Geographic Information Systems for Public Policy, Planning & Development
Spring 2019
PPD 631 – 2 units

Location
Main Campus
Room TBD

Dates (all Fridays)	**Time**
January 11	8:30 am to 5:00 pm
February 1	8:30 am to noon
March 1	8:30 am to noon
April 5	8:30 am to 5:00pm

In addition, there will be a session tentatively scheduled to review projects and provide input from the instructors. This review session is offered as a service to help in completing the final project. Students can expect to spend at least one hour at this informal workshop.

Each week, there will be on-line presentations or discussions available. Topics can be viewed again after the date specified. Class meeting weeks in **bold**. Tentative schedule:

Available week of	Topic (online except class meetings/lab)	Assignment
January 7	Class meeting **January 11**	Install software for class meeting & watch course intro video **(important!)**
January 14	Past projects video	Complete chapters 1 & 2
January 21	Chapter 3 video	Complete chapter 3
January 28	Chapter 4/5 video Class meeting **February 1**	Complete chapters 4 & 5 & submit project ideas
February 4	Chapter 6/9 video	Complete chapters 6 & 9
February 11	Chapter 7/8 video	Complete chapters 7 & 8
February 18	Chapter 10/11 video	Complete chapters 10 & 11
February 25	Class meeting **March 1**	Project outline due
March 4	Chapter 12/13 video	Complete chapters 12 & 13
March 11	SPRING BREAK	
March 18	Chapter 14 video	Complete Chapter 14
March 25	Chapter 15/16 video	Have project data & Complete chapters 15 & 16
April 1	Chapter 17/18 video Class meeting **April 5**	Complete chapters 17 & 18
April 8	Chapter 19/20 video	Complete chapters 19 & 20 Project maps due April 12
April 15	Practitioner video Lab session April 19	Work on project
April 22	Project	Project due April 22
TBD		Final exam (on-line assignment)

Assignments are due prior to the start of the next week. For tutorial assignments, students should begin each lesson after viewing the presentation.

Faculty: **Bonnie Shrewsbury**
Telephone: 310 802-5360   e-mail: bonshrews@gmail.com

Office hours
By appointment at Lewis Hall or at instructor's office off campus. I am happy to have calls or e-mails from students as needed.

Class Web site
Many of the readings as well as data files will be posted on-line on the instructor's web site. The URL is www.barrywaite.org/gis.htm. This site contains data files, links to data sources, additional information on class requirements and copies of the presentations used in class. Materials are generally not posted to Blackboard since it is not possible to maintain files between semesters on that system. Please use the course web site above. This course does not use Blackboard.

Course Description

The vast majority of information we work with includes a place, be it an address, street, path, GPS coordinate, region, or a neighborhood. Geographic information systems (**GIS**) give us a way to use that information for planning, organization, response and decision making.

Geographic information systems have become a vital tool for public administrators. This technology is used in almost every facet and level of government. At the national level, it is used extensively by the Census Bureau, Department of the Interior, Department of Homeland Security, Department of Defense, Environmental Protection Agency, and to a varying extent by every federal agency. Every state uses GIS. Most counties and cities use GIS, with applications from urban planning and infrastructure maintenance to economic development and 911 dispatch. What is lacking is a sufficient number of managers who know how to fully utilize the technology to meet the day to day needs of government.

This course intends to introduce students to geographic information systems and their use in the public sector. The course features practitioners in various agencies discussing their use of GIS, demonstrations of the technology and **hands-on** use of the software for creating, displaying, manipulating, and analyzing spatial and tabular data. Lab sessions use ArcGIS Desktop version 10.x from Esri. While students will learn a good basic understanding of GIS software, the primary focus of the course is on **applying the technology** as a tool in public administration and planning, particularly in local government. Although students will not be GIS experts by the end of the course, they will have gained immediately applicable skills and knowledge that will be important to them and the public they serve. The course will also touch on other uses of GIS in business to give students additional ideas on applying this vital technology in their own work.

Organization of the course is as follows:

Introduction and Concepts of GIS

Understanding the basics of GIS and spatial data

ArcGIS Lab Topics

- ArcMap Basics – zoom, pan, select, identify, bookmarks, labels
- Map Design – different map types, layer groups, scales, hyperlinks
- GIS Outputs – templates, layouts, reports, graphs, and exports
- Geodatabases – create, modify and use a geodatabase
- Spatial data – metadata, projections, data formats, tabular and image (raster) data
- Digitizing – create new point, line, and polygon features
- Geocoding – locate addresses
- Geoprocessing – extract features, clip, dissolve, append, ModelBuilder
- Spatial Analysis – proximity and site suitability

GIS Applications

SPEAKERS:
This course will use several practitioners as guest speakers to explain their use of GIS technology in the public sector. Presentations will be in class or online.

Preparation

Please complete any assignments for each module **prior** to the start of class times as assigned. The intensive class format is a seminar with extensive class discussions. Be prepared to engage the speakers to better understand how geospatial technology is impacting the practice of public administration. They are very open to discussing their work and their ideas. Many students have had speakers help them with data or ideas for their projects in the past.

While there are no readings prior to the first course meeting, **the course software must be installed and ready to use at the first course meeting** as explained on page one. Additional handouts and case studies will be provided during the class. As with any graduate class, in responding to the needs, discussion, questions and emergent priorities of the class, the curriculum pace may be modified. Students with experience using GIS may be given more advanced lab assignments if desired and time permits.

Learning Objectives
1) Understand the basic concepts of geographic information systems.
2) Be able to gather data, analyze and present it using GIS.
3) Understand many applications of geospatial technology in the public sector.

Given the breadth and depth of the subject matter, this course will <u>not</u> cover GIS completely or make students proficient GIS users, but it will set them on the path to do so if they wish.

Course Requirements
1) Class **participation**. Discussions with practitioners about their use of GIS are the core of the course. Students will be expected to participate in these discussions.

2) **Lab** completion consists of exercises to be completed in class and at home. Assume one hour of home lab time assigned per class meeting to be completed prior to the next class meeting. The instructors will require some of these to be emailed in.
3) **Other lessons** to be completed outside of class.
4) **Project**: Each student will develop a project using GIS for a real-world issue. The project will include problem definition, gathering data, analysis of the data, and maps or other output. In addition, there will be a written analysis describing the process, challenges and outcome. This will be discussed at the first meeting of the class. The instructors will provide assistance to the extent time allows. GIS is a cooperative field, so students are encouraged to help each other and learn from each other. If time permits, the instructors will schedule an additional lab session for any students wanting hands on assistance with their projects. Details are on the course web site. **Note**: it is a requirement of this course that all projects be of "A" grade quality. Instructors will work closely with each student to ensure this happens. Almost all students successfully meet this requirement every semester, and so will you!
5) The final examination is an individual **reflections paper** of at least four pages describing the use of GIS technology in public administration, what the student has learned in the class and suggestions for improving the course for future students.

Performance Evaluation

Participation in discussions and with guest lecturers	10%
Completion of labs	25%
Project demonstrating an understanding of the course	55%
Reflections paper (Final exam)	10%

Policy Regarding Disability Services and Programs

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the semester as possible. DSP is located in STU 301 and is open early 8:30 a.m. – 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Academic Conduct

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems

Student Health Counseling Services - (213) 740-7711 – 24/7 on call
engemannshc.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call engemannshc.usc.edu/rsvp

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086 equity.usc.edu, titleix.usc.edu

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support - (213) 740-2421 studentaffairs.usc.edu/bias-assessment-response-support

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

The Office of Disability Services and Programs - (213) 740-0776 dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710 studentaffairs.usc.edu/ssa

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101 diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call dps.usc.edu

Faculty Biography

Bonnie Shrewsbury, MA, is the GIS Manager for the City of Manhattan Beach. She has over 20 years of experience in the field of GIS and in municipal government, including having served as chair of the South Bay Cities GIS Working Group. Her background includes many years of database design and administration, research implementation, statistical analysis, and project management. Her light-duty worker program earned the city a Helen Putnam award from the League of California Cities. She has extensive experience teaching the use of ArcGIS software and previously taught in the Cal State Long Beach GIS certificate program.

The instructor has taught this course at USC since 2007.

Required Readings

ARTICLES [PROVIDED BY THE INSTRUCTOR OR DOWNLOADED FROM THE CLASS WEB SITE AT www.barrywaite.org/gis.htm]:

TEXTBOOK:

The GIS 20 Essential Skills, 3rd edition
ISBN: 978-1-58948-512-9
This is a reference that can also be used outside of class. It includes a limited-term version of the software! **You can get version 10.6 of the software from the USC Spatial Sciences Institute.**