Final Project preparation
12	Final Project preparation

13	Final Project
14	Final Project
15	Final Project

Beginning during the third week of the course GEO 6938 students will review and lead a discussion of some current or key historical scientific literature related to Medical Geography. It is anticipated that each student will lead 2 discussions during the semester. Clarity involved in explaining the study design, strengths and weaknesses of the study will form the basis for grading this portion of the course.

Disclaimer: This syllabus represents the current plans and objectives. As the semester progresses, those plans may need to change. Such changes, will be communicated as soon as possible, are not unusual and can be expected.