

SSCI 585, Geospatial Technology Project Management

Syllabus

Units: 4

Term — Day — Time: Summer, 2019, Online

Location: Online

Instructor: Dr. John P. Wilson

Office: AHF B55F

Office Hours: Tuesdays, 9-10 a.m. and Thursdays, 4-5 p.m. PT, and by appointment at other times. I am always available asynchronously via email. I am also available for synchronous chats via BlueJeans, audio or video most days and times *by prior arrangement* via email. Just get in touch!

Contact Info: jpwilson@usc.edu, 213-740-1908 (office),
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Course Description

This course provides a practitioner's perspective of the principles and protocols that drive successful geospatial technology project management. Although many people believe GIS project management is about software design and development, computer hardware and geospatial data, experienced GIS project managers understand that there is much more to it. The course takes a systematic approach to explore the management issues and methods necessary for developing a successful geospatial technology office or project.

By both necessity and design, this course serves an audience with diverse interests and backgrounds, ranging from those starting their career to seasoned professionals. It is a required course for the M.S. in Human Security and Geospatial Intelligence and an elective class for the M.S. in Geographic Information Science & Technology (GIST) and the Geospatial Intelligence, Geospatial Leadership and GIST Graduate Certificate programs. To address the interests of this diverse range of students, the instructional materials in this course focus on common principles and tools of geospatial technology project management while also allowing great flexibility in selection of exercises and choice of topic for research reports. That said, this course will cover four groups of topics:

Geospatial Project Management Principles – We start by focusing on building support for geospatial technology projects by examining critical topics associated with geospatial project management, including the typical project life cycle, program planning and development, popular organizational structures, financial management, human resources, the technical and operational environment, and communications.

Running a Geospatial Technology Project – Here, we examine the fundamentals involved in completing a successful project on time and on budget, by examining a variety of topics associated with funding, financial management, monitoring and reporting, risk management, multi-organizational agreements (collaborations), and the various approaches needed to manage the technical design (system configuration, data, applications) and the development and maintenance of these technical components.

Human Resources – Next, we consider the various roles played by people in geospatial technology projects, covering topics associated with project leadership, team building and capacity building, among others. We will also examine the opportunities for geospatial technology certification and some of the legal and ethical considerations that may influence geospatial technology projects and their outputs (i.e. deliverables).

Current and Emerging Trends – Throughout the semester, we consider some of the current and emerging trends that may modify the ways in which geospatial technology projects may be conceptualized and implemented in the coming years. Potential topics include the consequences of choosing open source vs. proprietary software solutions and the contributions of geospatial standards, spatial data infrastructures, web-based geo-processing service architectures, and volunteered geographic information to current and future geospatial project workflows.

This a graduate level course, so you should expect this course to be both academically robust and intellectually challenging. As graduate students, you are expected to engage with the information you are learning and to explore the heady cauldron of ideas, opinion, and analysis that describe our collective effort to thoroughly interrogate the subject at hand. Learning arises from active engagement with the knowledge found in our reading materials and with one another. As in any graduate-level class, the instructor's role is that of a guide who keeps you on this path of discovery, and you will find that you will learn much from your fellow classmates. The challenge for us is to replicate such an academic experience within the milieu of "online learning".

All course materials will be organized through Blackboard. The main theoretical concepts will be provided through class notes and assigned readings, and the assignments will give students an opportunity to internalize and apply the concepts and theory learned from readings. Some assignments require student interaction, all will benefit from it.

Learning Objectives

When you have completed this class, you will be able to:

- Identify and critically analyze the issues involved in organizing, planning, monitoring and controlling a geospatial technology project.
- Initiate a small-scale geospatial technology project by developing project plans and financial budgets, assembling project costs and benefits, developing investment appraisal methods and using authorization, monitoring and control processes.
- Discuss the role, significance and impact of people in a project management setting, and evaluate and implement strategies for managing people in geospatial technology projects.
- Review current geospatial technology project management methodologies and appraise their effectiveness and efficacy for managing different types of geospatial projects.

Prerequisite(s): None

Co-Requisite (s): None

Concurrent Enrollment: None

Recommended Preparation: SSCI 581: Concepts for Spatial Thinking

Technological Proficiency and Hardware/Software Required

We have several technologies that will facilitate our course work and our interactions, despite our dispersed locations. These include the following five elements.

Blackboard – All course materials and correspondence will be posted on the course Blackboard site. As a registered student, you will find this class will show up in your available classes no later than 12:00 noon, PT on the first day of the semester.

Discussion boards – On the Blackboard site, we will post a number of discussion forums and threads related to various course topics. I may or may not participate in these threads, but they are vitally important for organizing asynchronous conversations and opportunities for learning from one another.

Live meetings and presentations – We will use a browser-based service called BlueJeans to create synchronous interaction sessions. With voice and webcam capabilities, BlueJeans can be used to share presentations and even our desktops between two or more people.

Individual meetings – I find it easier to use either BlueJeans or the phone for individual meetings.

SSI server and tech support – This course utilizes the SSI Server, which is a virtual desktop giving access to many different professional software applications. If you are unable to connect to the server or experience any type of technical issues, send an email to SSI Tech Support at spatial_support@usc.edu and make sure to copy (cc) me on the email. You will need: (1) a computer with a fast Internet connection; (2) a functional webcam and microphone for use whenever a presentation or meeting is scheduled; and (3) a modern web browser.

Required Readings and Supplementary Materials

There are three books required for this class. The most important of the three books by Croswell needs to be purchased from either the USC Bookstore or an online outlet such as Amazon. The other two books are optional since we will only use selected chapters and we will provide these chapters online. We will need the Croswell book from the first day of class.

- Croswell, P.L. 2011. *The GIS Management Handbook: Concepts, practices, and tools for planning, implementing, and managing geographic information system projects and programs*. Des Plaines, IL, Kessey Dewitt Publications in association with URISA.
- Obermeyer, N.J. and Pinto, J.K. 2008. *Managing Geographic Information Systems* (Second Edition). New York, NY, Gilford Press.
- Tomlinson, R. 2013. *Thinking about GIS: Geographic Information System Planning for Managers* (Fifth Edition). Redlands, CA, Esri Press.

These books will be supplemented with class notes and a mixture of readings from academic journals, professional reports, and authoritative websites. The following book chapters and journal articles will be posted to Blackboard under Course Documents:

- Ramasubramanian, L. 1999. GIS implementation in developing countries: Learning from organizational theory and reflective practice. *Transactions in GIS*, 3, 359-369.
- Hong, J.E. 2016. Identifying skill requirements for GIS positions: A content analysis of job advertisements. *Journal of Geography*, 115, 147-158.

- Tulloch, D.L., and Epstein, E. 2002. Benefits of community MPLIS: Effectiveness and equity. *Transactions in GIS*, 6, 195-212.
- Hodza, P. 2014. Appreciative GIS and strength-based community change. *Transactions in GIS*, 18, 270-285.
- Goodspeed, R. 2011. From public records to open government: Access to Massachusetts municipal geographic data. *URISA Journal*, 23, 21-32.
- Joffe, B. 2015. A personal account of guidelines for estimating GIS return on investment. *URISA Journal*, 27, 29-45.
- Zerbe, R., Fumia, D., Reynolds, T., Singh, P., Scott, T., and Babinski, G. 2015. An analysis of benefits from use of geographic information systems by King County, Washington. *URISA Journal*, 27(1), 13-27.
- Babinski, G. 2015. King County GIS Center 2015 GIS Assessment Report. *URISA Journal*, 27(2), 21-35.
- Trapp, N., Schneider, U.A., McCallum, I., Fritz, S., Schill, C., Borzacchiello, M.T., Heumesser, C., and Craglia, M. 2015. A meta-analysis on the return on investment of geospatial data and systems: A multi-country perspective. *Transactions in GIS*, 19, 169-187.
- Sieber, R.E. 2006. Public Participation Geographic Information Systems: A literature review and framework. *Annals of the Association of American Geographers*, 96, 491-507.
- Wang, S. 2013. CyberGIS: Blueprint for integrated and scalable geospatial software ecosystems. *International Journal of Geographical Information Science*, 27, 2119-2121.
- Miller, H.J., and Goodchild, M.F. 2015. Data-driven geography. *GeoJournal*, 80, 449-461.
- Sui, D. 2014. Opportunities and impediments for open GIS. *Transactions in GIS*, 18, 1-24.
- Poore, B.S., and Chrisman, N.R. 2006. Order from noise: Toward a social theory of geographic information. *Annals of the Association of American Geographers*, 96, 508-523.
- Wright, D.J. 2012. Theory and application in a post-GISystems world. *International Journal of Geographical Information Science*, 26, 2197-2209.

Description and Assessment of Assignments

Your grade in this course will be determined on the basis of several different assessment tools:

Resume Assignment – 1 worth a total of 2 points. We require all current students to post and maintain a public resume, short biography and recent photo on our shared Spatial

Sciences Institute (SSI) Student Community Blackboard site. With your permission, your photo and short biographical sketch may be posted to the SSI website and your resume will be included in the SSI Resume Book. This resume book is compiled annually and along with our Web presence used to promote our programs and more importantly, your skills, experience, and professional aspirations.

Reading Assignments – 6 worth a total of 18 points. These will focus on the theory portion of the class as presented in the weekly readings. Their objective is to help you evaluate and integrate the information you have acquired from the class readings. Some of these will involve discussions and collaborative work and some will be individual efforts. The first reading assignment is required and from there, you are free to choose any five of the 13 subsequent assignments. However, you must complete and submit them for grading in the weeks specified in the Course Schedule at the end of this syllabus.

Discussion Forums – 4 worth a total of 8 points. These will focus on varying combinations of theory and practice and anticipate that you will post a minimum of four new messages and at least two replies to messages posted by your classmates at designated times throughout the semester.

Exercises – 5 worth a total of 25 points. In order to demonstrate that you understand the basic concepts and skills learned in the class, you will complete five exercises that will integrate key concepts and ideas and take some independent thought. The first exercise is required and from there, you are free to choose any four of the five subsequent exercises. However, you must complete and submit them for grading in the weeks specified in the Class Schedule at the end of this syllabus.

Research Report – 1 worth a total of 10 points. The research report will provide you with an opportunity to explore established codes and challenges in the area of geospatial ethics through a suite of case studies.

Final Project

The final project will provide you the opportunity to integrate all that you have learned in the semester for a specific application. According to detailed guidelines that I provide, you will select a case study of geospatial technology project implementation and write a detailed case study that includes primary data gathered from project participants. The two components of the Project are:

Presentation – 1 worth a total of 12 points. This assignment will require some independent thought, discovery and synthesis, and allow you to propose a case study of your choice in Week 10 with the help of a PowerPoint slideshow. You will get my guidance with planning the remainder of your research.

Project Report – 1 worth a total of 25 points. A written report detailing your case study, major findings, and sources.

Grading Breakdown

Careful planning and a serious, consistent commitment will be required for you to successfully navigate the various deliverables in this and other SSI courses. The table below summarizes the SSCI 585 course assignments and their point distribution:

Assignment	Number	Points Each	Total Points
Resume assignment	1	2	2
Reading assignments	6	3	18
Discussion forums	4	2	8
Exercises	5	5	25
Research report	1	10	10
Project Components			
Presentation	1	12	12
Project report	1	25	25
TOTAL	19	--	100

And finally, it is important to note from the outset that:

- You are expected to attend and participate in every class session and to complete and upload all assignments before the deadlines detailed in the Class Schedule.
- Late postings and assignments will be docked one letter grade and no grade will be given for postings or assignments turned in more than one week late
- No written work will be accepted for grading after 5:00 p.m. PT on the last day of classes (i.e. August 9th, 2019).

Assignment Submission Policy

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

Additional Policies

Communications – This is a distance learning course, so most of our interactions will be asynchronous (not at the same time). All materials to be handed in will be submitted via the Blackboard Assessment link. I will also create one Blackboard discussion forum at the start of the semester, and I may create and/or monitor additional Blackboard discussion forums through which we can discuss challenges, ideas, and issues connected with the course assignments, exercises, and projects as the need arises.

In addition, I will send via e-mail through Blackboard any notices that are time sensitive. Please be sure that you read as soon as possible all e-mail sent from Blackboard or from me. Check now to make sure that mail sent from both USC Blackboard and my individual domain (jpwilson@usc.edu) does not go into your junk mail!

While I am usually online and will probably respond to emails from students relatively quickly, I will endeavor to respond to all email within 24 hours of receipt, aiming for no

more than a 72-hour delay. In the rare case when I expect to be offline for more than 72 hours, I will post an announcement on the Blackboard site.

That said, it is each student's responsibility to stay informed about what is going on in our class. In addition to email about time-sensitive topics, any important announcements will be posted on the Announcement page in Blackboard. Be sure to check these each time you log onto Blackboard.

Workload – This is a four-credit, one-semester course. Students should expect to spend 12-15 hours per week completing the work in this course.

Course Schedule

	Topics/Daily Activities	Readings and Homework	Deliverables/ Due Dates
Week 1 5/15* *Class starts on Wednesday, 5/15	Introduction: Introduction to the course and the ways in which the various topics and tasks will be woven together.	Croswell, Ch. 1 Ramasubramanian (1999)	Resume Assignment Reading Assignment #1
Week 2 5/20	Geospatial Program Development: Role of planning and management in developing a successful geospatial technology business and/or program.	Croswell, Ch. 2 Hong (2016) Tulloch and Epstein (2002)	Exercise #1 Reading Assignment #2 Reading Assignment #3
Week 3 5/28* *Monday, 5/27 is a university holiday	Geospatial Program Development (Cont.): A second take on the same topics – this time through the eyes of Roger Tomlinson who is often afforded the title of "founding father" of GIS.	Tomlinson, Ch. 1-9 Hodza (2014)	Exercise #2 Reading Assignment #4
Week 4 6/3	Geospatial Program Organizational Structure, Governance and Coordination: Role of planning and development, organizational structures, leadership and governance, and communications in successful geospatial programs.	Croswell, Ch. 3 Goodspeed (2011)	Reading Assignment #5
Week 5 6/10	Geospatial Program Organizational Structure, Governance and Coordination: A second take on the same topics – this time through the eyes of two accomplished GIS scholars,	Obermeyer and Pinto, Ch. 3-4 Tomlinson, Ch. 11 Joffe (2015)	Exercise #3 Reading Assignment #6

	Nancy Obermeyer and Jeffrey Pinto.		
Week 6 6/17	Human Resources: Role of project leadership, team building, capacity building (including opportunities for geospatial certification) and multi-organizational agreements (i.e. collaborations) in contributing to successful geospatial programs.	Croswell (2011) Ch. 4 Zerbe et al. (2015) Babinski (2015)	Report #1 Reading Assignment #7
Week 7 6/24	Funding, Financial Management, and Collaboration: The financial aspects, such as funding, financial management, monitoring, and reporting, and risk management that contribute to successful geospatial programs and the completion of projects on time and on budget.	Croswell, Ch. 5 Trapp et al. (2015)	Exercise #4 Reading Assignment #8
Week 8 7/1* *Thursday, 7/4 is a university holiday	Funding, Financial Management, and Collaboration (Cont.): A second take on finance – this time through the eyes of Roger Tomlinson.	Tomlinson, Ch. 10 Sieber (2006)	Reading Assignment #9
Week 9 7/8	Geospatial Program Legal Issues: The ways in which legal and ethical issues influence the geospatial sector both in the U.S. and further afield.	Croswell, Ch. 6 Wang (2013)	Exercise #5 Reading Assignment #10
Week 10 7/15	Management of Geospatial Program Technical Elements: Role of technical design (system configuration, data, applications) and the development and maintenance of these technical components in contributing to successful geospatial programs.	Croswell, Ch. 7 Miller and Goodchild (2015)	Project Presentation Reading Assignment #11
Week 11 7/22	Geospatial Office Operations, Service Delivery, and User Support: Role of the operational environment in helping to shape and sustain successful geospatial programs.	Croswell, Ch. 8 Sui (2014)	Reading Assignment #12
Week 12 7/29	Geospatial Projects and Project Management:	Croswell, Ch. 9 Poore and Chrisman (2006)	Exercise #6

	The ways in which all of the aforementioned components can be combined to successfully manage geospatial projects.		Reading Assignment #13
Week 13 8/5* *Friday, 8/9 is the last day of classes	Wrap-up: Current and emerging trends, including the consequences of choosing proprietary vs. open source software solutions, geospatial standards, spatial data infrastructures, web-based geo-processing service architectures, and volunteered geographic information, and how they are likely to influence future geospatial projects.	Croswell, Ch. 10 Wright (2012)	Reading Assignment #14 Project Report

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 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, <http://policy.usc.edu/scientific-misconduct>.

Support Systems

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. <https://engemannshc.usc.edu/counseling>

National Suicide Prevention Lifeline – 1 (800) 273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. <https://www.suicidepreventionlifeline.org>

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. <https://engemannshc.usc.edu/rsvp>

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: <https://sarc.usc.edu>

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. <https://equity.usc.edu>

Bias Assessment Response and Support

Incidents of bias, hate crimes and micro aggressions need to be reported allowing for appropriate investigation and response. <https://titleix.usc.edu/reporting-options/>

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. <https://dsp.usc.edu>

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. <https://studentaffairs.usc.edu/ssa>

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for <https://students.diversity.usc.edu>

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued, if an officially declared emergency makes travel to campus infeasible. <https://emergency.usc.edu>

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.

Provides overall safety to USC community. <https://dps.usc.edu>

Resources for Online Students

The Course Blackboard page and the GIST Community Blackboard page have many resources available for distance students enrolled in our graduate programs. In addition, all registered students can access electronic library resources through the link <https://libraries.usc.edu/>. Also, the USC Libraries have many important resources available for distance students through the link <http://libguides.usc.edu/distancelearning>. This includes instructional videos, remote access to university resources, and other key contact information for distance students.