

GEOG 140: Natural Disasters: Earthquakes, Floods and Fires
Summer 2024. This is a 3 credit course
Monday to Friday from Monday July 8th to Friday July 26th
Time: 10:00 am to 1:00 pm Monday to Friday
The format for this course is in-person teaching.

Instructor:

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Office hours: By appointment only

Course description:

Natural disasters change people's lives. Whether the event is an earthquake, a flood, or a wildfire, things will never be the same for either society or the environment. During a natural disaster, and in its aftermath humans and the environment are part of the event, there ceases to be a human/environment distinction. Natural disasters are becoming more common in this time of global environmental change and it is essential that today's students be equipped with the knowledge and skills to be leaders as we, as a society, understand the upheaval that these natural disasters are causing. In this I-Course, students will examine how natural disasters shape human society and ecosystems from the interdisciplinary perspective afforded by the field of Geography. Students will use the latest geographic science concepts and techniques in exploring these events. Through satellite imagery they will gain perspective on the scope of the event, while ecological and societal aspects of the events will be examined on a somewhat smaller scale. Furthermore, to expose students to the overall field of geography the class is going to be co-taught by a human, physical and technical geographer.

Issue of current importance

Natural disasters are happening with increasing frequency, and leaders of society are struggling to not only respond to them as they happen, but also to understand their causes in hopes of lessening their impact on humans and on ecosystems. Students will study recent natural disasters.

This course will concentrate on earthquakes, floods, and fires. Each of these natural disasters has complex causes and effects, and needs to be studied at multiple scales in the integrative manner that is hallmark of Geography. Perhaps the biggest reason that natural disasters are a current issue is that students need only look at the newspaper to see the earthquakes in Haiti, flooding in Pakistan, fires in Russia, Southern California, and the Amazon basin.

Learning outcomes

After taking this I-Series course:

- Students will be able to identify the major questions and issues surrounding natural disaster, including the event's baseline information, the event itself and the event's aftermath.
- Students will be able to describe the sources experts on natural disasters use to explore issues and questions, including use of geospatial technologies such as satellite imagery to gain a multi-scale perspective of the ecological and societal aspects of the events
- Students will demonstrate an understanding of the basic terms, concepts and approaches of natural disasters, by studying satellite imagery to gain perspective on the scope of the event, while ecological and societal aspects of the events will be examined on a somewhat smaller scale.
- Students will demonstrate an understanding of the political, social, economic and ethical dimensions surrounding natural disasters, by examining the cultural relationships, political climates, communal norms and economic situations of impacted societies.
- Students will communicate the major ideas and issues surrounding natural disasters through presentations and/or discussions on an aspect of the topic (Baseline, Event, Aftermath) for each natural disaster.

After taking this Natural Sciences course:

- Students will gain a broad understanding of the scientific principles and research methodologies associated with causes, impacts and implications of natural hazards, including the event's baseline information, the event itself and the event's aftermath.
- Students will be able to solve complex problems associated with natural hazards, such as the physical context of geomorphology, biogeography and climate and the social contexts of population in the disaster area and the cultural relationship to the physical environment
- Students will analyze scientific questions surrounding natural disasters in order to understand how such questions influence and are shaped by geographic, economic, social and political dimensions.
- Students will be able to effectively communicate scientific ideas through active participation in group discussions, group projects and presentations.

The following topics will be covered.

FLOODING:

- 1. Causes of flooding and types of flooding**
- 2. The great flood of 1993, Mid-West USA**
- 3. Flooding in South East Asia, Monsoon**
- 4. Flooding of the lower Mississippi – A case study of Hurricane Katrina**
- 5. Flooding of the North East Coast of the US – Hurricane Sandy**
- 6. Flooding of the Nile Delta region and the policy response**
- 7. Implications for issues with the Aswan High Dam**

8. Efforts to reduce negative effects of flooding in the Yangste River: The Case of the Three Gorges Dam
9. Global sea level rise and vulnerable coastal areas: focus on Venice, Bangladesh and small oceanic nations

VOLCANOES AND EARTHQUAKES (INCLUDING TSUNAMIS):

1. The science of earthquakes and volcanoes
2. The Kobe earthquake in Japan and the 2011 tsunami in Japan and issues concerning policies and preparedness
3. Threat of volcanoes and earthquakes in the region called the 'ring of fire'. The case of California
4. Focus upon the economic advantages surrounding the proximity to volcanoes
5. Preparedness for the potential threat caused by tsunamis: Focus on the December 26th, 2004 tsunami

FIRES:

1. The ecology of fires
2. Fires in West Coast US and Australia

THERE IS NO REQUIRED TEXT BOOK FOR THIS COURSE

Required work & Grading Method: In class exercises and open book tests will be done throughout the course and these exercises will be graded. These total score of these in-class exercises and open book tests will be 80 percent of the course. The final 20 percent of the course will be a closed book multiple choice exam of 100 questions. Preparation for this closed-book exam will be supervised by the instructor and this will be given on the last day of the course.

A large part of this course is working in groups. The size of each group will depend upon the numbers of students registered for the course. There will be a final project with a required presentation at the end of the three week semester. The final topics for the group projects will be but not limited to the following areas:

- Challenges faced by coastal Holland (Netherlands): Problems associated with rising seas; solutions used in the past; limitations of the solutions used; need for a bold approach in mitigating the possible threats from sea level rise.
- Issues pertaining to sea level rise in the Eastern Caribbean (SIDS – Small Island Developing States): their challenges and implications for economic development for the present and the future.
- The Maldives: How will they deal with saving their country?
- New York City: Stay and fight, retreat and armor, abandon and relocate? Challenges facing the east coast metropolis: the grand challenges for the future.
- Bangladesh, sea level rise and the future of its agricultural economy. Is there a way out?
- New Orleans: Is a grey approach the best option or should a combination of grey and green approaches be best against rising seas?
- How can the pine bark beetle infestation be stemmed before it is too late? Challenges of climate change and the future of old growth forests in the Western US.
- Volcanos: Sentinels and friends or deadly enemies? Living safely with dangerous neighbors.

- Are we prepared to earthquake proof our current cities in the US? The politics and economics of living in a seismically active zone.

Each group will be required to use some of the class time to clarify the essence of their respective topics. Preliminary reports have to be turned in by the end of the second week. Practice sessions will be allowed for greater refinement of the presentations – on PowerPoint.

The success of this project will depend upon a special configuration of the class and seating arrangement into working groups.

In addition, some in-class exams will allow class collaboration amongst students so that students can benefit from working together and learning from each other.

Final letter grades will be broken down the following way:

96 – 100	A+
92 – 95	A
90 – 91	A-
88 – 89	B+
82 – 87	B
80 – 81	B-
78 – 79	C+
72 – 77	C
70 – 71	C-
60 – 69	D
Less than 60	F

STUDENTS WITH SPECIAL NEEDS AND COUNSELING FOR STUDENTS WITH SPECIAL NEEDS: If you are a student who has special needs that have been recognized by the University of Maryland at College Park, please see your instructor immediately so that arrangements can be made for you to maximize the chances for you to successfully complete this course. If you experience difficulties in mastering the academic demands of this course, please contact the Learning Assistance Service, 2201 Shoemaker Building, 301-314-7693 as soon as possible. Their educational counselors can provide assistance with time management, reading, note-taking, and exam preparation skills.

DISABILITIES: We will make every effort to accommodate students who are registered with the Disability Support Services (DSS) Office and who provide me with a University of Maryland DSS Accommodation form. This form must be presented to the Instructor as early as possible. We will not be able to accommodate students who are not registered with DSS or who do not provide me with documentation, which has been reviewed by DSS after this date

HONOR CODE: The University has a nationally recognized Honor Code, administered by the Student Honor Council. The Student Honor Council proposed and the University Senate approved an Honor pledge. The University of Maryland Honor Pledge reads:

"I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination."

Unless you are specifically advised to the contrary, the Pledge statement should be handwritten and signed on the front cover of all papers, projects, or other academic assignments submitted for evaluation in this course. Students who fail to write and sign the Pledge will be asked to confer with the instructor.

Academic integrity: Academic dishonesty is a serious offence that can result in suspension or expulsion from the University of Maryland. All assignments should be your own work. Since there are several writing assignments, plagiarism would not be tolerated. Please refer to the following website to determine how the University of Maryland defines plagiarism:
<http://www.testudo.umd.edu/soc/dishonesty.html>.

PLEASE BE ADVISED THAT THE MATERIAL OUTLINED IN THE SYLLABUS, INCLUDING DATES FOR IN-CLASS ASSIGNMENTS AND EXAMS ARE SUBJECT TO CHANGE IN ACCORDANCE WITH THE OCCURRENCE OF SPECIAL CASES AND EVENTS.