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HSPM 7090A - Selected Topics in Health: Geographic Information Systems

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Georgia Southern University
Jiann-Ping Hsu College of Public Health
HSPM 7090-A Selected Topics in Health: Geographic Information Systems

Fall 2016

<u>Instructor:</u>	Jeff Jones, PhD.
<u>Office:</u>	Hendricks Hall, Room 2005
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<u>Office Hours:</u>	Tuesdays, 1:30pm-3:30pm & Thursdays, 1:30pm-3:30pm Also by appointment at other times
<u>Class Meets:</u>	Tuesdays, 5pm – 7:45pm, August 16, 2016 – December 16, 2016, in Information and Technology (IT) Building Room #1201

Course Catalog available at:

<http://students.georgiasouthern.edu/registrar/pdf/catalogs/GraduateCatalog/index.htm>
under Jiann-Ping Hsu College of Public Health Programs

Course Catalog available at:

<http://students.georgiasouthern.edu/registrar/pdf/catalogs/GraduateCatalog/index.htm>
under Jiann-Ping Hsu College of Public Health Programs

Prerequisites: N/A

FOLIO address: <http://my.georgiasouthern.edu>

Catalog Description

This course will introduce students to geographic information systems (GIS) to map and spatially analyze public health and demographic data. Students will learn the fundamentals of the ArcMap software system and ways to integrate cartography into biomedical informatics practice. Beyond use of GIS for cartography, this course will also examine ethical issues and methods of analyzing demographic and spatial health patterns using GIS and demography analysis methods. The versatility of GIS in a public health setting will be examined and will include exercises involving GIS applications in health marketing, demography, epidemiology, and health care systems. For example, we will look at how different socioeconomic groups use urban spaces differently in terms of transportation and how these differences in navigation impact contact points for health marketing. Other issues covered in the class will be the ethics of GIS, manipulation of data, sources of data, and understanding some commonly used public health datasets such as the YRBS, BRFSS, and US Census.

Required Textbook:

Provided in sections online

Additional Readings:

See syllabus & website for additional assigned articles.

Required Resource:

Microsoft Office Professional (available in computer labs)

ArcGIS (access code to be provided to students by the instructor)

MPH Core Competencies in Health Policy & Management

1. Define the main components and issues of the organization, financing and delivery of public health systems in the US.
2. Describe the legal, values and ethical dilemmas in public health that are inherent in efforts to control cost, while assuring access and quality of services for the public.
3. Define the methods of ensuring community health safety and preparedness.
4. Compare the policy development, assessment, and evaluation process for improving the health status of populations.
5. Describe the principles of program development, management, budget preparation with justification and evaluation as related for public health initiatives.
6. Define principles of strategic planning and marketing to public health.
7. Define quality, cost benefit and performance improvement concepts to address organizational performance issues in public health.
8. Define how “systems thinking” can contribute to solving public health organizational problems.
9. Demonstrate health policy and management effectiveness using appropriate channels and technologies.
10. Compare leadership skills for building partnerships in public health.
11. Define trends in planning, resources allocation, and financing and their effects on consumers, providers, and payers in public health.
12. Compare the economic, professional, social and legislative influences on public health systems in the US.
13. Define population and individual ethical considerations in relation to benefit, cost and burden of public health programs.
14. Compare the potential impacts of policy and management on the conduct of public health research and practice.

Course Learning Objectives

1. Students will also learn how to access, use, and understand the collection methodologies behind commonly used demographic and health datasets.
2. The students will learn how to employ the fundamental functions of the ArcGIS software a) to embed and analyze data spatially, b) to transform and manipulate existing basemaps to create new and more specialized basemaps, c) to analyze spatial data within ArcGIS, and d) to produce finished products adhering to professional cartographic and ethical standards.
3. Students will learn how to combine their GIS technical skills and their knowledge of health datasets to explore and analyze the spatial aspects of health care.
4. Describe spatial aspects to health behaviors, health marketing, and medical care.
5. Create maps using existing basemaps.

6. Create new basemaps using existing basemaps.
7. Describe key ethical concerns to mapping health care data.
8. Access and describe key public health data sets.
9. Use the fundamentals of the ArcGIS software to create maps.
10. Analyze spatial data correctly.
11. Design finished layouts meeting cartographic design standards.
12. Produce location and thematic maps.

**Overview of the content to be covered the semester:
All assignments are due at 5pm Eastern on the due date.**

Week/Date	Topics	Exercises	Assignment Due
1 Aug 16	Spatiality: The Geography in GIS, Basic GIS terminology	Ex. 1, Cognitive Mapping	Aug 23
2 Aug 23	Basic toolbars, Shapefiles	Ex. 2, Health Maps	Aug 30
3 Aug 30	Mapping existing data, The US Census and ACS	Ex. 3, Choropleth Mapping	Sept 6
4 Sept 6	Lab, no formal lecture		
5 Sept 13	Breaking data, demography tools	Ex. 4, Demographic Profiles	Sept 20
6 Sept 20	Creating new shapefiles, BRFSS	Ex. 5, Mapping Health Districts	Sept 27
7 Sept 27	Creating layering effects, YRBS	Ex. 6, Layering	Oct 4
8 Oct 4	Exam 1	Exam 1 is on Oct. 4	
9 Oct 11	Mapping rural/urban	Ex. 7, Beale Codes 1	Oct 18
10 Oct 18	Cartographic standards and layout design, NACCHO, NALBOH and ASTHO Profiles	Ex. 8, Map Layout	Oct 25
11 Oct 25	GIS and ethics; Moving and manipulating features,	Ex. 9, Moving and Resizing Maps	Nov 1
12 Nov 1	No lecture, APHA Annual Meeting		
13 Nov 8	Adding new data 1: Calculating new fields and manually entering data	Ex. 10, Showing New Data	Nov 15
14 Nov 15	Working with point and line data	Ex. 11, Buffering	Nov 29
15 Nov 22	Thanksgiving Holiday: no class		
16 Nov 29	Taking GIS Inside: Asset management and planning	Ex. 12, Essay on GIS integration	Dec 6
17 Dec 6	Final held at 5pm in our usual room		

Instructional Methods:

Class is taught online.

Course Assignments:

Exercises (60%): This is a very “hands-on” course where will you complete assignments working with GIS and its concepts. These assignments are to be submitted online via Folio.

Examinations (28%): There are two online, open book, timed exams. Exams will consist of multiple choice, matching, and short answer questions.

Discussions (12%): You will be expected to actively participate in online weekly discussions.

Grading:

Basis	Percentage of grade
12 exercises (5% each)	60%
2 examinations (20% each)	40%

Points	Grade
90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
0 - 59	F

Expectations:

All assignments must be delivered to the instructor on the specified due date and time. Late assignments will not be accepted. Extensions will not be offered. Missed quizzes and exams may not be made up. Extenuating circumstances will be considered on a case-by-case basis

Class Attendance and Participation Policy

Federal regulations require attendance be verified prior to distribution of financial aid allotments. Regular attendance is expected. However, attendance will not be officially recorded after the first class period.

Attendance at all scheduled classes and online chat sessions is required by Health Policy and Management policy. Unexcused absences will incur deduction of one letter grade per day late for any assignments. To request an excused absence, please contact Dr. Jones via email and arrange to make up any missed work. Requests are preferably made two weeks in advance, but Dr. Jones understands that certain emergencies do not allow for such advanced arrangements.

Plagiarism:

"According to the Academic Dishonesty Policy of GSU, Plagiarism includes (but is not limited to):

- A. Directly quoting the words of others without using quotation marks or indented format to identify them.
- B. Using published or unpublished sources of information without identifying them.
- C. Paraphrasing material or ideas without identifying the source.
- D. Unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic material.

If you are accused of plagiarism by a JPHCOPH, the following policy, as per the Judicial Affairs website (<http://students.georgiasouthern.edu/judicial/faculty.htm>) will be enforced:

PROCEDURES FOR ADJUDICATING ACADEMIC DISHONESTY CASES

First Offense - In Violation Plea

1.If the professor and the Dean of Students agree that the evidence is sufficient to warrant a charge of academic dishonesty, the professor should contact the Office of Judicial Affairs to determine if this is a first violation of academic dishonesty. The incident will be reported via the following website: <http://students.georgiasouthern.edu/judicial/faculty.htm>

2. If it is a first violation, the professor should talk with the student about the violation.

If the student accepts responsibility in writing and the professor decides to adjudicate the case, the following procedures will be followed:

- a.The student will be placed on disciplinary probation for a minimum of one semester by the Office of Judicial Affairs.
- b.The student will be subject to any academic sanctions imposed by the professor (from receiving a 0 on the assignment to receiving a failing grade in the class).
- c. A copy of all the material involved in the case (Academic Dishonesty Report Form and the Request For Instructor to Adjudicate Form) and a brief statement from the professor concerning the facts of the case and the course syllabus should be mailed to the Office of Judicial Affairs for inclusion in the student’s discipline record.

First Offense - Not In Violation Plea (student does not admit the violation)

If the professor and the Dean of Students agree that the evidence is sufficient to warrant a charge of academic dishonesty, the professor should contact the Office of Judicial Affairs to determine if this is the first or second violation of academic dishonesty. The student will be charged with academic dishonesty and the University Judicial Board or a

University Hearing Officer would hear the case. If the student is found responsible, the following penalty will normally be imposed:

- a. The student will be placed on Disciplinary Probation for a minimum of one semester by the Office of Judicial Affairs.
- b. The student will be subject to any academic sanctions imposed by the professor.

Second Violation of Academic Dishonesty

If the professor and the Dean of Students agree that the evidence is sufficient to warrant a charge of academic dishonesty, and if it is determined this is the second violation, the student will be charged with academic dishonesty and the University Judicial Board or a University Hearing Officer would hear the case.

If the student is found responsible, the following penalty will normally be imposed:

- a. Suspension for a minimum of one semester or expulsion.
- b. The student will be subject to any academic sanctions imposed by the professor.

NOT RESPONSIBLE FINDING

When a student is found not responsible of academic dishonesty, the work in question (assignment, paper, test, etc.) would be forwarded to the Department Chair. It is the responsibility of the

Department Chair to ensure that the work is evaluated by a faculty member other than the individual who brought the charge and, if necessary, submit a final grade to the Registrar. For the protection of the faculty member and the student, the work in question should not be referred back to the faculty member who charged the student with academic dishonesty.

In the case of a Department Chair bringing charges against a student, an administrator at the Dean's level will ensure that the student's work is evaluated in an appropriate manner.

CONFIDENTIALITY

In accordance with provisions of the Family Educational Rights and Privacy Act of 1974 and the Georgia Open Records Act, any information related to a violation of academic dishonesty or the outcome of a judicial hearing regarding academic dishonesty, is prohibited and must be treated as confidential by members of the faculty."

University Calendar for the Semester

The University Calendar is located with the semester schedule and can be found at:

<http://em.georgiasouthern.edu/registrar>