

**UNIVERSITY OF SOUTH CAROLINA
(DEPARTMENT OF GEOGRAPHY)**

University of South Carolina
Spring 1994

GEOG 510-I ENVIRONMENTAL HAZARDS

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Callcott 114
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Office Hours: Tuesday mornings or by arrangement

Class Meetings: Tuesday 2-5 p.m., Callcott 112

Course Description:

Most parts of the world are at risk from environmental hazards, although to differing degrees. Flooding in the Midwest, Hurricane Emily in North Carolina, and the great Indian earthquake are just three of the most recent examples. The mass media, relief organizations, politicians, and the entertainment industry are among many groups that routinely highlight the impact of environmental hazards worldwide. The importance of environmental hazards to societal well-being is best reflected by the UN declaration proclaiming 1990-2000 the International Decade for Natural Hazard Reduction.

This course investigates the causes and impacts of environmental hazards. Using the human-ecological approach pioneered by the "natural hazards" school of geography, the course focuses on the relationship between society and nature, particularly how people and societies respond to hazardous geologic, atmospheric, hydrologic, and technological events. In addition to examining the physical and/or technological dynamics of hazards and their impacts, we will look also at the efforts for recovery and mitigation of hazards.

The major goals of the course are as follows: to introduce the range of environmental hazards and their geographic distribution; to examine the causes and consequences of hazards on society over time, to assess various responses (response, recovery, mitigation) to hazards by individuals and society, from local to global scales; and finally to identify the direction of hazards research and important directions for geographic research.

There are no pre-requisites for the course, but basic knowledge of physical and human geography is assumed.

Course Requirements:

This course will be conducted in a seminar format. In other words, I will do little formal lecturing. Instead, we will spend a considerable amount of time discussing the key concepts and issues identified in the assigned readings. It is expected that all students will complete the

reading prior to class. Furthermore, I expect all students to actively participate in class discussions.

Grades will be based on three short assignments (45%), a term project (40%) and class participation (10%). Deadlines for the assignments are strictly *enforced*. There will be no incompletes given, so be sure to plan and use your time wisely.

Texts:

Ian Burton, Robert W. Kates, and Gilbert F. White, 1993. *The Environment as Hazard* (second edition). New York: Guilford Press.

Susan L. Cutter, 1993. *Living with Risk*. London: Edward Arnold.

John McPhee, 1989. *The Control of Nature*. New York: Noonday Press.

Keith Smith, 1992. *Environmental Hazards: Assessing Risk and Reducing Disaster*. London: Routledge.

These books are available at the USC Bookstore in Russell House.

DISCUSSION/READING OUTLINE

PART I THE NATURE OF ENVIRONMENTAL HAZARDS

Tues Jan. 18 What are hazards and disasters?

Key concepts/topics

- definitions, typology
- history of hazards research
- practical and theoretical issues

Reading: Smith, chapters 1-2
Cutter, chapter 1
Burton, Kates, White, chapter 1

Tues Jan. 25 Assessing the risk: What happens?

Key concepts/topics

- patterns and trends
- risk assessment
- tools and techniques
- risk and vulnerability
- resilience and adaptation

Reading: Smith, chapter 3
Cutter, chapter 3
Burton, Kates, White, chapter 2

Tues Feb. 1 Hazard perception: myth and reality

Key concepts/topics

- hazards perception
- disaster myths and images
- media coverage of hazards/disasters

Reading: Cutter, chapter 2

*** Exercise 1 Due ***

Tues Feb. 8 Responding after the disaster happens: the four R's

Key concepts/topics

- rescue, relief, recovery, reconstruction
- range and choice of adjustments
- sharing losses (insurance)
- societal choices

Reading: Smith, chapter 4
Cutter, chapter 4
Burton, Kates, White, chapters 4 and 5

Video: Lessons from Andrew

Tues Feb. 15 Hazard reduction and mitigation

Key concepts/topics

- modify hazard event--controlling nature, protective structures, structural measures
- reduce vulnerability--preparedness, land use controls

Reading: Smith, chapter 5
Cutter, Chapter 4

Tues Feb. 22 Is the environment becoming more hazardous or are we just becoming more aware?

Key concepts/topics

- spatial variation in vulnerability
- differential impacts

Reading: Burton, Kates, White, chapters 3, 6, and 7

*** Exercise 2 Due ***

PART II HAZARD EXPERIENCES

Tues Mar. 1 Geomorphological

Key concepts/topics

- volcanoes
- earthquakes
- mass movements

Reading: Smith, chapters 6-8

Video: Volcano Scapes: Pele's March or The Eruption of Mt. St. Helens

Tues Mar. 8 SPRING BREAK--no class

Tues Mar. 15 Atmospheric

Key concepts/topics

- tornados
- hurricanes

Reading: Smith, chapter 9

Video: Great Weather Catastrophes

Tues Mar. 22 Hydrologic

Key concepts/topics

- floods
- coastal erosion

Reading: Smith, chapter 11

Guest Discussant: A. James--The 1993 Mississippi Flood (tentative)

Tues Mar. 29 AAG MEETING-- no class, work on term project

Tues Apr. 5 Technological failures

Key concepts/topics

- industrial accidents
- dam failures, airplane crashes, train derailments
- Chernobyl, Bhopal

Reading: Smith, chapter 13
Cutter, chapters 5, 7

*** Exercise 3 Due ***

Tues Apr. 12 Nature-society interactions I: extreme events

Key concepts/topics

- drought
- fire

Reading: Smith, chapter 10, 12

Tues Apr. 19 **Nature-society interactions II: chronic events**

Key concepts/topics

- pollution
- global environmental change
- warfare

Reading: Cutter, chapter 6

Video: For export only: pesticides

Tues Apr. 26 **Hazards as complex phenomena**

Key concepts/topics

- trends in hazards research
- theoretical issues

Reading: Cutter, chapter 8
Burton, Kates, White, chapters 8, 9

**** *Term Project Due* ****

EXERCISE 1

Media Coverage of Environmental Hazards

This exercise is designed to help you understand how the mass media report and cover environmental hazards. Images of disasters are most often shaped by the electronic media, and as a result some people tend to overestimate the risks of some events (airline crashes which have a great visual impact) and underestimate others (such as smoking, car accidents). Rather than examining the full range of coverage, we will only examine “disaster events”. For ease in completing this exercise, we will only look at the print media rather than electronic.

Procedure

1. Select a particular disaster event (Southern California fires, Mississippi flooding, Hurricane Andrew), and see how two or more newspapers covered the same story. A range of national and regional newspapers are available in the Thomas Cooper Library. Regional variations in the selection of newspapers will facilitate a geographic approach to the exercise.
2. Content analysis. How much coverage was there (e.g. how many column inches or pages)? What types of topics were addressed? How were the headlines (size and wording) used to portray the event? Were some aspects of the event covered more than others? How good was the reporting of the science of the hazard, its physical impact, human impact? How much of the reporting was focused on the impacts on individuals, (e.g. the individual human interest story, tales of heroism). Are there variations in reporting due to the proximity of the newspaper to the location of the event? What kind of language was used to characterize the event?
3. Analysis and assessment. You are to write a 5-7 page paper that details your findings. It might be useful to place some of your data on the content analysis in tabular form, particularly your comparison between the two newspapers. One question you should consider in your paper is your assessment of the “fairness” of the reporting. In other words, did you feel the newspaper coverage was factual in its reporting or did the coverage seem to “hype” the event and seemingly focus on trivial issues? Did it only examine the rescue and relief aspects of disasters, or did it go into some detail about recovery and reconstruction?
4. Evaluation. I will evaluate these papers based on your creativity and thoroughness in compiling and analyzing the primary data. There is no right or wrong way to approach this exercise, so just use your own judgment and see what you can do. If you use additional references, be sure to include these in a bibliography.

References:

M.R. Greenberg, D.B. Sachsman, P.M. Sandman, and K.L. Salomone, 1989. “Network evening news coverage of environmental risk”, *Risk Analysis* 9 (1): 119-126.

M. Shipman, G. Fouter, and R. Shain, 1993. “Media coverage of the Browning Prediction”, *International Journal of Mass Emergencies and Disasters* 11 (3): 379-389.

EXERCISE IS DUE FEBRUARY 1, 1994

Spring 1994
GEOG 510I
Dr. Susan Cutter

EXERCISE 2

National Hazard Profiles

There are extensive geographic variations in the occurrence and impact of hazards at both the regional and global scales. This exercise will facilitate your understanding of these spatial variations by developing a hazard profile of a particular country. Some countries are more affected by natural hazards than others. Still other countries are more susceptible to technological failures. Again, for ease in conducting the analysis we will only focus on specific disaster events as reported to disaster and relief agencies, rather than the chronic hazards problems that face all nations.

You are to compile data on disaster events in your country during the last 10-20 years. The parameters you should examine include but are not limited to the following:

1. type of disaster
2. frequency, magnitude, duration of event
3. location
4. impact (deaths, injuries, property damages)
5. trends over time and over space

Product

You are to prepare a short paper (5-7 pp.) on the hazardousness of your country. Your paper should include a table on disaster stats, a graph that plots the number of disasters over time, and a dot map showing the location of each event. As this is a report, you should include some background information on your country and its ability to respond and recovery from these disaster events.

Sources: You will be able to find most of your data will come from the United Nations (UNDRO) (UNEP), or from USAID Office of Disaster Assistance.

EXERCISE IS DUE FEBRUARY 22, 1994

Spring 1994
GEOG 510I
Dr. S. Cutter

EXERCISE 3

Book Review

You have been asked by the Book Review Editor of the *Professional Geographer* to do a book review on John McPhee's *The Control of Nature*. The format and specifications are listed below. The review is due **Tuesday, April 5, 1994**.

Book Reviewing

One of the most difficult professional duties many of us face is preparing informed and concise book reviews for journals. Journals are the primary outlets for scholarship in the form of lengthy articles. They also recognize the value of book reviews in informing their readers of new publications. As a compromise, editors will only allocated limited space for a book review section. In geography, most book reviews average between 2-5 pages in length (500-1250 words). The task facing a book reviewer is to convey the content to the reader as well as to render judgments on the book's strengths and weaknesses using a limited amount of space. Since there are so many books published in the field in any given year, many of us rely heavily on the comments of colleagues regarding new and interesting work in the field and are avid readers of book review sections in the journals. All too often, however, you come across really bad reviews.

There are some clear do's and don'ts of writing book reviews that many of us follow. I've taken the liberty to list some of these below.

Some Canons of Book Reviewing

Book reviews should be divided into three sections: content, analysis, and evaluation. You need to inform the reader of what is in the book, whether the author's objective was achieved, and then your critique of the work in question.

A. Content

1. Explain how the book is organized and the content of the book. What is the purpose of the book? Intended audience?
2. What were the author's objectives and goals in writing the book? Most often this information will be found in the preface where the author will explicitly state their purpose and intent.

B. Analysis

3. Did the book achieve the author's intent/goals?

Here is where most reviewers fall short. Instead of analyzing the book on the author's terms, the reviewer will often describe the book they wanted to see or worse, the one they wanted to write but never got around to it. As a reader of this review, you really come away knowing very little about the monograph in question, but quite a bit about the reviewers grinding axe.

C. Evaluation

4. What are the strengths and weaknesses of the book?
5. Who could use it? Would you recommend this book? If so why? Is the book worth the money? Should it be in your own personal collection or the library?

This is the section of the review where you insert your own personal opinion. This is often the most useful portion of the review and helps the reader make a decision about whether to read the book.

Susan Cutter
January 1993

Spring 1994
GEOG 510I
Dr. Susan Cutter

TERM PROJECT

Case Study of a Particular Hazard Event

You are to select a particular hazard event and develop a detailed case study. The choice of events is up to you. For example, you could choose either a recent or historical event. It could be a disaster that occurred here in South Carolina or in another country. The texts for this course provide some clues on specific incidents. Data are more available for historical events rather than the more contemporary (e.g. last summer) since it takes a while for hazards researchers to publish their material.

Your paper should include a description of the event, a chronology of the event and responses, the impact of the event on the local community the short-term response to the event, longer-term recovery and reconstruction, and any lessons learned. This paper should provide a general synthesis of the entire hazard system as we have discussed in class. You must be as comprehensive as possible in your paper, illustrating your knowledge of this one event.

PROJECT IS DUE ON APRIL 26, 1994