

SSCI 483, Spatial Sciences Practicum

Units: 4

Term—Day—Time: Spring, 2016, Tuesday, 2:00-5:50 p.m.

Location: Spatial Sciences Institute, AHF 145D

Instructor: Darren Ruddell, Ph.D.

Office: AHF B57F

Office Hours: Tuesdays, 11:30 a.m. – 12:30 p.m. and
Wednesdays, 9 – 10 a.m.

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Hours of Service: Mondays to Fridays, 9:00 a.m.-5:00 p.m.

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Course Description

The spatial sciences, which focus on the various ways in which geography can be used to acquire, represent, organize, analyze, model and visualize information, have emerged as one of the most important and fastest growing fields in the academy during the past decade. Spatial thinking and the accompanying technologies (GIS, GPS, remote sensing, etc.) are now routinely deployed by scholars across a range of disciplines to study physical and social phenomena as disparate as natural disasters, groundwater flows, health epidemics, migration patterns, and urban poverty. This particular course is a required course for the B.S. in GeoDesign and serves as the capstone for the Spatial Studies Minor and aims to provide students from a variety of backgrounds (i.e. anthropology, architecture, geography, geology, international relations, planning, political science, and sociology) the opportunity to learn how to deploy the aforementioned geospatial technologies to tackle a problem of their choice.

Learning Objectives

Students who excel in SSCI 483 will be able to:

- Demonstrate the ability to design and execute a series of geographic data acquisition, analysis, and mapping tasks to address one or more real-world challenges.
- Demonstrate advanced facility with one or more of the core geospatial technologies (GIS, GPS, remote sensing, etc.)
- Demonstrate an ability to work in teams and to apply geospatial technology and spatial reasoning skills to an independent project of their choice.

Prerequisite(s): SSCI 382

Co-Requisite (s): None

Concurrent Enrollment: None

Recommended Preparation: Student enrolled in the GeoDesign major or Spatial Studies minor

Course Notes

This course serves as a capstone class for students studying spatial studies at USC where students work in one or more small groups on a large geospatial project of their choice throughout the entire semester. Students are taught a variety of skills to do with project management, geospatial data handling, presentation, research and writing, and complete a series of assignments that are designed to evaluate their proficiency with the use of these various skills to build a series of geospatial project deliverables.

Technological Proficiency and Hardware/Software Required

The modeling software and geospatial data required for course assignments will be accessed using computing resources provided by the Spatial Sciences Institute.

Required Readings

Keeney, R. L. 1992. *Value-Focused Thinking: A Path to Creative Decisionmaking*. Cambridge, MA, Harvard University Press.

Description and Assessment of Assignments

Your grade in this class will be determined on the basis of several different assessments:

Class Participation (10%): A class participation grade for the semester will be assigned based upon how actively students engage in the course. Students will be required to lead and participate in class activities.

Failure to attend, or not be adequately prepared to participate in class, will lead to the assignment of a lower grade for a given week.

Scope of Work, Initial Draft (Group) (10%): The Scope of Work, Initial Draft (Group) assignment is your first articulation of your group research project. In roughly one to two pages, this statement of research interest should discuss the topic of investigation, its importance to human and/or ecological systems, the spatial scale of interest, and any current findings or research on this subject matter.

Gantt Chart (Group) (10%): Construct a Gantt chart outlining a schedule to complete your research project. A well-constructed and thoughtful submission will include timelines and relationships between activities for the various components of your research project.

Scope of Work, Revised Draft (Group) (10%): Prepare a revised Scope of Work that incorporates the various comments and suggestions offered by your instructor and classmates. In no more than two pages, discuss the items outlined in the initial scope of work, and make sure to include a data report that identifies at least three specific datasets that will be utilized in the research project.

Poster (Group) (15%): The poster assignment is to complete a large-format scientific poster (48 by 60 inch maximum dimensions) that describes your project goals, data and analytical methods, results, and conclusions.

Final Presentation (20%): Students will prepare and deliver a group oral presentation in powerpoint format that articulates the topic of investigation, the methods and geospatial data used, what worked and what did not work, the results that were generated, and what was learned while completing the research project. Each member of the group must take part of the presentation and the entire presentation can take no longer than 20 minutes. An additional 10 minutes will be provided for the group members to answer questions from the audience and the overall grade awarded for this assignment will be based on the quality of their presentations and their answers to questions from the audience.

Final Project Report (25%): The final project report is the capstone assignment for this course, and it covers much of the same material as the posters and presentations but using a different format. The timing is such that the students will be able to use the feedback received from the two prior assignments to help shape the project aims, methods and data sources, results, discussion and conclusions. These reports are limited to 12 pages (with 12 point font, 1 inch margins, single-spacing for text) and will include one or more maps, tables, and other diagrams as well as a list of references.

Grading Breakdown

Assignment	Number	% of Grade
Class Participation	15	10
Scope of Work, Initial Draft (Group)	1	10
Gantt Chart (Group)	1	10
Scope of Work, Revised Draft (Group)	1	10
Poster (Group)	1	15
Final Presentation (Group)	1	20
Final Project Report (Group)	1	25
TOTAL	21	100

Assignment Submission Policy

Assignments will be submitted for grading via Blackboard using the due dates specified in the Course Schedule below.

Additional Policies

Students are expected to attend and participate in every class session and to complete and upload all assignments before the deadlines detailed in the Course Schedule. Late work will be assessed a penalty of 10% per day and zero grades will be assigned for work that is more than seven days late.

Course Schedule: A Weekly Breakdown

	Topics/Daily Activities	Readings and Homework	Deliverables/Due Dates
Week 1 1/12	Introduction to Class Brief introductions coupled with a discussion of class goals, projects, technology, and assignments.	Reading: Keeney Part 1 (pages 1-52) Assigned: Scope of Work, Initial Draft (Group)	No deliverables.
Week 2 1/19	Project Management; Topic Choice and Group Assignments A discussion of the various aspects of organizing, managing, and executing a research project. Students will finalize research topics and group assignments.	Assigned: Gantt Chart (Group)	Submit Scope of Work, Initial Draft (Group) on Blackboard no later than 2:00 p.m. on Tuesday, 1/19.
Week 3 1/26	Engaging Professionals Attend the Esri Geodesign Summit in Redlands, CA.		No deliverables.
Week 4 2/2	Software Architecture and Group Briefings A discussion of the software systems and architecture to utilize in group research projects. Students deliver briefings on their topic of investigation.	Reading: Keeney Part 2 (pages 55-154) Assigned: Scope of Work, Revised Draft (Group)	Submit Gantt Chart (Group) on Blackboard no later than 2:00 p.m. on Tuesday, 2/2.
Week 5 2/9	Decision Support Systems and Group Work Session A discussion on the role and utility of decision support systems. Students work in groups to advance efforts on their selected research project.		No deliverables.

Week 6 2/16	Fundamental Geographical Concepts and Review Statements of Work A discussion on geographical concepts and the value of spatial literacy. Review statements of work articulating group research projects	Reading: Keeney Part 3 (pages 157-285)	Submit Scope of Work, Revised Draft (Group) on Blackboard no later than 2:00 p.m. on Tuesday, 2/16.
Week 7 2/23	The Rapid Evolution of the Esri ArcGIS Ecosystem A discussion on the role of ArcGIS Desktop, ArcGIS Online, and ArcGIS Professional nowadays and moving forward. Students provide update on their group projects.		No deliverables.
Week 8 3/1	Poster Design and Planning A discussion of expectations and requirements for the group poster. Students work in groups to outline a design and plan for their posters.	Reading: Keeney Part 4 (pages 289-400) Assigned: Poster (Group)	No deliverables.
Week 9 3/8	Group Work Session Students work in groups to advance efforts on their selected research project.		No deliverables.
Week 10 3/22	Group Work Session Students work in groups to advance efforts on their selected research project.		No deliverables.
Week 11 3/29	Group Work Session Students work in groups to advance efforts on their selected research project.	Assigned: Final Presentation (Group)	Groups print, display, and present their posters to the class. Submit Poster (Group) on Blackboard no later than 2:00 p.m. on Tuesday, 3/29.
Week 12 4/5	Poster Review and Display	Assigned: Final Project Report (Group)	

	Display and discuss posters on group research projects.		
Week 13 4/12	Group Work Session Students work in groups to advance efforts on their selected research project.		No deliverables.
Week 14 4/19	Earth Day Event Students lead an Earth Day event to bring awareness to spatial aspects of environmental conservation.		Submit Final Presentation (Group) on Blackboard no later than 2:00 p.m. on Tuesday, 4/19.
Week 15 4/26	Final Presentations Students will present their group projects, summarizing the topic of investigation, study area, data and methods utilized, findings, and conclusions.		Groups present their projects and answer questions from the class.
FINAL 5/3	Final Project Report Students submit their final project report.		Submit Final Project Report (Group) on Blackboard no later than 2:00 p.m. on Tuesday, 5/3.

Statement on Academic Conduct and Support Systems

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 Section 11, *Behavior Violating University Standards* <http://studentaffairs.usc.edu/scampus/>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage <http://sarc.usc.edu> describes reporting options and other resources.

Support Systems

A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary

language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.