USC Dornsife
Dana and David Dornsife
College of Letters, Arts and Sciences
Spatial Sciences Institute

SSCI 595, CAPSTONE - Applied Geospatial Intelligence Problem Solving

Syllabus

Units: 2

Term Day Time: Spring 2020, Online

Location: Online

Instructor: COL [R] Steven D. Fleming, Ph.D.
Office: AHF B57G
Office Hours: With this course necessitating routine yet un-forecasted meetings with student teams/individuals, all "office hours" will be viewed as "by appointment – when required." In this, I am available asynchronously via email. I am also available for synchronous chats via phone, IM text, and audio/video conferences on most days and times *by prior arrangement* via email.

Contact Info: s.fleming@usc.edu**,** 213-740-7144.

Library Help: Andy Rutkowski
Office: VKC 36B
Office Hours: Tue 10 am-12 pm and Thu 4:30-5:30 pm PT
Contact Info: arutkows@usc.edu, 213-740-6390
http://bit.ly/andyhangout

IT Help: Richard Tsung
Office: AHF 146D
Office Hours: By appointment
Contact Info: spatial_support@usc.edu, 213-821-4415

Course Scope and Purpose

This course is the capstone requirement for the Master of Science in Human Security and Geospatial Intelligence. This course is designed to provide students a hands-on problem solving opportunity that requires them to employ knowledge and GEOINT skills in order to provide decision makers an informed recommendation involving a variety of human security settings. Threats to human security come in many forms – military operations, terrorist attacks, genocide, political violence, natural disasters, humanitarian crises, environmental risks, public health issues and food / resource accessibility challenges, among others – and this class leverages a variety of exposures to geospatial solutions for the intelligence community and intelligence products that support national security, disaster response, and humanitarian relief efforts.

This a graduate level course, so you should expect this class 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 and delivered (in person) if/when at resident location. The main theoretical concepts will be provided through course notes and assigned readings. 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.

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, and meet all other course expectations of you as a student.

Learning Objectives

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

- Reinforce the understanding of geospatial intelligence applications of Human Security and GEOINT as related to government, industry, and academe.
- Design and implement strategies for capturing or sourcing geospatial intelligence data and any accompanying metadata.
- Critically evaluate the potential impacts of data quality on spatial analysis and decision making to the intelligence community.

- Apply critical thinking, collaboration, and communication skills.
- Synthesize learning by preparing and presenting a project report on Geospatial Intelligence, tailored to a specific, real-world human security application.

Prerequisite(s) *[preferred order]***:** SSCI 581; SSCI 577; SSCI 587; SSCI 588, SSCI 579.
Prerequisite or Co-Requisite: SSCI 585.

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:

Blackboard – All course materials and correspondence will be posted on the course Blackboard site. As a registered student, you will find this course will show up in your available classes no later than 12:00 noon, PST on the first day of classes. It is here that the day-to-day flow of the course will be recorded.

Discussion boards – On the Blackboard site, we will post a number of discussion threads related to various course topics. These threads are very important in terms of providing support to each other while working on class exercises to share hints and helpful tips, as you would do in a classroom setting. I will check the discussion threads periodically and offer occasional comments. Please send your course instructor an email directly if you have a question or concern that requires my immediate attention.

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

Individual meetings – While Bluejeans can be used for one-on-one meetings, we generally find it easier to use the free VOIP and chat technology for individual chats.

Resident Component – All students will be required to attend the GEOINT Symposium (or similar event) as part of this capstone course requirement. Funding for attendance at this event will be explained during the MS course of study.

SSI server and tech support – This course will utilize the SSI Servers to provide you with your own virtual desktop. 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. SSI Tech Support is available Monday through Friday, 9:00 a.m.to 5:00 p.m. PST. A variety of geospatial software platforms (ArcGIS, e-Cognition, Idrisi, etc.) are provided online via the SSI Server; hence, you do not need to install it on your own computer.

Technical Requirements - Every student must satisfy the following technology requirements: (1) a computer with a fast Internet connection; (2) a functional webcam and a microphone for use whenever a presentation or meeting is scheduled; and (3) a modern web browser.

Required Readings and Supplementary Materials

Textbooks – There is one required (and provided) text for this course. Some (of the optional texts) are available online and some are available from the USC Bookstore or online outlets such as Amazon. We encourage you to acquire these books quickly since you will need these materials from the opening day of class.

- NGA (National Geospatial-Intelligence Agency, Office of Geospatial-Intelligence Management). 2018. *National System for Geospatial Intelligence: Geospatial Intelligence (GEOINT) Basic Doctrine*. NGA Publication No. 1-0. Washington, DC: National Geospatial-Intelligence Agency Publication. (available at https://www.nga.mil/ProductsServices/Pages/GEOINT-Basic-Doctrine-Publication.aspx).

This textbook will be supplemented with course notes, videos, and a mixture of planned readings from academic journals, professional reports, and authoritative websites. The list below is a sample of some of the readings that could be used.

- Esri. 2012. ArcGIS for Emergency Management, An Esri White Paper – May 2012. Redlands, CA: Esri Press.
- Esri. 2014. GIS Platform for National Security, An Esri White Paper – July 2014, Redlands, CA: Esri Press.
- Esri. 2007. GIS Supporting the Homeland Security Mission, An Esri White Paper – May 2007, Redlands, CA: Esri Press.
- Evans, Howard, James Lange, and James Schmitz. 2015. *The Phenomenology of Intelligence-focused Remote Sensing (selected readings).* Beavercreek, OH, Riverside Research.
- Gillespie, T., Chu, J., Frankenberg, E., Thomas, D. 2007. "Assessment and prediction of natural hazards from satellite imagery." *Progress in Physical Geography,* 31(5): 459-470.
- Lowenthal, M.M. (2016) *Intelligence: From Secrets to Policy* (7th Edition). Washington, DC, CQ Press.
- NRC (National Research Council) (2007) *Successful Response Starts with a Map: Improving Geospatial Support for Disaster Management.* Washington, DC, National Academies Press.
- United States Geospatial Intelligence Foundation (USGIF 1). 2017. *Trajectory Magazine – Public Safety Edition.* Reston, VA: USGIF Press.
- United States Geospatial Intelligence Foundation (USGIF 2). 2018. *Building Resilient Communities Through Geospatial Intelligence.* Reston, VA: USGIF Press.
- United States Geospatial Intelligence Foundation (USGIF 3). 2019 (and previous years). *The State and Future of GEOINT*. USGIF, Herndon, VA, USGIF Press.

Description and Assessment of Assignments

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

Reading Assignments (15%) – These will focus on the theory portion of the course as presented in the weekly readings. Their objective is to help you evaluate and integrate the information you have acquired from the course readings. Some of these will involve discussions and collaborative work and some will be individual efforts.

Discussion Forums (20%) – These will focus on varying combinations of theory and practice as well reviews of the project topics/progress. It is anticipated that you will contribute to and participate in a series of discussion threads via BlueJeans, phone calls, and in person (e.g. while at ***GEOINT 2020***) throughout the semester.

Final Project (65%) – The final project will afford you the opportunity to work in small teams and demonstrate your ability to identify and rapidly investigate a real-world problem using the coursework you have completed thus far. Working in small teams, you will all make extensive use of geospatial data sources and analysis tools and will be required to define possible scenarios, identify key challenges, explore possible solutions and deliver a preferred and an effective solution for an important human security need or challenge in your final project. The final presentation will be done at the GEOINT Symposium (or similar event).

Grading Breakdown

Careful planning and a serious, consistent commitment will be required for you to successfully navigate the various deliverables in this and other GIST courses. The table below summarizes the SSCI 595 course assignments and their point distribution:

Assignment	Number	Points Each	Total
Weekly Assignments			
Discussions	5	4	20
External Assignments	2	7.5	15
Team Project Components			
Proposal	1	10	10
Literature Report	1	10	10
Group Poster	1	10	10
Group Presentation	1	10	10
Final Report	1	25	25
TOTAL		**100**	**100**

And finally, it is important to note from the outset that: (1) you are expected to participate in every class session and to complete/upload all assignments at the time detailed; (2) late postings and assignments will be docked one grade and no grade will be given for postings or assignments turned in more than one week late; and (3) no written work will be accepted for grading after 5:00 p.m. PT on the last day of classes. Any exceptions to these turn-in assignments are only made by me in coordination with individual students. An example of an exception would be a student's illness or injury that reasonably prohibits course involvement/participation.

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 resident and 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 multiple Blackboard discussion forums throughout the semester that we will use for the aforementioned assignments and so we can discuss issues and comments on 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 the USC blackboard accounts and my official email (s.fleming@usc.edu) does not go into your junk mail!

While I am usually online and will probably respond to e-mails from students relatively quickly, I will endeavor to respond to all e-mail within 24 hours of receipt, aiming for no more than 48 hours delay. In the rare case when I expect to be offline for more than 60 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 course. In addition to e-mail 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 two credit, one semester course. Students should expect to spend 6-8 hours per week during a fifteen-week period completing the work in this course.

Course Schedule: A Weekly Breakdown

	Topic	Readings	Deliverables/ Due Dates
Weeks 1-2 1/13-1/24	**Geospatial Intelligence Context:** Review of the intelligence community, the players and their typical roles and responsibilities.	NGA (2018)	
Weeks 3-4 1/27-2/7	**Geospatial Intelligence - Applied Geospatial Intelligence Problem Solving 1:** Real-world application of industry, government, and academe integration to a focused GEOINT problem.	NGA (2018) NRC (2007) USGIF (2019+)	Group Discussion #1 (Bluejeans) Student Project Assessments
Weeks 5-6 2/10-2/21	**Geospatial Intelligence - Applied Geospatial Intelligence Problem Solving 2:** Real-world application of industry, government, and academe integration to a focused GEOINT problem.	NGA (2018) NRC (2007) USGIF (2019+) Assigned Readings	Group Discussions #2 (Bluejeans) Project Assignment Finalize topic and abstract of project
Weeks 7-9 2/24-3/13	**Geospatial Intelligence - Applied Geospatial Intelligence Problem Solving 3:** Real-world application of industry, government, and academe integration to a focused GEOINT problem.	NGA (2018) NRC (2007) USGIF (2019+) Assigned Readings	Submit topic and abstract to USGIF for poster presentation Group Discussion #3 (Bluejeans)
Weeks 10-11 3/16-4/3 (* Spring Break occurs 15-22 Mar)	**Geospatial Intelligence - Applied Geospatial Intelligence Problem Solving 4:** Real-world application of industry, government, and academe integration to a focused GEOINT problem.	NGA (2018) NRC (2007) USGIF (2019+) Assigned Readings	Attend GeoResolution on 3/25 and compete Assignment # 1 Project/Poster Preparation Group Discussion #4 (Bluejeans)

Weeks 12-14 4/6-4/24	**Geospatial Intelligence - Applied Geospatial Intelligence Problem Solving 5:** Real-world application of industry, government, and academe integration to a focused GEOINT problem.	NGA (2018) NRC (2007) USGIF (2019+) Assigned Readings	Assignment # 2 Group Discussion #5 (Bluejeans) Final Project/Poster Preparation
Week 15 4/25-5/1	**Geospatial Intelligence - Applied Geospatial Intelligence Problem Solving 6:** Team presentations summarizing results and what was learned from the project.	None Assigned Readings	Final Project Delivered and Report Submitted (NOTE: Attend USGIF's GEOINT Symposium & present poster)

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:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.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 and Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call; studenthealth.usc.edu/sexual-assault
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED)- (213) 740-5086 | Title IX – (213) 821-8298
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.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplicity.com/care_report
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity |Title IX for appropriate investigation, supportive measures, 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
uscsa.usc.edu
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
Non-emergency assistance or information.

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: 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.

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