

Disaster Science and Management (DSM) 2000: Hazards, Disasters, and the Environment

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I. Course Description

Not every hazard turns into a disaster. Adverse impacts of a hazard on people and the environment are not solely a function of the magnitude of the hazard itself but often a product of societal responses by individuals, organizations, and the government across local, regional, federal, and global scales. This course introduces students to the fundamental concepts and processes of natural and anthropogenic hazards and their impacts on society and the environment. Emphasis will be placed on the origin, physical processes, and characteristics of selected hazards as well as lessons learned from past disasters.

Course Objectives:

- (1) To examine the triggering mechanisms, physical characteristics, and geographic distribution of a broad range of environmental hazards;
- (2) To review the societal responses and lessons learned of major disasters; and
- (3) To assess the implications of past hazards and disasters for future loss reduction and emergency management.

II. Course Requirements and Evaluation

Course Format: Each class session covers a specific type of hazard or hazard “family” as well as relevant major historic disasters. In addition to assigned reading materials, each session will involve viewing and studying a power point presentation as well as other class-related materials (e.g. short videos, animations, etc). After reviewing the class materials and assigned readings, students will complete a quiz (15 questions) for the class period on Moodle (see *Quiz*).

This course is not a self-paced studying course. **Course sections will become visible sequentially on Moodle similar to a traditional Tue/Thu course, i.e. you will need to keep up with quiz deadlines.**

<i>14 Quizzes</i>	<i>(51 %)</i>	<i>210 points (15 points or 3.7% each)</i>
<i>Midterm Exam</i>	<i>(24 %)</i>	<i>100 points</i>
<i>Final Exam</i>	<i>(24%)</i>	<i>100 points</i>
<i>TOTAL possible points</i>		<i>410 points</i>

Grading: A (> 89.5%), B (79.5-89.4%), C (69.5-79.4%), D (59.5-69.4%), F (< 59.4%)

Grades are rounded to the first decimal. You may check your scores at any time by accessing the *Student Tools* section of the Moodle class website.

Quizzes: Quizzes are worth 15 points each and collectively constitute 51% of your final grade. Quizzes are designed to ensure the completion of required readings and to test the understanding of the course materials. Quizzes cover ALL materials posted within a class session incl. animations, videos, readings, lecture notes, etc. Some quizzes might focus more on the lecture presentations than the required readings, etc. while other quizzes might focus more on the required readings, visual aids, etc. than the lecture presentations. Each quiz will contain a set of **15 random questions**. You will have **THREE attempts** per quiz. The lowest grades will be dismissed and only the highest score will count toward your final grade. **Each quiz attempt will consist of a new set of 15 questions**, i.e. you will not retake the same quiz.

Each quiz will be accessed via **Moodle** and is due on the **specified due dates** (see course schedule), at **4pm CST**. There is neither an extra credit nor a late assignment policy. Any quiz not handed in by this time will receive a grade of zero points. All quizzes must be completed in order to fulfill your responsibilities for this course. They are designed to enhance your learning experiences and to provide opportunities for you to synthesize and prepare for the midterm and final exams. Be aware that – although infrequently - Moodle might experience technical difficulties or you could have

problems with your network connection, which might cause a failed quiz submission. **Due to technical limitations the instructor can neither provide additional attempts to ensure the submission of three completed attempts nor can the instructor extend the deadline for individual students.** It is your responsibility to attempt each quiz in a timely manner (at least 24 hrs. before the quiz deadline) to make sure that you can utilize remaining attempts.

Readings: There is no text book for this course. All reading materials are either third party websites or documents stored on Moodle. Whenever the syllabus lists a website, it means that only this specific site is part of the readings. You are not required to study the hyperlinks leading away from this website.

Midterm and Final Exams: Each exam covers all course materials of preceding class sessions (i.e. required readings, visual aids, animations, films, and course presentations). **The midterm exam covers the sessions on severe weather, hurricanes, floods, and heat and drought. The final exam covers the sessions on wildfires and landslides, geological hazards, and biological and man-made hazards.** Preparation for the exam should focus on synthesizing key concepts introduced through course presentations, readings, and related materials provided online. Each exam will be given on the LSU campus under proctored supervision.

Participation: Regular and active participation is absolutely critical to your success in this or any other online course. Set aside time to read and reflect on the course materials and discussions. It is critical that you read all materials and participate in online discussions each week.

Academic Integrity and Grade Appeals: Issues of academic integrity (plagiarism/cheating) and grade appeals will be resolved promptly according to the procedures set forth in the [University General Catalog](#) and the [LSU Student Handbook](#). Students suspected of plagiarism will be held responsible according to LSU Student Handbook policies on academic misconduct (see section 5.1 at [http://app1003.lsu.edu/slas/dos.nsf/\\$Content/Code+of+Conduct?OpenDocument#8.5](http://app1003.lsu.edu/slas/dos.nsf/$Content/Code+of+Conduct?OpenDocument#8.5)).

III. Technology Requirements, Communication, Assignment Drop-Off & Support

This course will be conducted entirely online using the course management platform *Moodle*. This course will require you to use instructional technology as a tool for learning and research. All course materials, resources, assignments, and class discussion forums will be accessible on the course website (using Moodle). The class website on Moodle is the platform where assignments, course material, instructions, and readings will be posted. Make sure to **familiarize yourself with Moodle!** Information about the Moodle learning management system is available at <http://moodle2.grok.lsu.edu/Article.aspx?articleId=16407>.

Moodle will also be the main vehicle for communication. There are FIVE Moodle tools for communication:

- a) *Q&A forums* to ask the instructor questions for clarification;
- b) *Student forums* to post your questions, thoughts, ideas, and exchange information with fellow students. The instructor will not respond to any of the posting in this forum type.
- c) *Feedbacks* will allow you to provide the instructor with **anonymous** feedback on course materials, quality of instruction, and so forth;
- d) A *News forum* will allow the instructor to notify you about upcoming deadlines, changes to the syllabus, and other important aspects relevant for each student;
- e) Moodle email contains the official LSU email information for each participant and the instructor and will allow you to send direct emails.

Please utilize the **forums** as much as you can and **do not email** the instructor. Forums will allow everyone to send and receive the same amount of information and interaction. **Email is only acceptable when privacy issues are of concern.**

To access Moodle and utilize the course materials, you must have direct access to all of the following resources:

- Computer with sound card and speakers (or headphones)
- Internet connection
- Email account
- Internet browser (e.g. Microsoft Internet Explorer, Firefox, Google Chrome, etc.)

- Adobe Acrobat Reader (free download at <http://www.adobe.com/products/acrobat/readstep2.html>)
- RealPlayer (free download at <http://www.real.com>)
- QuickTime Player (free download at <http://www.apple.com/quicktime/download/win.html>)
- Mediasite Viewer (NOTE: Whenever viewing a video lecture, a dialog box will prompt you to download Mediasite Viewer if it is not yet installed on your machine).

Student Technology Competencies: Administrative and technical support for the class web site will be provided. The facilitator will NOT provide individual assistance with issues related to your personal computer or software. You must have a basic level of computer/Internet competency in order to function independently in the course. You should be able to:

- Send and receive email
- Download documents
- Use browser software to access websites
- Download materials
- Print documents and websites

Email Policy & Communication: The facilitator will respond to any student emails within 2 WORK DAYS of RECEIVING the message. Students should only contact the facilitator via email when the issue does not apply to the rest of the class or when the sender does not wish to share his/her concerns with the rest of the class. Begin the subject line of all course-related email with "DSM 2000," followed by the subject of the message. For example: DSM 2000 - Question about assignment #2. Also, include your name and email address in the body of email messages. It is often difficult to determine a student's name from his/her email address. The instructor will respond as soon as possible, usually within 48 hours (or 2 work days). Instead of sending emails, you can also utilize the Q&A and discussion boards on Moodle.

Accommodations for Disabilities: If you have a disability that may have some impact on your work in this class and for which you may require accommodations, please contact a Coordinator in the [Office for Disability Services](#) (115 Johnston Hall, 225.578.5919).

Technical Support: Contact the Office of Information Technology Services' Help Desk by telephone at 225-578-3375 or [online](#) to obtain technical support.

The course schedule, required readings and procedures described below are subject to change in the event of extenuating circumstances. Students will be informed of any such changes via the Moodle course site and/or via email.

IV. Course Outline & Required Readings

Aug. 20
Aug. 23 (7-8pm)

Intro & Welcome

Q&A Meeting – Howe-Russell E-134 (7-8pm): This is entirely voluntary and will offer you a chance to ask questions about the course.

Aug 28 & 30

Severe Weather

Required Readings:

- (1) National Weather Service. Jet Stream – Online School for Weather
<http://www.srh.noaa.gov/srh/jetstream/tropics/tc.htm>
 - a. Air Pressure
 - b. Air Masses
 - c. Thunderstorms Introduction
 - d. Ingredients for a Thunderstorm
 - e. Life Cycle of a Thunderstorm
 - f. Types of Thunderstorms
 - g. Thunderstorm Hazards - Hail
 - h. Thunderstorm Hazards – Damaging Winds
 - i. Thunderstorm Hazards - Tornadoes
 - j. How Lightning is Generated
 - k. Lightning Safety
- (2) National Weather Service. 2010. Thunderstorms, Tornadoes, Lightning.
<http://www.weather.gov/om/severeweather/resources/ttl6-10.pdf>

Quiz #1 DUE (Sept 4), Quiz #2 DUE (Sept 6)

Sept 6 & 11

Hurricanes

Required Readings:

- (1) National Weather Service. Jet Stream – Online School for Weather
<http://www.srh.noaa.gov/srh/jetstream/tropics/tc.htm>
 - a. Tropical Cyclone Introduction
 - b. Tropical Cyclone Classification
 - c. Tropical Cyclone Structure
 - d. Tropical Cyclone Names
 - e. Tropical Cyclone Hazards
 - f. Tropical Cyclone Safety
- (2) National Weather Service. 2007. Hurricanes.
<http://www.weather.gov/om/hurricane/pdfs/HurricanesUNF07.pdf>
- (3) The Heinz Center. 2009. Resilient Coasts: A Blueprint for Action
http://www.heinzctr.org/Major_Reports_files/Resilient%20Coasts%20Blueprint%20for%20Action.pdf
- (4) PhysicalGeography.net: Tropical Weather and Hurricanes
<http://www.physicalgeography.net/fundamentals/7u.html>

Quiz #3 DUE (Sept 13), Quiz #4 DUE (Sept 18)

Sept 13 & 18

Floods

Required Readings:

- (1) Keller, Edward A. and Robert H. Blodgett. 2008. Flooding. In “*Natural Hazards*”, Chapter 5.
- (2) USGS the 100-yr flood
http://pubs.usgs.gov/fs/FS-229-96/pdf/FS_229-96.pdf

Quiz #5 DUE (Sept 20), Quiz #6 DUE (Sept 25)

Sept 20 & 25

Heat and Drought

Required Readings:

National Drought Mitigation Center, University of Nebraska-Lincoln
<http://drought.unl.edu/>

- (1) What is a drought?
- (2) Understanding and Defining Drought
- (3) Drought Indices
- (4) Predicting Drought
- (5) PhysicalGeography.net. 2009. The Hydrologic Cycle.
<http://www.physicalgeography.net/fundamentals/8b.html>
- (6) National Weather Service. Heat Wave: A Major Summer Killer
http://www.nws.noaa.gov/os/brochures/heat_wave.shtml
- (7) National Weather Service. Heat Index
<http://www.srh.noaa.gov/jetstream//global/hi.htm>
- (8) The National Weather Service. Transfer of Heat Energy
<http://www.srh.noaa.gov/jetstream//atmos/heat.htm>

Quiz #7 DUE (Sept 27), Quiz #8 DUE (Oct 2)

Oct 2

Review and Distribution of Study Guide

Oct 11 (Thursday)

Midterm Exam (Howe-Russell E-134 8-9:30pm)

Oct 23 & 25

Wildfires and Landslides

Required Readings:

- (1) National Interagency Fire Center. Communicator's Guide, Chapter 2.

http://www.nifc.gov/PUBLICATIONS/communicators_guide/2%20Wildland%20fire%20overview.PDF

- (2) Institute for Business and Home Safety. 2001. Is your home protected from wildfire disaster?

<http://www.mkwc.org/publications/fireandfuels/firesafematerials/Fireproofing%20Your%20Home.pdf>

- (3) PhysicalGeography.Net. Mass Movements

<http://www.physicalgeography.net/fundamentals/10x.html>

- (4) USGS. 2000. Land subsidence in the U.S.

<http://water.usgs.gov/ogw/pubs/fs00165/>

Quiz #9 DUE (Oct 30), Quiz #10 DUE (Nov 1)

Oct 30 & Nov 1

Geological Hazards

Required Readings:

- (1) Review of Geological Hazards

http://www.nationalatlas.gov/articles/geology/a_geohazards.html

- (2) PhysicalGeography.Net.

a. Volcanism. <http://www.physicalgeography.net/fundamentals/10n.html>

b. Crustal deformation processes. <http://www.physicalgeography.net/fundamentals/10l.html>

c. Plate tectonics. <http://www.physicalgeography.net/fundamentals/10i.html>

d. Structure of the Earth. <http://www.physicalgeography.net/fundamentals/10h.html>

- (3) USGS. 1997. Volcano Hazards. Fact Sheet 002-97

<http://pubs.usgs.gov/fs/fs002-97/fs002-97.pdf>

- (4) Nelson, Stephen A. Tsunami. Tulane University.

<http://www.tulane.edu/~sanelson/geol204/tsunami.pdf>

Quiz #11 DUE (Nov 6), Quiz #12 DUE (Nov 8)

Nov 8 & 13

Biological and Man-made Hazards

Required Readings:

- (1) Schwab, Anna K., Katherine Eschelbach, and David J. Brower. 2007. Manmade hazards. In *Hazard Mitigation and Preparedness*, Chapter 4.
- (2) Yassi, Annalee, Tord Kjellström, Theo de Kok, and Tee L. Guidotti. 2001. Nature of Environmental Health Hazards (p. 52-89). In *Basic Environmental Health*, Chapter 2, Oxford University Press.

Quiz #13 DUE (Nov 15), Quiz #14 DUE (Nov 20)

Nov 20

Review and Distribution of Study Guide

Dec 6 (Thursday)

Final Exam (Howe-Russell E134, 8–9:30 pm)