

## **SSCI 490x, Directed Research (Geodesign)**

Spring 2020

**Units:** 4

**Term — Day — Time:** Summer 2020

**Location:** Online

**Instructor:** Laura C Loyola, Ph.D.

**Office:** AHF B55A

**Office Hours:** Tuesday 11:00 a.m.-12:00 p.m., Wednesday 2:00 a.m.-3:00 p.m. or by appointment

**Contact Info:** [loyola@usc.edu](mailto:loyola@usc.edu), 213-740-5612

**Library Help:** Andy Rutkowski

**Office:** VKC 36B

**Office Hours:** Tuesdays 10:00 a.m. – 12:00 p.m.; Thursdays, 4:30 – 5:30 p.m.

**Contact Info:** [arutkows@usc.edu](mailto:arutkows@usc.edu), 213-740-5398

**IT Help:** Richard Tsung

**Office:** AHF B56

**Office Hours:** By appointment

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## **Course Description**

The purpose of a Spatial Sciences Directed Research is for students to gain practical research experience and further their understanding of the principles in their degree programs. The research must be completed with a Spatial Sciences faculty or Affiliate faculty member.

Students may register for 1.0 - 8.0 units per semester, commensurate with number of hours dedicated to research. No more than 12 units of SSCI 490 are allowed for credit towards a single degree.

The summer 2020 offering of the Spatial Sciences Directed Research will focus on geodesign research, case studies, and implementation of geodesign strategies to address a societal issue in Los Angeles County. 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 gains 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 that foster human and environmental well-being.

In the course of the research project, the student must not violate the University's policies on intellectual property and/or confidentiality and must abide by all other relevant policies.

## **Learning Objectives**

Upon completion of this course, the student should be able to:

- articulate the relevance of the research project in the context of the broader discipline;
- explain representative challenges of population growth, increasing urbanization and globalization, resource and land management, the widening gap between rich and poor, and the likely impacts of climate change across a variety of urban settings
- investigate the relationship between human and natural systems in theoretical and practical terms, and categorize how and why people transform natural environments into residential, commercial, and/or industrial uses, including the impacts these decisions have on environmental vitality, economic sustainability, and human health and well-being.
- produce a specific geodesign plan for Los Angeles County, based on research and geodesign principles.

## **Course Organization**

This course is comprised of lecture sessions paired with a virtual experiential learning component. The lecture sessions will utilize readings, discussions, presentations, and videos to introduce core concepts of Geodesign, which include urban planning, redevelopment, land management, human-environment interactions, transportation systems, and geospatial technologies, among other topics. To engage applications and the theory of geodesign, there may be virtual guest lectures, exploratory analysis, and applied case studies.

## Requirements for Enrollment

To enroll, students must be in good academic standing (cumulative and degree GPA of at least 2.50). On a case-by-case basis, students with a cumulative or major GPA below 2.50 may be permitted to take this course.

**Prerequisite(s):** None

**Co-Requisite (s):** None

**Concurrent Enrollment:** None

**Recommended Preparation:** None

## Technological Proficiency and Hardware/Software Requirements

Students do not need to have prior experience with GIS software. The modeling software and geospatial data required for course assignments will be accessed using computing resources provided by the Spatial Sciences Institute and Vrije University.

*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 Tech Support at [spatial\\_support@usc.edu](mailto:spatial_support@usc.edu), making sure to copy (cc) your instructor on the email.

Every student must have the following technology requirements:

- A computer with a fast Internet connection.
- An up-to-date web browser to access the GIST Server

If you have difficulty meeting either of these requirements, please speak with the instructor at the start of the course.

## Required Readings and Supplementary Materials

- Lee, Danbi, Eduardo Dias, and Henk J. Scholten 2014. *Geodesign by Integrating Design and Geospatial Sciences*. Switzerland, Springer. (selected chapters)
- Miller W. 2012. *Introducing GeoDesign: The Concept*. Redlands, CA, Esri Press.\*
- Ruddell, D. and K. Foster. 2018. *GIS&T and Geodesign*. The Geographic Information Science & Technology Body of Knowledge (3<sup>rd</sup> Quarter 2018 Edition), J.P. Wilson (ed) DOI: 10.22224/gistbok/2018.3.3.
- Shorto R. 2013. *Amsterdam: A History of the World's Most Liberal City*. New York, Vintage Books.
- Additional readings will be posted to Blackboard as needed in preparation for the Amsterdam case study.

\*Denotes text will be posted on Blackboard

## Description and Assessment of Assignments

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

Reading Assignments (20 points): You will complete four assignments on readings that inform Geodesign by providing 1-2 page reflections on the concepts, principles, and/or case studies covered in the readings.

Geodesign Case Study (10 points): You will complete a initial case study based on geodesign interventions incorporating field interviews and analysis from previous work in Amsterdam, Netherlands.

Capstone Geodesign Project (70 points total): The Geodesign research project will be the bulk of the work in this course and consist of the following deliverables: 1) research proposal (10 pts); 2) background/literature review related to geodesign practices and spatial analysis methodologies (15pts); 3) data report (10 pts); and 4) final oral presentation and written report (35 pts) that integrate course concepts, case studies and the proposed geodesign intervention. The final presentation will be formatted in either a story map or power point and delivered virtually via Zoom. The research paper (3,000 – 4,000 words) will be uploaded to Blackboard.

## Grading Breakdown

| Assignment                 | # of Assignments | Total Points |
|----------------------------|------------------|--------------|
| Reading Assignments        | 4                | 20           |
| Field Geodesign Case Study | 1                | 10           |
| Capstone Geodesign Project | 1                | 70           |
| <b>TOTAL</b>               |                  | <b>100</b>   |

## Tentative Course Schedule: A Weekly Breakdown

|                        | Topics/Daily Activities  | Readings and Assignments  | Deliverables/Due Dates  |
|------------------------|--|---|---|
| <b>Weeks 1 &amp; 2</b> | <b>Module 1: Core Concepts of Geodesign:</b><br>Students will be introduced to core concepts of geodesign through a combination of virtual lectures, readings, discussions, and hands-on activities. | Miller (2012); Ruddell and Foster (2012); Lee, Dias, and Scholten (2014); Shorto (2013) | Reading Assignments 1 & 2; due by end of week 2;<br>Research proposal due end of week 2 |

|                        |  |  |  |
|------------------------|--|--|--|
| <b>Weeks 3 &amp; 4</b> | <b>Module 2: Geodesign Case Study:</b><br>Students will be introduced to previously conducted interviews and geodesign interventions for an Amsterdam case study. Student also begin work on the Literature and Data report for their own geodesign project. |  | Reading Assignments 3 & 4 due by end of week 4.                  |
| <b>Weeks 5-7</b>       | Weekly one-on-one meetings with instructor.  |  | Literature review and data report due by end of week 7           |
| <b>Weeks 8-10</b>      | Weekly one-on-one meetings with instructor.<br><br>Students complete final geodesign intervention and present in final week.   |  | Final presentation and written report due by the end of week 10. |

## 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](http://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. [engemannshc.usc.edu/counseling](http://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. [www.suicidepreventionlifeline.org](http://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. [engemannshc.usc.edu/rsvp](http://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: [sarc.usc.edu](http://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.

[equity.usc.edu](http://equity.usc.edu)

*Bias Assessment Response and Support*

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. [studentaffairs.usc.edu/bias-assessment-response-support](http://studentaffairs.usc.edu/bias-assessment-response-support)

*The Office of Disability Services and Programs*

Provides certification for students with disabilities and helps arrange relevant accommodations.

[dsp.usc.edu](http://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. [studentaffairs.usc.edu/ssa](http://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 students.

[diversity.usc.edu](http://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. [emergency.usc.edu](http://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. [dps.usc.edu](http://dps.usc.edu)*

### **Academic Accommodations**

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP and it should be delivered to me early in the semester. DSP is located in STU 301 and is open from 8:30am to 5:00pm, Monday through Friday (213-740-0776; [study@usc.edu](mailto:study@usc.edu)).