SSCI 585 (35706D and 35707D), Geospatial Technology Project Management

Syllabus

Units: 4

Term Day Time: Spring 2025 – T/Th – 9-10:50 a.m.

Location: AHF 145A and DEN@Dornsife

Instructor: Robert O. Vos, PhD
Office: AHF B57G
Regular Office Hours: Mondays 1-2 p.m. and Tuesdays 11 a.m.-12 p.m. Also available by appointment via email.
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Course Scope and Purpose

This course provides a practitioner's perspective on 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. In this course, we learn the broad suite of concepts and tools of project management in the highly specialized context of geospatial technologies. This course takes a systematic approach to explore the management issues and methods necessary to create and deliver successful geospatial technology programs and projects.

SSCI 585 is a required course for the Masters in Human Security and Geospatial Intelligence (MS HSGI) and for the Spatial Data Management Track (Track 1) of the Masters in Geographic Information Science and Technology (MS GIST). It is also a required course for the Graduate Certificate in Geospatial Leadership and an elective course for the Graduate Certificate in Geographic Information Science and Technology.

This course will cover several topics:

Foundations for GIS Programs and Projects – We start by focusing on building support for geospatial technology projects by examining critical topics associated with geospatial project management, including views of the project life cycle, project and program requirements, and strategic planning and program development.

Design, Technical Development, and Proposals – In this module, we consider how to relate project or program requirements to GIS technical elements, including management of the design of databases and applications. We also examine how popular organizational structures can support database and application development. At the end of this module, we revisit these topics in a lecture on how to structure winning project proposals.

Human Resources – Next, we consider the various roles played by people in geospatial technology projects, covering human resources topics associated with project management, including staffing, team building, and training. We will also examine the opportunities for geospatial technology certification and some of the ethical considerations that people who work on geospatial projects must keep at the forefront of their work.

Funding and Project Controls – In this module, we review different funding models for programs and projects, including the issue of funding for open data initiatives. We also learn how to estimate project benefits and costs, and how to produce a benefit-cost analysis. Finally, we review how to assess and manage risks and monitor projects.

Current and Emerging Trends – Here we consider some of the current and emerging trends that may modify the ways in which geospatial technology projects may be conceptualized, managed, and implemented in the coming years. Topics include a variety of new spatial and spatiotemporal data streams ("big data"), the role of CyberGIS in flexibly computing big data, the choice of free and open source vs. proprietary software solutions, the role of 3D data models in BIM-GIS integration, indoor GIS, and agile software development methods.

Learning Outcomes

On completion of this course, students should 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, estimating project costs and benefits, developing investment appraisal methods, and using authorization, monitoring, and control processes.

- Identify the role, significance, and impact of human resources in a project management setting and evaluate and implement strategies for managing human resources in geospatial technology projects.

- Review current geospatial technology project management methodologies and appraise their efficiency and efficacy for managing different types of geospatial projects.

Students may vary in their competency levels on these abilities. You can expect to acquire these abilities only if you honor all course policies, attend classes regularly, complete all assigned work in good faith and on time.

Prerequisite(s): SSCI 581 or permission of the instructor
Co-Requisite(s): None

Class Conduct

Harassment, sexual misconduct, interpersonal violence, and stalking are not tolerated by the university. All faculty and most staff are considered Responsible Employees by the university and must forward all information they receive about these types of situations to the Title IX Coordinator. The Title IX Coordinator is responsible for assisting students with supportive accommodations, including academic accommodations, as well as investigating these incidents if the reporting student wants an investigation. The Title IX office is also responsible for coordinating supportive measures for transgender and nonbinary students such as faculty notifications, and more. If you need supportive accommodations you may contact the Title IX Coordinator directly (titleix@usc.edu or 213-821-8298) without sharing any personal information with me. If you would like to speak with a confidential counselor, Relationship and Sexual Violence Prevention Services (RSVP) provides 24/7 confidential support for students (213-740-9355 (WELL); press 0 after hours)

Diversity and Inclusion – I intend that students from all backgrounds and perspectives will be well served by this course, that students' learning needs will be addressed both in and out of class, and that the diversity that students bring to this class will be viewed as a resource, strength, and benefit. I aim to present materials and activities that are respectful to everyone, and you are also expected to respect others regardless of their race, ethnicity, gender identity and expressions, cultural beliefs, religion, sexual orientation, national origin, age, abilities, ideas and perspectives, or socioeconomic status. Your suggestions are encouraged and appreciated. Feel free to let me know ways to improve the effectiveness of the course for yourself or for other students.

Course Structure

The main concepts are provided through a directed reading of the text *The GIS Management Handbook*. Additional readings are assigned throughout to expand on the textbook. This class will feature both lectures from the instructor and lightning talks, reading reports, and discussions that require participation from students. The class sessions with activities that require participation from students are clearly identified on the course schedule below. Detailed assignments for these activities will be provided with clear instructions for either attending synchronously, using a remote connection, or by using the D2L discussion board in combination with recordings from the classroom (i.e., "asynchronously").

Workload – This is a four credit, one semester course. Students should expect to spend 10-15 hours per week completing the work in this course.

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class is forbidden without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study is prohibited. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which has been distributed to students or in any way has been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. ([Living our Unifying Values: The USC Student Handbook](), page 13).

Technological and Communication Requirements

Unlike many courses in our programs, this course will make minimal use of the GIS software on the GIST (SSI) Server. However, you will be able to access software to test workflows or explore applications. Since software is provided on the GIST (SSI) server, you do not need to install it on your own computer. Instead, every student must have the following technology requirements:

- A computer with a fast Internet connection.
- A functional webcam and a microphone for use whenever a presentation or meeting is scheduled.
- An up-to-date web browser to access the Server

If a student does not have access to any of these, please speak with the instructor at the start of the semester. Also, see the USC ITS Student Toolkit here: https://keepteaching.usc.edu/students/student-toolkit/

Also, for residential students, a limited number of computers with all the necessary software is available in the SSI Suite (AHF B55) during regular business hours, Monday through Friday 9 am to 5 pm. To reserve a computer, please use this link https://calendly.com/usc-ssi/the-ssi-suite-ahf-b55-student-computers-1. These computers are available to any student in an SSCI or GSEC course and can be used as a resource if you experience difficulties in accessing the SSI server or using the GIS software on your personal computer."

Desire2Learn (D2L) – This course will utilize the Desire2Learn (D2L) learning management system which allows students to access course content, upload assignments, participate in discussion forms, among other learning experiences. The D2L platform provides flexibility in the learning experience where students can participate in the course residentially or remotely, synchronously (meeting together at the same time) or asynchronously (accessing videos and course content outside of class).

SSI Server and Tech Support – This course utilizes the SSI Server which is a virtual desktop giving access to many different professional software. If you are unable to connect to the server or experience any type of technical issues, send an email using your USC account to SSI Tech Support at spatial_support@usc.edu, making sure to copy (cc) me on the email.

Communications – All assignments given and all materials to be handed in will be submitted via D2L. The instructor will also create and monitor discussion forums through which students can discuss issues and assignments as needed. Students should read all email sent from D2L or from course instructor(s) as soon as possible. Also, students who do not regularly use their USC email accounts should double-check to be sure that mail sent from both the D2L accounts and the instructor's account (noted above) to your USC account is forwarded to an address used regularly and does not go into junk mail. The instructor will endeavor to respond to all email within 24 hours of receipt, aiming for no more than 72 hours delay. In the rare case that an instructor is off-line for an extended periodof time, an announcement will be posted to the class D2L site. Due to the synchronous and asynchronous nature of this course, it is each student's responsibility to stay informed and connected with others in our course. In addition to email, students are expectedto login to D2L regularly to check for announcements.

Discussion forums – On the D2L site, for class sessions you cannot attend synchronously, I will post discussion threads to facilitate your participation. Discussions provide a key means for student-to-student discussion and collaboration that can substitute for face-to-face contact in a traditional classroom or with a remote connection. Here students can provide support to each other while working on your assignments, sharing hints and helpful tips, as you would in a classroom laboratory. Please post your questions about assignments there, as you would ask them publicly in the classroom. I monitor the discussion threads and offer comments

when necessary, but more importantly, consider the discussion board a key way to connect with your classmates and share your discoveries.

Required Readings and Supplementary Materials

The required book and teaching cases to purchase for this course are:

- Croswell, P.L. 2021. *The GIS Management Handbook*, 3rd Edition. Des Plaines, IL: Kessey Dewitt Publications in association with URISA.

- Ofek, E., Preble, M. 2017. *TaKaDu: Software as a Service (SaaS) in Water Utilities*. 9-514-011. Harvard Business School Teaching Case.

- Glynn, D., Redzepagic, E., and Rostoker, B. 2019. *Voyager Search: Virtual Workforce, Real Growth?* SCG-664. University of Southern California Marshall School of Business Teaching Case.

Hard copies of the Croswell textbook are available from the USC bookstore and electronic copies can be purchased at this link: https://croswell-schulte.com/product/the-gis-management-handbook-in-english/.

The two case studies listed above must be purchased online from Harvard Business School Publishing group at the following link to the course pack for this class: https://hbsp.harvard.edu/import/1036536. (This course pack will be available starting on May 1, 2023 until September 30, 2023.)

The Croswell textbook and the teaching cases will be supplemented with a mixture of readings from academic journals, professional reports, and authoritative websites. The following journal articles comprise the supplementary reading and will be posted to D2L in the folder for the week to which they pertain:

- Antoun, J.A. 2018. "Cartographic design and interaction: An integrated user-centered agile software development framework for web GIS applications." Master's Thesis, University of Southern California.

- Babinksi, G. 2021. "Managing GIS&T infrastructure and operations." in J. Wilson (ed.) *The Geographic Information Science & Technology Body of Knowledge*. University Consortium for GIS.

- Biljecki, F., Ito, K. 2021. Street view imagery in urban analytics and GIS: A review. *Landscape and Urban Planning* 215: 104217.

- Brovelli, M.A., Minghini, M., and Zamboni, G. 2015. Public participation GIS: A FOSS architecture enabling field-data collection. *International Journal of Digital Earth* 8: 345-363.

- Chen, M., Voinov, A., Ames, D.P., et al. 2020. Position paper: Open web-distributed integrated geographic modeling simulation to enable broader participation and applications. *Earth-Science Reviews* 207: 103223.

- Chiang, Y-Y. and Lin, Y. 2020. "Design, development, testing, and deployment of GIS applications" in J. Wilson (ed.) *The Geographic Information Science & Technology Body of Knowledge*. University Consortium for GIS.

- Donker, F.W. 2018. "Funding open data" pp. 56-74 in B. van Loenen et al. (eds.) *Open Data Exposed.* The Hague, Netherlands: T.M.C. Asser Press.

- Fonte, C.C., Basin, L., Foody, G., et al. 2015. VGI quality control. *ISPRS Annals of Photogrammetry, Remote Sensing, and Spatial Information Sciences* II-3/W5: 317-324.

- Ghose, R., Welcenbach, T. 2018. Power to the people: Contesting urban poverty and power inequities through open GIS. *The Canadian Geographer* 62: 67-80.

- Goodspeed, R. 2011. From public records to open government: Access to Massachusetts municipal geographic data. *URISA Journal* 23: 21-32.

- Gwynn, D., Clark, S., Bennet, J., et al. 2019. Open-source collaboration. *Trajectory Magazine* (January): 1-7.

- Haworth, B. 2016. Emergency management perspectives on volunteered geographic information: Opportunities, challenges, and change. *Computers, Environment and Urban Systems* 57: 189-198.

- Hodza, P. 2014. Appreciative GIS and strength-based community change. *Transactions in GIS* 18: 270-285.

- Johnson, P.A., Sieber, R., Scassa, T., et al. 2017. The costs of geospatial open data. *Transactions in GIS* 21: 434-445.

- Kuria, E., Kimani, S., Mindila, A. 2019. A framework for web GIS development: A review. *International Journal of Computer Applications* 178: 6-10.

- Liu, X., Wang, X., Wright, G., et al. 2017. A state-of-the-art review on integration of building information modeling (BIM) and geographic information systems (GIS). *International Journal of Geo-Information* 6: 6020053.

- Nelson, T.A., Goodchild, M.F., Wright, D. J. 2022. Accelerating ethics, empathy, and equity in geographic information science. *Proceedings of the National Academy of Sciences of the USA* 119: e2119967119.

- Nüst, D., Pebesma, E. 2020. Practical reproducibility in geography and the geosciences. *Annals of the American Association of Geographers* 111: 1300-1310.

- Obermeyer, N. 2021. "Ethics for certified geospatial pofessionals" in J. Wilson (ed.) *The Geographic Information Science & Technology Body of Knowledge*. University Consortium for GIS.

- Ohori, K.A. 2020. Azul: A fast and efficient 3D city model viewer for macOS. *Transactions in GIS* 24: 1165-1184.

- Peery, S. 2019. "Enterprise GIS" in J. Wilson (ed.) *The Geographic Information Science & Technology Body of Knowledge*. University Consortium for GIS.

- Sharafat, A., Khan, M.S., Latif, K. et al. 2021. BIM-GIS based integrated framework for underground utility management system for earthwork operations. *Applied Sciences* 11: 5721.

- Sieber, R.E., Johnson, P.A. 2015. Civic open data at a crossroads: Dominant models and current challenges. *Government Information Quarterly* 32: 308-315.

- Teixeira, H., Magalhães, A., Ramalho, A., et al. 2021. Indoor environments and geographical information systems: A systematic literature review. *SAGE Open* 11: 1-16.

- 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.

- Tulloch, D.L., Epstein, E. 2002. Benefits of Community MPLIS: Effectiveness and Equity. *Transactions in GIS* 6: 195-212. 2019.

- Wang, S., Zhong, Y., Wang, E. 2019. An integrated GIS platform architecture for spatiotemporal big data. *Future Generation Computer Systems* 94: 160-172,

- Yin, D., Liu, Y. Hu, H., et al. 2019. CyberGIS-Jupyter for reproducible and scalable geospatial analytics. *Concurrency and Computation* 31: e5040.

- Zhu, J., Wu, P. 2022. BIM/GIS data integration from the perspective of information flow. *Automation in Construction* 136: 104166.

- 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: 13-27.

Also, for the 5 assigned projects in this course, you will conduct online and library research to find articles that give information useful for organizing the geospatial technology project you choose.

Description and Assessment of Assignments

Weekly Assignments

There are several different kinds of assignments. These are described in detail in the Weekly Folders on D2L. A summary of each type of assignment follows here and due dates are in the schedule table below.

Resume Assignment – 1 worth 2 points. In addition to the submission via D2L, all students are required to post and maintain a public resume, biography, and headshot on the SSI Student Hub on D2L. Unless a student opts out, their resume will be included in the Spatial Sciences Institute Graduate Programs Resume Book, which is used to promote the program and highlight student skills, experiences, and professional aspirations. An updated resume will be submitted at the end of the course of study.

Reading Reports – 5 worth a total of 15 points. These will focus on supplemental readings listed above. The objective is to help you evaluate, deepen, and integrate the information you

have acquired from the lectures and textbook. You will have some choices about which readings you cover. Following the detailed assignment, you will present readings to your classmates and lead a discussion of key points in the readings.

Lightning Talks – 2 worth a total of 10 points. Early-on in the course, students will give lightning talks called "Application Development Exemplars" and "Multi-Organizational Consortia Exemplars." The purposes are two-fold: (1) to practice lightning talks, which are key tools in project management; and (2) to gain depth and insight on defining project requirements, which are key to GIS application development and on multi-organizational GIS consortia, which play a key role in spatial data infrastructure.

Projects –5 worth a total of 40 points. To demonstrate that you understand the concepts and skills to be learned in the class, you will complete five written projects of 4-5 pages each to apply different ideas and methods we have discussed to a geospatial technology project. A detailed assignment will be provided for each. In addition, the instructor will provide guidance with selecting the geospatial technology project and in completing the written class projects through facilitated discussions as part of specific class periods, as marked on the schedule table below.

Midterm Exam –1 worth a total of 10 points. There will be a midterm exam that will be equally suitable to complete in the classroom or remotely. It will be due at the end of the week where it is listed in the syllabus.

Final Presentation –1 worth a total of 10 points. Students will use the 5 exercises they have completed to give a slide presentation on the geospatial technology project they have chosen. The presentation will be in the form of a proposal that aims to persuade a potential project sponsor to start the full project.

Final Exam –1 worth a total of 10 points. There will be a final exam that will be equally suitable to complete in the classroom or remotely. It will be due at 5 p.m. PT on the date of our scheduled final examination.

Class Participation –1 worth a total of 3 points. These points will be assigned at the end of the class for participation in discussions of the three teaching cases, but also for questions asked and points made about lectures or discussion of readings. Assessment will include synchronous participation via remote connections and/or asynchronous participation on the D2L discussion board.

Grading Breakdown

Assessment	Number	Points Each	Total Points
Resume Assignment	1	1	1
Reading Reports	4	4	16
Lightning Talks	2	5	10
Projects	5	8	40
Midterm Exam	1	10	10
Final Presentation	1	10	10
Final Exam	1	10	10
Class Participation	1	3	3
Total	17	-	100 points

Grading Scale

Assignments in this and other SSCI courses, are graded on the letter grade scale where A is exemplary, B is very good, C is satisfactory, D is unsatisfactory, and F needs improvement. Final grades use the same letter grade scale with C being the minimum passing grade for credit at the graduate level. The grading scale follows:

A	> 93 points		B-	80-82 points		D+	67-69 points
A-	90-92 points		C+	77-79 points		D	63-66 points
B+	87-89 points		C	73-76 points		D-	60-62 points
B	83-86 points		C-	70-72 points		F	<60 points

Assignment Submission Policy

Unless otherwise noted, assignments must be submitted via D2L by the due dates specified in the Course Schedule below and on the assignment instructions. It is especially important that lightning talks and reading presentations are delivered for the class session on which they are assigned. You are expected to work on this course each week to stay current with readings and assignments. You must upload all assignments before the posted deadlines.

It is critical to note the following two items:

- Late assignments will be docked one letter grade and no grade will be given for assignments turned in more than one week late.
- Additionally, no written work will be accepted for grading after 5:00 p.m. PT on the last day of classes (i.e., May 2, 2025).

SSI Policy on the Creation of Original Work and Use of Generative AI

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. Students may not have another person or entity complete any substantive portion of an assignment or reuse work prepare for courses without obtaining written permission from

the instructor(s). Developing strong competencies in research, writing, and the technical execution of geospatial technologies are foundational to SSI academic programs that are designed to prepare you for success in the workplace. Therefore, using generative AI tools – unless explicitly specified otherwise – is strictly prohibited in this course, will be identified as plagiarism, and will be reported to the Office of Academic Integrity.

Schedule

Date	Activity: Topic	Readings and Assignments	Deliverables: Due Dates
Module 1: Foundations for GIS Programs and Projects			
Week 1 1/14	Introduction to Geospatial Management and the Course (Lecture Slides 1)	Croswell, Introduction	Sign-up for Reading Reports 1/17 Reading Reports: 1/21 Case Study Participation: 1/23 Resume Assignment: 1/24
1/16	GIS Program and Project Management: Overview and Context (Lecture Slides 2)	Croswell, Ch. 1 (1.1-1.4) Croswell, Ch. 9 (9.1.1-9.1.4)	
Week 2 1/21	Strategic Planning for GIS Programs and Projects (Lecture Slides 3) Reading Reports (2)	Croswell, Ch. 2 (2.1-2.3) Tulloch & Epstein (2002) Hodza (2014)	
1/23	Discussion: TaKaDu: Software as a Service (SaaS) in Water Utilities (Lecture Slides 4)	Ofek & Preble (2017)	
Week 3 1/28	Discovering GIS Program and Project Requirements (Lecture Slides 5)	Croswell, Ch. 1 (1.5) Croswell, Ch. 2 (2.4)	
Module 2: Design, Technical Development, and Proposals			
1/30	Managing GIS Design and Technical Elements (Lecture Slides 6) Reading Reports (2) Discussion: Introduction to Project 1, Defining a Project and Its Requirements	Croswell Ch. 2 (2.5 & 2.7-2.11) Croswell Ch. 7 (7.1-7.4) Peery (2019) Babinski (2021)	Reading Reports: 1/30 & 2/6 Lightning Talk #1: 2/11 Lightning Talk #2: 2/20 Project 1: 2/21
Week 4 2/4	Design and Management of Geospatial Databases (Lecture Slides 7)	Croswell, Ch. 7 (7.5)	

Date	Activity: Topic	Readings and Assignments	Deliverables: Due Dates
2/6	Managing Geospatial Application Development and Agile Methods (Lecture Slides 8) Reading Reports (3)	Croswell, Ch. 7 (7.6-7.9) Antoun (2018) Kuria et al. (2018) Chiang & Lin (2020)	
Week 5 2/11	Lightning Talks and Discussion: Application Development Exemplar		
2/13	Proposal Structures and Competing to Win (Lecture Slides 9)		
Week 6 2/18	Organizational Structures, Multi-Organizational Collaboration, and Spatial Data Infrastructure (Lecture Slides 10)	Croswell, Ch. 3 (3.1-3.2 & 3.4)	
2/20	Lightning Talks and Discussion: Multi-Organizational Consortia Exemplars		
Module 3: Human Resources			
Week 7 2/24	Human Resources and Project Staffing (Lecture Slides 11) Discussion: Introduction to Project 2, Design Elements and Work Breakdown Structure (WBS		Reading Reports: 3/13 Case Study Participation: 3/13 Project 2: 3/14
2/26	Guest Lecture on Certifications Discussion: Midterm Review		
Week 8 3/3	Midterm Exam		
3/5	Persuasion, Negotiation, and Conflict Resolution Case Study (TBA)	Case Study TBA	
Week 9 3/11	Lecture: Change Management (Lecture Slides 12) Discussion: Introduction to Project 3, Staffing, Training, and Recruiting	Croswell, Ch. 3 (3.5)	

Date	Activity: Topic	Readings and Assignments	Deliverables: Due Dates
3/13	Discussion: Professional Ethics Introduction and Case Discussion (Lecture Slides 13) Reading Report (2)	Croswell, Ch. 4 (4.3 & Appendix D) Nelson et al. (2022) Obermeyer (2021) Case Study: Mapping Muslim Neighbors Case Study: Privacy and Planning	
Spring Recess 3/17-3/21			
Module 4: Funding and Project Controls			
Week 10 3/25	Funding and Financial Management (Lecture Slides 14) Reading Report (1)	Croswell, Ch. 5 (5.1-5.5) Zerbe et al. (2015) Johnson et al. (2017)	Reading Reports: 3/25, 4/1, and 4/10 Project 3: 4/4 Case Study Participation: 4/3 Project 4: 4/11
3/26	Activity Networks and Benefit-Cost Analysis (Lecture Slides 15) Reading Report (1) Discussion: Introduction to Project 4, Activity Network and Benefit-Cost Analysis Calculation	Croswell, Ch.2 (2.6) Croswell, Ch. 9 (9.8) Trapp et al. (2015)	
Week 11 4/1	Legal Issues in GIS Management (Lecture Slides 16) Reading Reports (3)	Croswell, Ch. 6 Goodspeed (2011) Sieber & Johnson (2015) Donker (2018)	
4/3	The Geospatial Office (Lecture Slides 17) Discussion: Voyager Search: Virtual Workforce, Real Growth? (Lecture Slides 17)	Croswell, Chapter 8 Glynn, Redzepagic, and Rostoker (2019)	
Week 12 4/8	Lecture: GIS Project Risk Assessment and Monitoring (Lecture Slides 18) Discussion: Introduction to Project 5, Risk Register and Project Variance Calculation	Croswell, Ch. 9 (9.3 & 9.5-9.7)	

Date	Activity: Topic	Readings and Assignments	Deliverables: Due Dates
4/10	Lecture: Quality Assurance and Quality Control (QA/QC) in GIS Programs and Projects (Lecture Slides 19) Reading Reports (2)	Croswell, Ch. 3 (3.3) Croswell, Ch. 9 (9.4) Nüst & Pebesma (2021) Fonte et al. (2015)	
Module 5: Current and Emerging Trends			
Week 13 4/15	Reading Reports on 3D Modeling & Indoor GIS (2)	Ohori (2020) Teixeria (2021)	Reading Reports: 4/15, 4/17. 4/22, and 4/29 Project 5: 4/18 Final Presentations: 4/29 and 5/1
4/17	Reading Reports on BIM-GIS Integration (3)	Liu et al. (2017) Sharafat et al. (2021) Zhu & Wu (2022	
Week 14 4/22	Reading Reports on Big Data and CyberGIS (4)	Biljecki & Ito (2021) Wang et al. (2019) Yin et al. (2019) Chen et al. (2020)	
4/24	Final Presentations Working Session		
Week 15 4/29	Reading Reports on Free and Open Source (FOSS) GIS and Public Participation GIS (PPGIS) (4) Final Presentations I	Reading Reports on Free and Open Source (FOSS) GIS and Public Participation GIS (PPGIS) (4)	
5/1	Final Presentations II		
5/13	Final Examination on Tuesday May 13 from 8-10 a.m.		

Statement on Academic Conduct and Support Systems

Academic Integrity

The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the

production or submission of academic work, comprises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others (including AI generated) or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the student handbook or the Office of Academic Integrity's website, and university policies on Research and Scholarship Misconduct.

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

Counseling and Mental Health - *(213) 740-9355 – 24/7 on call*

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

988 Suicide and Crisis Lifeline - *988 for both calls and text messages – 24/7 on call*

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a

national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services (RSVP)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX (EEO-TIX)](#) - (213) 740-5086

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

[Reporting Incidents of Bias or Harassment](#) - (213) 740-5086 or (213) 821-8298

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

[The Office of Student Accessibility Services (OSAS)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

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

[Diversity, Equity and Inclusion](#) - (213) 740-2101

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

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) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) *- (323) 442-2850 or* otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

Resources for Online Students

The Course D2L page and the SSI Student Hub on D2L 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: https://libraries.usc.edu/faculty-students/distance-learners. These include instructional videos, remote access to university resources, and other key contact information for distance students.