SSCI 214g, Human Populations and Natural Hazards

Syllabus

Units: 4

Term Day Time: Fall 2022
Lecture: Tues/Thurs 2-3:20 pm PT
Discussions:  
   Tuesday 11:00-11:50am   THH 114
   Wednesday 10:00-10:50am  SOS B48
   Thursday 11:00-11:50am   THH 217
   Friday 10:00-10:50am     THH 118

Location: Lecture: THH 102
Discussion:  
   Tuesday 11:00-11:50am   THH 114
   Wednesday 10:00-10:50am  SOS B48
   Thursday 11:00-11:50am   THH 217
   Friday 10:00-10:50am     THH 118

Instructor: Guoping Huang, D.Des.
Office: AHF B57B
Regular Office Hours: Wed 1-3 p.m. PT. Also available most by appointment via email.
Contact Info: guopingh@usc.edu, 213-740-5192

Discussion Co-Instructor: Aviva Wolf-Jacobs (Th & F)
Office: AHF B55
Contact Info: wolfjaco@usc.edu

Discussion Co-Instructor: Jeffrey Rozelle (T & W)
Office: AHF B55
Contact Info: jrozelle@usc.edu

Library Help: Andy Rutkowski
Office: VKC 36B
Office Hours: Tuesdays 10 a.m.-12 p.m. PT
Contact Info: arutkows@usc.edu, see contact page on Blackboard for Zoom Room

IT Help: Dornsife Technology Services
Office: SHS 260
Contact Info: spatial_support@usc.edu, 213-740-2775
Course Scope and Purpose

Human populations and natural hazards (earthquakes, hurricanes, floods, drought) are increasingly in conflict throughout the world, as witnessed with the effects of rainfall variability on agriculture in semi-arid lands, or the destructive forces of hurricanes on coastal cities. While natural hazards represent ongoing processes and functions of the Earth as a living organism, they can also be human-induced processes or events. Problems arise when people live in regions of the world where hazards exist with the potential to cause loss (i.e., life, injury, property, or other). As the global population approaches eight billion inhabitants, increased competition for land and resources has driven people to live in more remote environments and higher density areas than ever before, resulting in increased human exposure and vulnerability to the risk of environmental hazards. While some individuals or communities are resilient, meaning they possess a high capacity to absorb impacts and recover from a hazardous event, others, such as poor residents living in inner-city slums or rural dwellers located on marginal land, struggle to cope, recover, or rebuild from a disaster.

This course examines the complex and coupled relationship between human development (population growth, urbanization) and environmental hazards by exploring a range of topics, such as: What do hazard, risk, vulnerability, and disaster mean, and how are these terms measured? What do hazards have to do with human values? How is exposure to environmental hazards different in developing and industrialized countries? And, what responsibility does the government have to protect individuals from risk? Students will utilize quantitative and qualitative methods – including geospatial technologies – to gain insight into these questions – where and why hazards occur – and the subsequent impacts disaster events have on the social world (such as mortality, displacement, property damage, or other losses). Students will reflect on how society evaluates and confronts the dangers posed by natural hazards, and how political, economic, and/or cultural settings can serve to attenuate or exacerbate human vulnerability before, during, or after a disaster occurs.

SSCI 214g fulfills the requirements of the USC General Education program, Social Analysis (Category C) and is designed to serve students of diverse backgrounds and academic interests (e.g., anthropology, earth sciences, environmental studies, human health, international relations, public policy, and spatial sciences, among others). It is appropriate for students with or without an extensive background in science.

Learning Outcomes

Students who excel in SSCI 214g will be able to:

- Discuss human populations and societies in the context of geographic location and exposure to the earth’s natural hazards.
- Describe the underlying processes that give rise to natural hazards such as earthquakes, volcanic eruptions, hurricanes, landslides, and how these affect human populations.
- Explain how society evaluates and confronts the dangers posed by natural hazards from political, social, and ethical perspectives.
• Utilize geospatial technologies to visualize the locations and dangers of natural hazards to human populations.
• Discuss the consequences and outcomes of environmental hazards for human populations.
• Compare and contrast technological innovations used to monitor, predict, and warn society about natural hazards and impending disasters.

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](mailto: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)

**COVID-19 policy** -- Students are expected to comply with all aspects of USC’s COVID-19 policy including, but not limited to, vaccination, indoor mask mandate, and daily TrojanCheck. Failure to do so may result in removal from the class and referral to Student Judicial Affairs and Community Standards. Students are recommended to keep safe physical distancing, whenever possible, to prevent any possible transmission. Please contact your instructor if you have any safety concerns.

**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.

Course Structure

This course aims to engage students in the dynamic processes underlying earth systems and natural hazards as well as the impacts that disaster events present to human populations. Student learning experiences are achieved through a combination of lectures, assignments, discussions, and course readings. Lectures, complemented by readings, will present core concepts, provide detailed explanations of assignments, and include activities such as individual and collaborative problem definition and problem solving experiences. Discussions will complement lectures with opportunities to interactively explore lecture topics in greater depth. For example, in discussions students will be encouraged to ask questions and participate in group conversations that will allow a broader and deeper understanding of natural hazards and disasters to emerge. No make-up dates will be offered for missed quizzes or exams, so mark the appropriate dates on your calendars. If there is a legitimate conflict, speak with a course instructor as soon as possible so we can make alternative arrangements.

Technology Requirements

Students will be introduced to geospatial technologies by utilizing Esri services and products. This course will use ArcGIS Online (AGOL) to investigate human populations and natural hazards whereby students will locate and explore various spatial datasets that offer unique and innovative insights in hazards research. The modeling software and geospatial data required for course assignments will be accessed using computing resources provided by the Spatial Sciences Institute. 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/

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 materials to be handed in will be submitted via Blackboard. It is each student's responsibility to stay informed about what is going on in our course. In addition to email 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.
I will send via email through Blackboard any notices that are time sensitive. Please be sure that you read as soon as possible all email sent from Blackboard or from me. Do not ignore course email until the day before assignments are due. Also double check to be sure that email sent from the USC blackboard account does not go into your junk mail!

While I am usually on-line all day and will probably respond to emails from students very quickly, I will endeavor to respond to all email within 24 hours of receipt, aiming for no more than 72 hours delay. In the rare case when I expect to be off-line for more than 72 hours, I will post an announcement on the Blackboard site.

Discussion forums – On the Blackboard 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 that can replicate the face-to-face contact you may have experienced in traditional classrooms. 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 publically 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 textbooks for this course are:


Description of Assessments

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

Homework Assignments (24%): Students will be required to complete eight homework assignments comprised of quantitative and/or qualitative analysis to gain insight on the physical processes underlying natural hazards and disasters as well as examine the impact these events have on human populations.

Hazard & Disaster Log (16%): Students will be required to keep a journal of three significant natural hazard and/or disaster events that happened over the course of the semester that made media headlines. Working in pairs, students will report the Hazard & Disaster Log in the form of a digital Story Map (available through AGOL) and will be presented in class at the end of the semester. This assignment will require students to locate and evaluate technical information from online agency sites such as the U.S. Geological Survey and the National Oceanic and Atmospheric Administration (NOAA).

Discussions (13%): Structured weekly discussion sections are highly interactive and will focus on combinations of theory and practice to promote deeper learning of core concepts. Every
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<th>Week 1 8/23</th>
<th>Topic</th>
<th>Readings and Assignments</th>
<th>Deliverables/Due Dates</th>
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<tbody>
<tr>
<td><strong>Introduction to Human Populations, Natural Hazards and Disasters</strong></td>
<td>Lectures: <strong>L1</strong>-Introduction to human populations and the associated impacts of natural hazards; <strong>L2</strong>-Human life, tracking past and present migration patterns, and the evolution of environmental hazard paradigm perspectives. Discussion: Discussions Sections do not meet</td>
<td>Reading: Smith (2013) Ch. 1</td>
<td>No deliverables.</td>
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<td>Week 2 8/30</td>
<td><strong>Human Dimensions</strong></td>
<td>Lectures: <strong>L1</strong>Spatial patterns in the context of impacts on human populations; <strong>L2</strong>-human-environment interactions and anthropogenic factors to hazards. Discussion 1 (T-F): What do hazards have to do with human habitation, culture and values? What do hazard, risk, vulnerability, and disaster mean? How are these terms measured?</td>
<td>Reading: Smith (2013) Ch. 2; Flannery (2005) Ch. 1-2 Homework Assignment 1 (Smith Ch 1 &amp; 2 summary)</td>
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<td>Week 3 9/6</td>
<td><strong>Complexity Science, Sustainability Science, and Human Vulnerability</strong></td>
<td>Lectures: <strong>L1</strong>-Complexity science and sustainability science; <strong>L2</strong>-Global links between physical and socio economic systems and recording loss; <strong>L2b</strong>-introduction to GIS for measuring human vulnerability. Guest lecture: Jeremy Kagan Discussion 2 (T-F): Introduce AGOL How do maps allow us to illustrate disaster outcomes as interactions between humans natural system? How can we use maps to visualize and understand complexity science, human vulnerability, and sustainability?</td>
<td>Reading: Smith (2013) Ch. 3; Flannery (2005) Ch. 3-4 Homework Assignment 2 (AGOL Risk &amp; Vulnerability in Hawaii)</td>
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<td>Week 4 9/13</td>
<td>Topic</td>
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<td>Risk Assessment and Management</td>
<td>Lectures: <strong>L1-assessing and</strong> mitigating risk with geospatial data and GIS infrastructures; <strong>L2 (Vos)-Human risk perception</strong></td>
<td>Reading: Smith (2013) Ch. 4; Flannery (2005) Ch. 5-6</td>
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<td>Discussion 3 (T-F): <strong>New topic:</strong> Disaster paradigms and Environmental Paradigms. Why do you think loss in LDCs generally equates to loss of life, while in MDCs loss generally equates to loss of property? What roles do you think Globalism and Capitalism play in these understandings of disaster-related loss? Why don’t environmental losses, such as ecosystem damage and loss of biodiversity, play a larger role in many disaster loss conversations?</td>
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<th>Week 5 9/20</th>
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<td>Reducing the Impacts of Climate Change</td>
<td>Lectures: Mitigation and adaptation strategies to reduce the impacts of disasters induced by climate change.</td>
<td>Reading: Smith (2013) Ch. 5; Flannery (2005) Ch. 7-8</td>
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<td>Discussion 4 (T-F): <strong>What is climate change? What are the arguments for and against? What is meant by “coping” and how is coping related to livelihoods? Why is the sequence of coping strategies important for disaster management?</strong></td>
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| Module 2: Natural Hazards and Impacts on Humans |

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<th>Week 6 9/27</th>
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<td>Tectonic Hazards: Earthquakes and Tsunamis</td>
<td>Lectures: Plate tectonics and the impacts of earthquakes and tsunamis.</td>
<td>Reading: Smith (2013) Ch. 6; Flannery (2005) Ch. 9-13</td>
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<td>Discussion 5 (T-F): <strong>To what extent is earthquake preparedness a public or private concern? How does the frequency and magnitude of earthquake damage affect risk perceptions, behavior, and policy?</strong></td>
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| **Week 7** 10/4 | **Tectonic Hazards: Volcanoes and Mass Movement Hazards**  
Lectures: The processes that produce volcanoes and how volcanoes impact society; landslide and avalanche hazards; the increasing number of people affected by them, and reasons for this increase.  
Homework Assignment 5 (Flannery written response) | No deliverables |
| **Week 8** 10/11 | **Severe Storm Hazards and Weather Extremes**  
Lectures: Tropical cyclones – formation, classification, human populations at risk, and mitigating resulting storm damage; introduction to extreme weather events and related outcomes.  
**No Discussion meetings** | Reading: Smith (2013) Ch. 9; Flannery (2005) Ch. 20-24  
Homework Assignment 6 (Implications for Post-disaster responses during a pandemic) | Homework Assignment 4 – make this a regular (not via Turnitin submission) because it is a link to storymap |
| **Week 9** 10/18 | **Disease Epidemics and Human Rights**  
Lectures: An introduction on disease epidemics and human rights through the lens of spatial data  
**Topics moved one week out here until end**  
Discussion 7 (T-F): What are the phases of disaster reconstruction and how long does each phase take? What are the different ways societies adjust to risk? | Reading: Smith (2013) Ch. 10; Flannery (2005) Ch. 25-30 | Homework Assignment 5 |
| **Week 10** 10/25 | **Floods and Wildfires**  
Lectures: An introduction to thunderstorms and the feedback loop between human development and flooding; wildfires and the WUI.  
**10/27 (tentative) – Guest Lecture: Gregory Elwood, Ventura County Fire**  
| Week 11 11/1 | **Droughts**  
Lectures: Drivers and impacts of drought; drought as related to floods.  
Discussion 9 (T-F): What is the wildland-urban interface (WUI)? How does the WUI make controlling fire hazards particularly difficult? How is vulnerability to wildfire related to human values and desires? | Reading: Smith (2013) Ch. 11;  
No deliverables |  |
| Week 12 11/8 | **Technological Hazards**  
Lectures: "Man-made accidents", the third industrial revolution, case studies showing societal impacts, and options for the future.  
Discussion 10 (T-F): Why does the definition of a drought vary according to geography and economic activity? What are some direct and indirect impacts of drought hazards? | Reading: Smith (2013) Ch. 12  
Submit After Action Report: 11/9 |  |
| Week 13 11/15 | **Environmental Hazards**  
Lectures: The third industrial revolution and the impact on the environment.  
11/17 (tentative) – Guest Lecture: Steven Goldfarb, Director, USC Office of Fire, Safety, Emergency Planning & Business Continuity  
Discussion 11 (T-F): What people are particularly vulnerable to technological hazards and why? What can we learn from current research to help address the third industrial revolution challenges? | Reading: Smith (2013) Ch. 13  
Move submission of AAR to this week? Submit After Action Report: 11/9?? |  |
| Week 14 11/22*  
*11/24-11/28 is a university holiday | **The Future of our World**  
Lecture: Case studies showing societal impacts and options for the future.  
No Discussion meetings: Reflective Discussion Post for all sections open Monday for (Discussion 12) | Reading: Smith (2013) Ch. 14  
No deliverables |  |
| Week 15 11/29 | **Hazard & Disaster Log**  
Lectures: Final exam review.  
Discussion 13: Present Hazard and Disaster Logs. | Hazard & Disaster Logs – Presentation in Discussion Sections |  |
| Final Exams | **Final Exam, TBD** | | |
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 Research and Scholarship Misconduct.

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 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 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 for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086 eeotix.usc.edu
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
usc-advocate.symplicity.com/care_report

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.usc.edu
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) 821-4710
campussupport.usc.edu
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
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.

**Office of the Ombuds** - (213) 821-9556 (UPC) / (323-442-0382 (HSC)
ombuds.usc.edu
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) 442-3340 or otfp@med.usc.edu
chan.usc.edu/otfp
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 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/](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](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.