

GEOLOGY 125–300 HON NATURAL DISASTERS

Course Description: Natural Disasters (3) Examination of the causes, effects, and options available to mitigate actual disasters, such as earthquakes, volcanic eruptions, landslides, subsidence, flooding, severe weather, and meteorite impacts. Case histories are used to demonstrate scientific principles and socioeconomic issues and are presented by the students.

Class: TR 11:00–12:15 p.m., DeLoach Hall 105
Instructor: William B. Harris **Office:** DeLoach Hall 106 **Phone:** 962–3492 **E-mail:** Harrisw@uncw.edu
WWW Sites: <http://people.uncw.edu/harrisw/>
Office Hours: Tues and Thurs. 8:30-9:30; Tues. 1:00-3:00; Mon., Weds. by appointment
Required Text: *Natural Hazards and Disasters*, 3rd ed., 2011, Donald Hyndman and David Hyndman, Brooks and Cole, 571 p.

Attendance: Attendance is not taken but you are expected to attend class; it will be considered in final grade determination. I start class promptly at 11:00 AM; you should be here at the beginning of class ready to take copious notes or to become involved in discussion of the topic. I am not happy with people who come to class late disrupting me and those who are deeply involved in the process of learning. In addition, I don't look favorably upon students who leave class early, unless they have discussed it with me before class. Remember, pay attention in class, ask questions and become engaged in the topic.

Grading: Four (4) exams; the lowest score on one of the four exams will be dropped. Each remaining exam = 25% of grade. Students must take all exams on the dates given and must take the final exam. **Make-up exams are not given.**

The other 25% of your grade will be determined from student class presentations.

No extra credit is given.

Grading Scale: 100-93 = A, 92.9-90 = A-, 89.9-87.5 = B+, 87.4-82.5 = B, 82.4-80 = B-, 79.9-77.5 = C+, 77.4-72.5 = C, 72.4-70 = C-, 69.9-67.5 = D+, 67.4-62.5 = D, 62.4-60 = D-, <60 = F.

Student Presentations – Each student will give a 10-15 minute PowerPoint Presentation of a selected case history of a natural disaster. Case histories can be from ancient or modern times but cannot be one presented in class. Each presentation must include the following:

- Nature of event
- Location and time of event
- Relationship to Earth's tectonic plates
- Historical evidence of similar event
- Precursors to event if present
- What caused event?
- Impact on human society – What happened after the event?
- Long term impact of event on Earth if any

Learning Outcomes after completing GLY125 - You should be able to:

- Demonstrate a basic understanding of the scientific principles, theories, and laws that govern Earth processes such as climate and weather, flooding, plate tectonics, etc., and explain those processes responsible for natural disasters. [SAN1]
- Evaluate the causes of natural hazards and the possible effects of human activities on those causes. [SAN1]
- Evaluate the evidence leading to major theories and discoveries in the earth sciences including plate tectonics, earthquake and volcanic occurrence, biological evolution, and atmospheric circulation. [SAN2]
- Develop an understanding of the data sources and analytical methods employed by geologists and other scientists to address key natural disaster issues, and through use of those sources, employ methods to develop a better understanding of the factors inherent to their occurrence. [SAN2]
- Identify and measure the important properties of landforms that aid in recognition of natural hazards. [SAN2]

- Describe and explain the unique characteristics of natural processes at work on Earth using standard terminology and classification systems inherent to each. [SAN3]
- Develop an argument supported by facts and reasoning to address local natural disasters resulting in environmental issues of importance. [SAN3]

SAN 1. Demonstrate an understanding of basic scientific principles, theories, and laws as well as an awareness of the changing nature of science.

SAN 2. Analyze, interpret, and evaluate scientific hypotheses and theories using rigorous methods (including statistical and mathematical techniques).

SAN 3. Demonstrate the ability to write and speak critically about the essential questions addressed by the natural sciences, using the conventions and language of one of those disciplines.

Student Behavior - The University of North Carolina Wilmington Code of Student Life states that students who “Conduct himself/herself in a manner that significantly interferes with the teaching, learning or operations of the university” are disruptive and subject to disciplinary action. This includes the use of cell phones, text messaging, excessive talking, getting up and leaving the class during lecture. **Turn off your phones;** if one rings you will be asked to leave the class and prepare a written apology to be read to the class and me at the beginning of the next class period. In addition, searching the web, using your phone for texting or reading/sending email during class will not be tolerated.

Academic Honor Code - The University’s Honor Code is enforced in this class and laboratory. Plagiarism is a specific violation of the Honor Code and in this class includes cheating on exams and turning in work that is not your own. In the laboratory I encourage you to work in groups as you can learn from others, and once employed in the profession you will work as part of a team, but remember the work you complete and submit must be your own. If you are not familiar with the Code, complete details are in the current UNCW Code of Student Life or at (http://www.uncw.edu/policies/documents/03_100FINALHONORCODE_Aug2009.pdf)

Violence and Harassment - “UNCW practices a zero-tolerance policy for violence and harassment of any kind.” For emergencies contact UNCW CARE at 962-2273, Campus Police at 962-3184, or Wilmington Police at 911. For University or community resources visit <http://www.uncw.edu/wrc/crisis.htm>.”

Students with Disabilities - Students with diagnosed disabilities should contact the Office of Disability Services (962-7555). Please give me a copy of the letter you receive from the Office of Disability Services detailing class accommodations you may need. If you require accommodation for test-taking please make sure I have the referral letter no less than three days before the test. (<http://www.uncw.edu/stuaff/disability/>)

Religious Observance Policy - In accordance with NC SL 2010-211, you are entitled to two excused absences for religious observances **per academic year**. You must inform me in writing the first week of class if you will be missing any classes due to religious observance and using one of the two permissible absences for the academic year. In addition, please inform the Registrar the first week of class who will then confirm your intentions to miss class with the impacted course instructors. Any absence for religious purposes will be considered unexcused unless you submit the request in writing the first week of class to either me or the Registrar.

The UNCW Statement on Diversity in the University Community - As an institution of higher learning, the University of North Carolina Wilmington represents a rich diversity of human beings among its faculty, staff, and students and is committed to maintaining a campus environment that values that diversity. Accordingly, the university supports policies, curricula, and co-curricular activities that encourage understanding of and appreciation for all members of its community and will not tolerate any harassment or disrespect for persons because of race, gender, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, political affiliation, marital status, or relationship to other university constituents.

Readings - The textbook is required. Copies are on reserve in Randall Library. Read assignments before class.

Tentative Schedule

Date	Topic	Chapter
Jan 12 (R)	Natural hazards and disasters: Catastrophic events in nature	1
17 (T)	Plate tectonics and physical hazards	2
19 (R)	Plate tectonics and physical hazards	2
24 (T)	Earthquake and Their Causes	3
26 (R)	Earthquake Prediction and Mitigation.....	3 & 4
31 (T)	Earthquakes - Case Histories (Student Talks)	4
Feb 2 (R)	Tsunami - Case Histories (Student Talks).....	5
7 (T)	1ST EXAM	
9 (R)	Volcanoes: Tectonic Environments and Eruptions	6
14 (T)	Volcanoes: Hazards and Mitigation	6 & 7
16 (R)	Volcanoes - Case Histories (Student Talks).....	7
21 (T)	Landslides & Other Downslope movements	8
23 (R)	Landslides & downslope movements - Case Histories (Student Talks)	8
28 (T)	Sinkholes, land subsidence, & swelling soils	9
Mar 1 (R)	Sinkholes, land subsidence, & swelling soils – Case Histories (Student Talks)	9
6 (T)	2ND EXAM	
8 (R)	Climate Change and Weather Related Hazards.....	10
10-18	Spring Break	
20 (T)	Hurricanes and Nor'easters	14
22 (R)	Thunderstorms and Tornadoes - Case Histories (Student Talks).....	15
27 (T)	Streams and Floods Processes.....	11
29 (R)	Floods and Human Interactions.....	11 & 12
Apr 3 (T)	Floods- Case Histories (Student Talks).....	12
5 (R)	3RD EXAM	
10 (T)	Waves, Beaches and Coastal Erosion.....	13
12 (R)	Waves, Beaches and Coastal Erosion.....	13
17 (T)	Waves, Beaches and Coastal Erosion - Case Histories (Student Talks).....	13
19 (R)	Impact of Asteroids and Comets.....	17
24 (T)	The Great dyings	
26 (R)	The Future: Where do We Go from Here?	18
30	Last Day of Classes	
FINAL EXAM – 11:30-2:30, DL105		May 8