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

SSCI 350 (35736): International Geodesign

Units: 4

Term — Day — Time: Maymester 2025; May 19 – June 13, 2025

Location: Los Angeles, USA / Accra and Winneba, Ghana

Instructor: Guoping Huang, D.Des.
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Course Scope and Purpose

The goal of this course is to introduce students to the critical and spatial thinking skills of Geodesign while engaging them in both classroom and field settings. Additionally, this course will enable students to apply these skills in a final Geodesign project that proposes design and planning strategies to address societal and environmental challenges in the real world.

Geodesign is a forward-thinking, interdisciplinary framework that combines planning, design, and environmental systems management with geospatial technologies to explore ways to build a better world. As interest and demand for sustainable development gain traction nationally, internationally, and across the University of Southern California (USC) campus, the use of Geodesign principles is becoming increasingly valuable to address global challenges and foster an healthy human-environment relationship.

Along the coast of the Gulf of Guinea, there exists a system of lagoons, wetlands, and estuaries of global importance. They provide essential ecological services, protecting coastlines by blunting the impact of storm surges, offering wildlife habitats, especially for migrant birds, and controlling flooding. This system also fosters the necessary conditions for traditional livelihoods such as fishing, salting, and mangrove harvesting. Due to these economic benefits, settlements and cities were historically established next to lagoons along the coast. Sadly, however, today these coastal cities in West Africa are witnessing the most rapid urbanization, deforestation, and environmental degradation in the world. They simultaneously provide rare opportunities for students to learn about these challenges firsthand and to address them with Geodesign thinking and techniques.

Initially, students will work on the USC campus for one week to grasp the core concepts of Geodesign, sustainable development, people and place, urban and landscape planning, and geospatial technologies. During the subsequent 3 weeks, students will travel to Ghana to conduct intensive and comprehensive field studies. Firstly, they will visit the capital city, Accra, to study at the University of Ghana, Legon. There, they will learn the local physical and human geographies from accomplished professors and local guides. They will also gain insights into the environmental problems facing the coastal communities in Accra, especially those near the Korle Lagoon and Jamestown.

After becoming familiar with the local history, culture, and geography, students will move to Winneba, a small college town and fishing community south of Accra. In Winneba, students will collaborate with local foresters and faculty at the University of Education to develop conservation strategies to protect the beautiful Muni Lagoon. Students will not only collect and analyze data but also draft conservation management proposals with Geodesign principles to be presented to local communities. During the week in Winneba, students will have excursions to Cape Coast to visit slave castles and to Kakum National Park to observe various wildlife species.

Learning Objectives

On completion of this course, students should be able to:

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- Explain representative challenges of urbanization, resource management, sea level rise, pollution, environmental degradation, and climate change;
- Describe the ways in which these challenges have been addressed in exemplar settings;
- Identify and compare successes and challenges in addressing these issues in developing countries across the world.
- Investigate the relationship between human and natural systems in theoretical and practical terms, and categorize how and why people transform natural and built environments;
- Learn to use geospatial data and geospatial tools to aid investigations;
- Become familiar with decision-making processes that follow Geodesign principles.

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.

Prerequisite(s): None
Co-Requisite (s): None
Concurrent Enrollment: None
Recommended Preparation: 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 – It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful to everyone, and you are also expected to respect of 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 you personally or for other students.

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Course Organization

This course is a 4-week intensive living and learning experience comprised of lecture sessions and hands-on workshops, paired with an international experiential learning component. The lecture sessions will utilize readings, discussions, presentations, and videos to introduce and reinforce core concepts of Geodesign which include urban and landscape planning, land management, human-environment interactions, and geospatial technologies, among other topics. Workshops are tailored to teach students operational skills to work with geospatial data and technologies. The field experience will consist of a 3-week study abroad where the class will engage with applications and the theory of Geodesign through guest lectures, field excursions, exploratory analysis, and an applied Geodesign final project. The Geodesign final project will be organized and completed with local stakeholders and colleagues at University of Ghana,Legon, and University of Education, Winneba

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 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 in the future, 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 purposed 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 Proficiency and Hardware/Software Required

ArcGIS is provided online via the SSI Server; hence, 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/

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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/hilaryj-usc/the-ssi-suite-ahf-b55-student-computers. 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.

Brightspace – This course will utilize the Brightspace learning management system which allows students to access course content, upload assignments, participate in discussion forms, among other learning experiences. The Brightspace 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 Brightspace. 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 Brightspace 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 Brightspace 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 period of time, an announcement will be posted to the class Brightspace 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 expected to login to Brightspace regularly to check for announcements.

Discussion forums – On the Brightspace site, I will post a series of discussion threads relevant to various sections of the course. Discussions provide a key means for student-to-student discussion and collaboration. 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.

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Required Readings and Supplementary Materials

- Wilson, J., (2014) Towards Geodesign: Building New Education Programs and Audiences, In (Ed.) Lee, D., E. Dias, and H. J. Scholten. 2014. *Geodesign by Integrating Design and Geospatial Sciences.* Switzerland, Springer.
- Miller W. (2012) *Introducing GeoDesign: The Concept.* Redlands, CA, Esri Press.
- Kwasi K., Clifford C. C., (2016) *The Ghana Reader,* Duke University Press
- Yeboah Danso-Wiredu, E. and Weiler, J. (2023). *Winneba: The Geography, Peoples and Systems*. Digibooks Ghana Ltd.. Temba, Ghana

Supplementary readings will be assigned from various sources including but not limited to:

- Takahashi, N., Huang, G., Agyekumhene, A. 2023. Muni Lagoon: Why it matters, in *Winneba: The Geography, Peoples and Systems*. Ed. Yeboah Danso-Wiredu, E. and Weiler, J.. Digibooks Ghana Ltd. Temba, Ghana
- Chen, X., Huang, G. 2021. Community Catalyst: Building a network of public spaces for sanitation and social inclusion in *Winneba, Ghana, Landscape Architecture Frontiers.* 9(4). https://doi.org/10.15302/J-LAF-1-040037
- Huang, G., Takahashi, N. 2020. *Reuniting City and Landscape*, School of Architecture, https://issuu.com/uvaschoolofarchitecture/docs/reuniting_20city_20and_20landscape_winneba_20ghana, University of Virginia
- Huang, G. 2020. City and Landscape Relinked: Winneba and Muni Lagoon – Ghana, *The International Geodesign Collaboration: Changing Geography by Design*, Ed. Steinitz, C., Fisher, T., Orland, B., ESRI Press, CA
- Adu-Boahen, K., Dadson, I., & J.A, A. 2018. Customary Practices and Wetland Management in Ghana: A Case Study of Muni Lagoon Ramsar Site in the Central Region. *Journal of Geography and Rural Development*, KNUST, 2.
- Attuquayefio, D. K. 1999. *Muni-Pomadze Ramsar Site: The management plan*. Ghana Wildlife Department. https://rsis.ramsar.org/RISapp/files/21561798/documents/GH563_mgt1508.pdf
- Davies-Vollum, K. S., & West, M. 2015. Shoreline change and sea level rise at the Muni-Pomadze coastal wetland (Ramsar site), Ghana. *Journal of Coastal Conservation*, 19(4): 515–525. https://doi.org/10.1007/s11852-015-0403-y
- Gordon, C., Ntiamoa-Baidu, Y., & Ryan, J. M. 2000. The Muni-Pomadze Ramsar site. Biodiversity & Conservation, 9(4), 447–464. https://doi.org/10.1023/A:1008954302319
- Ryan, J., & Ntiamoa-Baidu, Y. 2000. Biodiversity and ecology of coastal wetlands in Ghana*. Biodiversity and Conservation*, 9, 445–446. https://doi.org/10.1023/A:1008956818248
- Salamatou, A. L. 2010. Waterbirds ad Bio-indicators of Wetland Quality: Case study of the Muni-Pomadze Ramsar Site, Ghana. University of Ghana.
- Tay, C., Asmah, R., & Biney, C. A. 2010. A comparative study of the pollution status of Sakumo II and Muni Lagoons in Ghana. *Water Science and Technology*, 62(5): 1067–1075. https://doi.org/10.2166/wst.2010.359

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- UNESCO. 1994. *Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention).* United Nations Education, Scientific and Cultural Organization (UNESCO). https://ramsar.org/sites/default/files/documents/library/scan_certified_e.pdf

Description and Assessment of Assignments

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

Reading Assignments: 1 worth 10 points. You will complete assignments on readings that inform Geodesign by providing 2- page reflections on the concepts, principles, and/or case studies covered in the readings.

Oral Presentation: 2 worth 10 points. You will prepare and deliver a 10–15-minute oral presentation accompanied by slides (ppt, story map, or other media is accepted) to discuss a Geodesign case study.

Field Activities: 5 worth 15 points. You will be required to participate in all activities for the course, each weekday (Mon – Fri) of the field experience.

Field Research: 1 worth15 points. You will pick a research topic and complete your research and analysis during the field activities. The research work will culminate in a short presentation and a short research paper (2 pages).

Final Geodesign Project: 1 worth 30 points. You will produce a Geodesign project with your teammates focusing on the environmental issues in the study area. You will deliver a final oral presentation to local stakeholders on the design or plan that integrates Geodesign concepts and your research.

Field Experience Story Map: 1 worth 15 points. You will create and present an online Story Map that illustrates activities, observations, reflections, and key locations of the field experience.

Class participation: 1 worth 5 points. You are expected to actively participate in class sessions at the USC campus through discussions and workshops. This is separate from participation in activities that are a part of the international field experience.

Grading Breakdown

Assignment	**# of Assignments**	**Total Points**
Reading Assignments	2	10
Oral presentations	2	10
Field Activities	5	15
Field Research	1	15
Final Geodesign Project	1	30
Field Experience Storymap	1	15
Class participation		5
TOTAL	**18**	**100**

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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

Assignments must be submitted via Brightspace by the due dates specified in the Course Schedule. Attention to on-time assignment submission is essential.

Strict penalties apply for late assignments as follows:

- All assignments will be penalized 2 points up to four days late. No points will be given for submissions more than four days late.
- Additionally, no written work will be accepted for grading after 5 p.m. PT on the last day of classes.

Grading Timeline

My goal is to provide grading and feedback on each course assignment in time for you to take my feedback into consideration as the course progresses. Generally, this means that you can expect feedback within 1 week after a given assignment's due date.

Learning Experience Evaluations

Please note Learning Experience Evaluations for the course take place at the end of the semester and are facilitated by the University. These evaluations provide an important review of student experiences in the course.

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Schedule

	Topic	Readings and Assignments	Deliverables/Due Dates
Meeting 1 January	**Initial Meeting: Course Introduction** An initial meeting will be held the first week of spring semester to introduce the course topics and semester expectations. Book tickets, visa application and vaccine shots https://ghanaembassydc.org/inoculations/		No deliverables
Module 1: Core Concepts of Geodesign: Students will be introduced to core concepts of Geodesign and the international case study through a combination of lectures, readings, discussions, and hands-on activities. 2-hr class and 2 hours of independent study everyday			
Week 1 **5/19-23**	5/19: Introduction 5/20: Geodesign: theories and methods 5/21: Intro to Winneba and Muni Lagoon 5/22: Intro to GIS mapping 5/23: Trip Preparation	Guest speakers Andy Agyekumhene, Ph.D. , Lecturer, Environmental Science Department, UG	Reading Assignment 1; Reading Assignment 2; Oral Presentation 1
Module 2: Field Experience Time spent during the field experience will involve: 1) Lectures, workshops, field trips, and field work; 2) Independent study time (est. 2 hrs/day); and 3) Personal/ recreation time.			

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	Topic	Readings and Assignments	Deliverables/Due Dates
Week 2 5/26-5/30	5/25: Travel to Accra 5/26: Arrive in the morning. Stay at student dorm, University of Ghana, Legon. Housing Orientation and rest. Shopping at Accra Mall to get essentials, cellphone sim card, etc. 5/27: Tour the University of Ghana, Class at UG on culture and geography. Welcome dinner. 5/28: Class at UG on technology and lagoon conservation 5/29: Field trip to Korle Lagoon, Jamestown 5/30: Densu Delta and Pambros Salt Ponds. Weekend: National Museum, Nkrumah Memorial Park, Local market.	Guest speakers & local guides Andy Agyekumhene, Ph.D. , Lecturer, Environmental Science Department, UG Angela M. Lamptey, Ph.D., Lecturer, Department of Marine and Fisheries Sciences, UG Benji Akuetteh, GIS Specialist, Census bureau	3 Field activities
Week 3 6/2-6/6	6/2: Class at UG, Oral presentation 2 6/3: Full-Day Accra Safari and Boat Cruise Tour 6/4: Travel to Winneba, stop by the West Hills Mall to restock essentials. Stay at Lagoon Lodge 6/5: Winneba city tour and Muni lagoon tour 6/6: Class at UEW, Hike Manku Mountain Weekend: local market, beach resort. Sea turtle counting	Guest speakers and local guides Esther Yeboah Danso-Wiredu, Head of Geography Department, University of Education Vivian Aye-Addo, Ramsar site manager Neenyi Ghartey VII, Paramount Chief, 2nd Chancellor of the University of Education	Oral Presentation 2 2 field activities Field research
Week 4 6/9 - 13	6/9: Cape Coast and Elmina slave castle tour 6/10: Field research day 6/11: Kakum National Park day trip 6/12: Final workshop at UEW 6/13: Final presentation. Farewell dinner. 6/14: Travel to Accra and fly back		Field research Final Geodesign Project
Field Experience StoryMap due 6/20			

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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.

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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.

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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.

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