

**RUTGERS UNIVERSITY
DEPARTMENT OF GEOGRAPHY**

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Natural Hazards Geography
Fall 2009
M.W.4 (1.40-3.00 p.m.) (LCB 102)

Instructor: Prof. J. K. Mitchell
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Livingston campus
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COURSE OUTLINE

DESCRIPTION

This course is about the **human dimensions** of extreme natural events. Emphasis is on the role of **people** as contributors and responders to natural hazard. Previous knowledge about earth and atmospheric sciences will be helpful but is not required. Although the focus is on *natural* hazards, information about selected non-natural hazards will be provided for purposes of comparison. The geographical scope is global with a concentration on the USA and New Jersey. Major recent disasters and types of hazards that affect New Jersey will receive the most emphasis. The latter include: coastal storms and hurricanes, river floods, droughts, forest fires, urban snowstorms. Students are encouraged to read widely and to keep abreast of contemporary developments in hazards and disasters as reported in the mass media and other sources.

GOALS

The main goals of this course are to present a comprehensive, unified approach for analyzing and managing different types of natural hazards and to cultivate analytical skills for investigating hazard problems. An important secondary goal is to encourage students to develop their own interests as points of entry to graduate study or professional careers in organizations concerned with the reporting, planning and management of extreme events (e.g. journalism, emergency management, homeland security, disaster relief, land development, law, hazard insurance, planning, architecture, hazard engineering).

- Sep. 2: Introduction
- Sep. 8: What are natural hazards?
- Sep. 9: Natural hazards in human cultures
- Sep. 14: Disaster Impacts
- Sep. 16: Stages of disaster and recovery
- Sep. 21: Are disasters getting worse? Trends in hazard impacts and losses
- Sep. 23: Risk complexity - I
- Sep. 28: Risk complexity - II
- Sep. 30: Understanding and managing risk: Risk perceptions and meanings
- Oct. 5: Understanding and managing risks: Are we good judges of risk?
- Oct. 7: Components of adjustment: Modify the burden of loss
- Oct. 12: Components of adjustment: Modify human vulnerability

- Oct. 14: MIDTERM TEST
- Oct. 19: Natural Hazards of New Jersey - 1
- Oct. 21: Natural Hazards of New Jersey - 2
- Oct. 26: Earthquakes - 1
- Oct. 28: Earthquakes - 2
- Nov. 2: Severe storms - 1
- Nov. 4: Severe storms - 2
- Nov. 9: Wildfires
- Nov. 11: Floods - 1
- Nov. 16: Floods - 2
- Nov. 18: Drought - 1
- Nov. 23: Drought - 2
- Nov. 25: THANKSGIVING RECESS
- Nov. 30: Technological hazards
- Dec. 2: Environmental change hazards
- Dec. 7: TBA
- Dec. 9: Review (last day of class)
- Dec. 18: FINAL EXAMINATION (noon-3 pm)

READINGS (initial interim schedule – subject to change)

The main source is: Keith Smith and David N. Petley. 2009 *Environmental Hazards: Assessing risk and reducing disaster* (New York: Routledge, 5th edit.). This can be obtained from Livingston College Bookstore. IMPORTANT: This book has been substantially expanded and revised since the 4th edition. Additional materials will be available at the Sakai site for this course or in electronic journals carried by the Rutgers Library system. Please read according to the schedule below.

- Sep. 8: Read the current definitions of “Man-made Disasters” and “Natural Disasters” provided on the website of the U.S. Department of Health and Human Services at: <http://www.hhs.gov/disasters/emergency/manmadedisasters/index.html> and <http://www.hhs.gov/disasters/emergency/naturaldisasters/index.html>

Alagona, Peter S. 2006. “What makes a disaster “natural”?”, *Space and Culture* 9(1): 77-79 (Electronic journals section of RU Library Web Page.)

- Sep. 9: Introduction: Smith and Petley, Chapter 1

Mitchell, James K. “Perspectives on Natural Hazards” (Sakai-Resources)

- Sep. 14: Disaster Impacts:

Lindell, Michael K. and Carla S. Prater. 2003. “Assessing community impacts of natural disasters,” *Natural Hazards Review*, November pp. 176-185.
<http://www.asce.org/files/pdf/hurricane/Evacuation_and_Shelters/Assessing_Community_Impacts_of_Natural_Disasters.pdf>

Sep. 16: Stages of disaster and recovery:

Kates, R. W., C. E. Colten, S. Laska, and S. P. Leatherman. 2008. "Reconstruction of New Orleans after Hurricane Katrina: A research perspective," *Proceedings of the National Academy of Sciences*, October 3, 2006, vol. 103, no. 40: 14653–14660 (Electronic journals section of RU Library Web Page.)

Craig E Colton, Robert W. Kates, and Shirley B. Laska. 2008 "Three Years After Katrina: Lessons for Community Resilience," in *Environment*, Sept./Oct., Vol. 50, Iss.5, pages 36-48. (Electronic journals section of RU Library Web Page.)

Sep. 21: Trends in hazard impacts and losses:

Smith and Petley, Chapter 2

Guha-Sapir, Debarati and Regina Below. 2002. "The quality and accuracy of disaster data: A comparative analyses of three global data sets". Brussels: WHO Centre for Research on the Epidemiology of Disasters, University of Louvain. (To download your own copy visit <<http://www.proventionconsortium.org/>> and insert the above title in the "search" box.)

Sep. 23: Risk Complexity:

Smith and Petley, Chapter 3

Sep. 28: Risk complexity:

Mitchell, James K., Neal Devine and Kathleen Jagger. 1989. "A contextual model of natural hazard." *Geographical Review* 79 (4): 391-409.

Sep. 30: Risk perceptions and meanings

Tierney, Kathleen, Christine Bevc and Erica Kuligowski. 2006. "Metaphors Matter: Disaster Myths, Media Frames, and Their Consequences in Hurricane Katrina," *Annals of the American Academy of Political and Social Science*, Vol. 604, No. 1, 57-81 (Electronic journals section, Rutgers University Library)

Salkowe, Richard, Graham A. Tobin and S. Elizabeth Bird. 2006. "Calamity, catastrophe and horror: Representation of natural disaster, 1885-2005," *Papers of the Applied Geography Conference* 29, pp. 196-205.
<http://works.bepress.com/cgi/viewcontent.cgi?article=1001&context=richard_salkowe>

Oct. 5: Risk Assessment and Management

Smith and Petley, Chapter 4

U-Tube video “Farming in a drought”

<<http://www.youtube.com/watch?v=Zoib5aHWCOw>>. Keep notes on the range of factors that this Australian farmer takes into account when making decisions about this hazard.

Oct. 7/12: Reducing the Impacts of Disaster: Smith and Petley, Chapter 5

Components of adjustment:

China;s Yangtze Three Gorges Development Corporation (Explore this website and its sub-pages). <http://www.ctgpc.com/>

Hvistendahl, Mara. 2008. “China’s Three Gorges Dam: An environmental catastrophe?” *Scientific American*, March 25, 2008.

<<http://www.scientificamerican.com/article.cfm?id=chinas-three-gorges-dam-disaster&page=2>>

Rutherford Platt, "Planning and land use adjustments in historical perspective" pp. 22-56 in *Cooperating with nature: Confronting natural hazards with land use planning for sustainable communities*. Available at Google Books web site.

“Local Voices, Global Choices” a UTube video on capacity building <http://www.youtube.com/watch?v=VpXPOEUrazE&feature=related>

Oct. 14: MIDTERM EXAM – NO READINGS

Oct. 19/21: “Natural Hazards of New Jersey”: (Sakai resources page)

Pre-disaster Mitigation Plan: Middlesex County, New Jersey (skim-read the following document (Takes time to download):

<<http://co.middlesex.nj.us/emergency/Middlesex%20Co%20NJ%20HMP%20Committee%20Draft%20081208.pdf>>

Oct. 26/28: Earthquakes: Smith and Petley, Chapter 6

UTube videos:

“Tectonic Hazards: Earthquakes”

Wired Science 8: High Tech Quake Survival

<http://www.youtube.com/watch?v=II1M8o0BHPc&feature=PlayList&p=7AD1F26D6CCDBACD&index=7>

Turkey earthquake <http://www.youtube.com/watch?v=8UUCfK5AnLg>

Poor construction reason schools collapsed in China Quake

http://www.youtube.com/watch?v=ndZU2Q3I_o8

Kobe earthquake – Japan for the uninvited

<http://www.japanfortheuninvited.com/articles/kobe-earthquake.html>

Nov. 2/4: Severe storms:

Smith and Petlay, Chap. 9

Nov. 9: Wildfires:

Smith and Petley, Chap. 10

Chris Elfring. 1989. “Yellowstone: Fire storm over fire management.” *Bioscience*, Vol. 39 Issue 10, pp. 667-672. (Electronic journals section of RU Alexander Library)

Mike Davis. 1996. “Let Malibu burn: A political history of the fire coast,” *LA Weekly*, Nov. 15, pp. 23ff. Reproduced in:
<<http://la.indymedia.org/news/2007/10/208946.php>>

McCaffrey, Sarah. 2004. “Thinking of wildfire as a natural hazard,” *Society & Natural Resources: An International Journal*, 1521-0723, Volume 17, Issue 6, 2004, Pages 509 – 516. Available from the Electronic Journals section of the RU Alexander Library.

Example of local preparedness planning : Berkeley Twp. New Jersey
<<http://nrs.fs.fed.us/pubs/bro/Berkeley.pdf>>

<http://www.state.nj.us/dep/parksandforests/fire/fire-dvd.htm> (View linked videos about fire in New Jersey)

Nov. 11/16: Smith and Petley, Chap. 11

Mitchell, James K. 2003. "European river floods in a changing world,"
Risk Analysis Vol. 23, No. 3: 567-574. Alexander Library electronic
journals section.

NJN News Environment – Reservoir Hearing (2.42 minutes)
<http://www.youtube.com/watch?v=cBdJTbJzGQg>

Nov. 18/23: Drought
Smith and Petley, Chap. 12

Nov. 25: THANKSGIVING RECESS

Nov. 30: Technological hazards
Smith and Petley, Chapter 13

Dec. 2: Environmental change hazards
Smith and Petley, Chapter 14

Dec. 7: Smith and Petley, Chapter 15

Dec. 9: NO READINGS

ASSIGNMENTS

The term paper and any other written assignments should be submitted electronically, on time, to the instructor at the class Sakai page. Please make sure that your name is prominently affixed to each file. See Term Paper assignment for additional details.

GRADES

Course grades will be based on a midterm exam (30% of final grade), a term paper (40%), and a final exam (30%). **There is no provision for undertaking additional work to increase a grade.** Attendance and active participation in class are expected. Makeup tests will not be given except in cases of documented emergencies.

CHEATING AND OTHER INFRACTIONS

University policies on ethical standards in relation to the preparation of written submissions and examinations will be *strictly* observed (see Rutgers University Policy on Academic Integrity). Among other things this means no cheating on examinations, assignments or attendance records. All assignments must be original (i.e. your own work and not submitted in another course). For additional policies see: Department of Geography, Policy on Classroom Etiquette (attached).

INSTRUCTOR'S OFFICE HOURS

Dr. Mitchell is available for consultation at his office in the Department of Geography (Lucy Stone B-232, Livingston campus, Tel: 445-4103) from 11.30 a.m.-12.30 p.m. before class on Mondays and Wednesdays. Brief queries may be submitted via E-mail to jmitchel@rci.rutgers.edu.