

GEOG 9037: Climate Vulnerability and Resilience Assessments using GIS

Instructor

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Course Description

Using GIS, this course teaches current methods for assessing vulnerabilities and resilience to expected effects of climate change. Students will explore social and ecological vulnerabilities as well as adaptation actions to increase resilience. Climate change hazards investigated may include extreme heat, aridification, major precipitation events, natural and urban flooding, and sea-level rise.

The course is designed to be an introduction to climate change hazard foundations and how society is planning for them and preparing communities and the environment. Students will work with a variety of spatial data and GIS workflows related to climate change, including:

- Climate futures/concentration pathways
- Vulnerability indices (social and ecological)
- Vegetation and soil carbon stocks
- Census demographic information

Objectives

As a result of this course, you will be able to create an inventory of data and analyze them to determine levels of vulnerability, risk, and resilience. You will develop skills that are necessary for social and ecological climate change vulnerability studies.

Prerequisites:

- GEOG 9003, *Introduction to Geographic Information Systems*
- GEOG 9013, *Spatial Analysis & Modeling*

Labs

1. Collecting Climate Change and Vulnerability Data.
2. Mapping Social Vulnerability to Climate Change: Extreme heat and sea level rise flooding hazards.
3. Mapping Ecosystem Vulnerability to Climate Change: Aridification and fire threats.

Disability Access

Students with disabilities who need reasonable accommodations are encouraged to contact the instructor. The Disability Programs and Resource Center (DPRC) is available to facilitate the reasonable accommodations process. The DPRC is located in the Student Service Building and can be reached by telephone (voice/415-338-2472, video phone/415-335-7210) or by email (dprc@sfsu.edu).

Student disclosures of sexual violence

SF State fosters a campus free of sexual violence including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender discrimination. If you disclose a personal experience as an SF State student, the course instructor is required to notify the Title IX Coordinator by completing the report form available at <http://titleix.sfsu.edu>, emailing vpasem@sfsu.edu or calling 415-338-2032.

To disclose any such violence confidentially, contact:

- The SAFE Place - (415) 338-2208; http://www.sfsu.edu/~safe_plc/
- Counseling and Psychological Services Center: (415) 338-2208; <http://psyservs.sfsu.edu/>
- For more information on your rights and available resources: <http://titleix.sfsu.edu>