

GEOG/ENVI-258

GEOGRAPHY OF ENVIRONMENTAL HAZARDS

Fall 2020 Module 1

MTWRF 8:00-9:15 am

Instructor: Eric D. Carter

Office: Carnegie 103

Office Hours: Mon 1-3 pm, Tues 9:30-11 am, Fri 9:30-11 am (by Zoom)

Office Phone: x6407

Email: ecarter@macalester.edu

Teaching Assistant: Jonah Wexler

Email: jwexler@macalester.edu

Office Hours: TBA

Course Description and Objectives:

The study of environmental hazards stands at a key point of intersection between the natural and social sciences. Geography, with its focus on human-environment interactions, provides key analytical tools for understanding the complex causes and uneven impacts of hazards around the world. We will explore the geophysical nature and social dimensions of disasters caused by floods, droughts, earthquakes, volcanoes, tsunamis, tornadoes, hurricanes, and wildfires. For each of these hazard types, we apply theoretical concepts from major hazards research paradigms, including quantifying the human and economic impacts of disaster; assessing, managing, and mitigating risk; and reducing the impacts of disaster, not only through engineering works but also by reducing social vulnerability and enhancing adaptive capacity. Looking into the future, we will discuss how global-scale processes, such as climate change and globalization, might affect the frequency, intensity, and geographical distribution of environmental hazards in the decades to come.

Required Readings:

Books:

Graff and Birkenstein (2018). *They Say / I Say: The Moves That Matter in Academic Writing*. Norton, 4th ed. ISBN: 978-0393631678 (3rd edition acceptable)

Smith, K. (2013). *Environmental Hazards* (6th ed.). New York: Routledge. ISBN: 978-0-415-68106-3 (must be the 6th edition)

All other readings for this course will be available electronically, via Moodle.

Learning During the Pandemic:

This is an extraordinary time. The global Covid-19 pandemic has severely impacted life at Macalester, including how this course is taught. In addition, with continuing political turmoil and the upcoming election, this semester may have all kinds of unexpected challenges. I plan to teach this course **all remotely**, and we will have a combination of live (synchronous) and pre-recorded activities. In general, remote class meetings will take place over Zoom. I will do my best to create spaces for community, exchange, and understanding even if we are mostly in a remote environment. I will also be available to talk with you individually or in small groups outside of our regular meetings. Please understand that plans may change; I encourage everyone to stay as flexible and open-minded as possible.

Course Policies:

1. Attendance and Participation. In this class, 15 percent of your grade derives from attendance and participation. Attendance plays an essential role in learning, so you are warmly invited and expected to attend all synchronous class meetings. We will not meet together as a class daily, but when we do, it will

be during the designated class time (Monday-Friday, 8:00-9:15 am Central time). Attendance will be important not only for your learning, but also for our ability to build a community together and maintain a sense of connection and commitment to one another during this time of imposed physical distance. Your presence in class matters.

I recognize that there are unavoidable circumstances that sometimes make it impossible for you to attend class. Although I hope it isn't the case, those unavoidable circumstances may be more common during this module given that we are in the midst of a pandemic. If you will not be in class for any reason, it is your responsibility to inform me in advance, or as early as possible, via email. It is also your responsibility to make up work you missed in your absence. Students with disabilities should discuss their accommodations with me early in the course to work out a plan that aligns with maintaining course expectations and learning goals.

Participation is distinct from attendance and is also an essential part of this course. In-class discussions (in-person or via Zoom), on-line discussion forums, responses to brief ungraded writing assignments, quizzes, etc. will be factored into your participation grade. In general, "participation" means speaking up, sharing your thoughts, and making yourself noticed in positive, productive, and supportive ways. It also means listening carefully and respectfully to your fellow students. It is important to remember that we all have different styles of expression. If you have not been able to participate in a class discussion for any reason but want to demonstrate your active engagement, please send me an email after class with a comment or an idea you had that you would have liked to share, but were not able to during class. Students with any concerns, questions, or need for consideration for flexibility should connect with me as soon as possible to determine an appropriate plan.

2. Late work. You must turn in your work on time. I will indicate due dates for every assignment, and you must respect them. I will penalize you 10 percent of your grade (or a full letter grade) for a given assignment for every day that it is late. If there are extenuating circumstances (e.g. illness, accident, bereavement, etc.) and you contact me before the due date, I will consider granting an extension.

3. Turning in written work. I will be using electronic submission for assignments and exams. Specifically, for each assignment, I will create a "dropbox" on Moodle that has a specific time that work is due (and the dropbox then "closes"). Please do **not** submit assignments via email or as "shared" documents in Google Docs.

4. Reaction papers on campus events and current events. You can improve your attendance and participation grade, and exercise your writing skills frequently, by writing reaction (reflection) papers about campus events or current events. (I am actually not certain how many relevant "campus events" will be taking place in the near future; if there are any, they will probably be held remotely.) Current events might include recent natural or technological disasters, or interesting articles that relate to course themes. The reaction papers should be 1-2 pages long. I am interested in a clear summary and a thoughtful critique, ideally one that connects the event to course themes. Please turn in these papers in a Moodle dropbox I will create specifically for this purpose, within a week after the event takes place. I will try to give you feedback within a week. As a general rule of thumb, satisfactorily completing four of these reaction papers during the semester would raise your course participation grade by one letter grade (e.g. from a B to an A).

5. Academic integrity. As in every course, you will be expected to follow the college's policies on academic honesty: specifically, "Students are expected to maintain the highest standards of honesty in their college work. Forgery, cheating and plagiarism are serious offenses and students found guilty of any form of academic dishonesty are subject to disciplinary action." For more details, see the college's

guidelines on Academic Integrity at <http://www.macalester.edu/academicprograms/academicpolicies/academicintegrity/> .

6. Special accommodations. If you have a physical or learning disability that will require special accommodations, please contact me to discuss arrangements. All conversations will be confidential. You will also need to meet with a representative from Disability Services, which determines accommodations. They can be contacted here: disabilityservices@macalester.edu .

7. Communication. In a remote learning setup, it is especially important to maintain open lines of communication, but it can also be a challenge to stay in touch. My preferred mode of communication is email. In general, I answer emails within 24 hours. Also, make sure that you check your email frequently, because I do send email messages – either from my own email address or via Moodle – frequently to the class. I will also be holding open virtual office hours via Zoom. You can also contact me via email to set up an appointment for a Zoom meeting.

8. Zoom meeting etiquette. Under the circumstances, electronic devices (like a computer) are indispensable for our live class meetings. But please stay focused on the discussion at hand, and avoid surfing the web, answering emails, or doing other work while we are having class meetings.

9. Recording Policy. In order to accommodate students who might not be able to attend synchronous class meetings during this module, I plan to record our synchronous class sessions in a manner consistent with [Macalester's classroom recording policy](#). I will share these recordings in a password-protected (and not public) place. If you download any class recordings, you must store them in a password-protected file or on a password-protected site. Please note that the recording policy clearly states that **you may not share, replicate, or publish any class recording, in whole or in part, or use any of the recordings for any purpose besides knowing what happened during the class period, without my written approval**. If I use any recorded content from any of our classes for purposes beyond our class, I will – in accordance with the policy – obtain your written permission to do so.

10. Religious Observance. Students may wish to take part in religious observances that occur during this module. If you have a religious observance/practice that conflicts with your participation in the course, please contact me before the end of the first week of the module to discuss appropriate accommodations. In an effort to respect religious diversity, I request that students who desire to observe a religious holiday during a scheduled class meetings/ class requirements talk to me about reasonable consideration by the end of the second week of the course.

Class Format:

In this course there will be a mix of lecture- and discussion-based meetings. The discussions will always be conducted live (via Zoom) while the lectures will usually be available asynchronously. For those days marked on the schedule as asynchronous (AS) you do not need to show up for class. I would advise watching the lecture (or video, sometimes) that day. There may also be activities during the week, prior to class meetings, like discussion boards or commentaries on lectures using tools like VoiceThread. All of these kinds of activities would count towards your attendance/participation grade.

Course Assignments:

- **Attendance and Participation:** see above.
- **Writing Portfolio.** Most of your grade in this course will come from a writing portfolio you will work on throughout the semester. There are several motivations behind using the portfolio format. First, writing-intensive courses (like this one – WA) require 20-25 pages of work in revision. Second, the portfolio format is meant to encourage you to make writing and revision a habit, something you do almost continuously throughout the semester, since the best way to improve your writing is through constant practice. Third, the portfolio format means that most of your grade comes from your best work at the end of the term, which incorporates all the lessons you've learned throughout the semester. These essays will be generally short (around 350-500 words). First drafts of essays will be due at specific times, and you will be graded on these drafts. However, the *total* of all first drafts will be worth just one-quarter of your course grade, while the *final* portfolio will be worth half of your course grade. There will also be a partial version of the portfolio due at mid-semester, so you can receive additional feedback. Throughout the semester, you will receive intensive writing instruction and feedback from Prof. Carter and Jonah, your TA.

Grading:

Attendance and Participation	15%
Writing Portfolio – all first drafts	35%
Final Portfolio	50%
TOTAL	100%

Any assignments or activities that don't go specifically into the writing portfolio will be counted as part of your attendance and participation grade.

DETAILED COURSE SCHEDULE:

Notes: "REQ"="Required"; "RCM"="Recommended"; schedule subject to change (with fair warning).

Yellow highlighting denotes live (synchronous) class activities, conducted via Zoom.

How to read *They Say, I Say*: keep up with the chapters of *TSIS* as assigned in the syllabus. Be sure to do the short exercises at the end of each chapter. These usually involve a close reading of a sample text, a re-reading of one of your own pieces of writing, and sometimes, a short assignment to write something new. I trust you to do these; your writing—and just as importantly, how you diagnose problems in your own writing—is going to improve (trust me). Frequently we will discuss *TSIS* in class, as part of our scholarly skills workshops.

WEEK 1

Sept. 2 (Wed.) Discussion – Live
Introductions and Course Business

Sept. 3 (Thurs.) Lecture/Discussion – Live
Paradigms of Hazards Research

REQ: SMITH, chapter 1

REQ: Cutter, S. L. (2018). Compound, cascading, or complex disasters: what's in a name? *Environment*, 60(6), 16-25.

REQ: *They Say, I Say*, Preface and Introduction

Sept. 4 (Fri.) Lecture – Asynchronous
Dimensions of Disaster

REQ: SMITH, chapter 2

RCM: Lowrey, A. (2017, Dec. 20). The Most Expensive Weather Year Ever. *The Atlantic* online.

RCM: Pielke, R. (2020), Economic 'normalisation' of disaster losses 1998–2020: a literature review and assessment, *Environmental Hazards*, DOI: 10.1080/17477891.2020.1800440

RCM: Pielke, R. (2019) Tracking progress on the economic costs of disasters under the indicators of the sustainable development goals, *Environmental Hazards*, 18 (1): 1-6

RCM: MunichRE (n.d.) Risks posed by natural disasters ([link](#))

RCM: MunichRE (2018). *TOPICS Geo: Natural catastrophes 2017*.

REQ: *They Say, I Say*, Chapter 1

WEEK 2

Sept. 7 (Mon.) NO CLASS – LABOR DAY

Sept. 8 (Tues.) Discussion – Live
Dimensions of Disaster (cont'd)

DISCUSSION of paper you wrote for today (analysis of disaster trends)

REQ: *They Say, I Say*, Chapter 2

Sept. 9 (Wed.) Lecture – Asynchronous
Risk Assessment and Management

REQ: SMITH, chapter 4

Assignment 1 (Disaster Trends) DUE TODAY

Sept. 10 (Thurs.) Discussion – Live
Risk Assessment and Management

REQ: Ropeik, D. (2012, Feb. 26). The wages of eco-angst, *New York Times*.

REQ: Ropeik, D. (2006, Oct. 16). How Risky is Flying? PBS Nova (online source).

REQ: Julavits, H. (2019, Dec. 31). What I Learned in Avalanche School. *New York Times* ([link](#))

REQ: Weller, S. C., Baer, R., & Prochaska, J. (2016). Should I stay or should I go? Response to the Hurricane Ike evacuation order on the Texas Gulf Coast. *Natural Hazards Review*, 17(3), 04016003.

RCM: Kasperson, R. E., & Kasperson, J. X. (1996). The Social Amplification and Attenuation of Risk. *Annals of the American Academy of Political and Social Science*, 545, 95-105.

RCM: Dillon, R. L., et al. (2011). Why Near-Miss Events Can Decrease an Individual's Protective Response to Hurricanes. *Risk Analysis*, 31(3), 440-449.

RCM: Adger, W. N., Quinn, T., Lorenzoni, I., & Murphy, C. (2016). Sharing the pain: perceptions of fairness affect private and public response to hazards. *Annals of the American Association of Geographers*, 106(5), 1079-1096.

Sept. 11 (Fri.) Lecture – Asynchronous Risk, Vulnerability, and Disaster Reduction

REQ: SMITH, chapters 3 and 5

REQ: Allen, A., et al. (2017). From state agencies to ordinary citizens: reframing risk-mitigation investments and their impact to disrupt urban risk traps in Lima, Peru. *Environment and Urbanization*, 29(2), 477-502.

RCM: Klinenberg, E. (2002). *Heat wave : a social autopsy of disaster in Chicago*. Chicago: University of Chicago Press. (excerpt)

REQ: *They Say, I Say*, Chapter 3

WEEK 3

Sept. 14 (Mon.) Lecture – Asynchronous Hydrological Hazards: Flooding

REQ: SMITH, ch. 11

REQ: Madrigal, A. (2011). What We've Done to the Mississippi River: An Explainer. *The Atlantic* online.

REQ: " 'Our River Was Like a God': How Dams and China's Might Imperil the Mekong." *New York Times*. Oct 12, 2019. ([link](#))

RCM: McPhee, J. (1987, February 23). Atchafalaya. *The New Yorker*.

Assignment 2 (Risk Analysis) DUE TODAY

Sept. 15 (Tues.) Lecture/Discussion – Live U.S. Flood Policy and Management

REQ: Steinberg, T. (2006) "Uncle Sam, Floodplain Recidivist." Chapter 5 in *Acts of God* (Oxford U. Press).

REQ: Chen, D.W. (2018, Jan. 7). In New York, Drawing Flood Maps Is a 'Game of Inches.' *New York Times*.

Reading Packet on U.S. Flood Policy

Sept. 16 (Wed.) Lecture/Discussion – Live Climate Change and Coastal Flooding

REQ: Klinenberg, E. (2013, Jan. 7). Adaptation: How can cities be 'climate-proofed'? *The New Yorker*.

REQ: Jarvis, B. (2017, April 18). When rising seas transform risk into certainty. *New York Times Magazine*.

REQ: Kimmelman, M. (2017, Dec. 21). Jakarta Is Sinking So Fast, It Could End Up Underwater. *New York Times*.

RCM: Flavelle, C. (2016, Nov. 29). The areas America could abandon first. *Bloomberg View*.

REQ: *They Say, I Say*, Chapter 4

Sept. 17 (Thurs.) Discussion – Live US Flood Policy Stakeholder Debate Activity

Activities TBA

Sept. 18 (Fri.) Discussion – Live Scholarly Skills Workshop

Focus on op-ed writing for paper #3

REQ: *They Say, I Say*, Chapter 5-7

Sept. 19 (Sat). FIELD TRIP ON LOCAL FLOOD HAZARDS (possible/tentative)

WEEK 4**Sept. 21. Lecture – Asynchronous
Mass-Movement Hazards**

REQ: SMITH, ch. 8

Assignment 3 (Op-Ed on US Flood Policy) DUE TODAY**Sept. 22. Discussion – Live
Oso Landslide Case Study**

Case study on Oso, Washington landslide (related reading packet on Moodle)

**Sept. 23. Video – Asynchronous
Earthquakes**

REQ: SMITH, ch. 6

REQ: Schulz, K. (2015). The really big one. *The New Yorker*REQ: *They Say, I Say*, Chapter 8-9

Watch PBS NOVA documentary, "Deadliest Earthquakes"

**Sept. 24. Discussion – Live
Haiti Earthquake case study**

Reading Packet on 2010 Haiti Earthquake

**Sept. 25. Lecture – Asynchronous
Volcanoes**

REQ: SMITH, ch. 7

RCM: Degg, M. R., & Chester, D. K. (2005). Seismic and volcanic hazards in Peru: changing attitudes to disaster mitigation. *Geographical Journal*, 171(2), 125-145.**Assignment 4 (Post-Mortem Analysis of Oso Landslide) DUE TODAY****WEEK 5****Sept. 28 (Mon.) Video – Asynchronous
Japanese Earthquake, Tsunami, and Nuclear Accident of 2011**

REQ: SMITH, ch. 13

Watch Video: "PBS Frontline: Inside Japan's Nuclear Meltdown" (2012)

Assignment 5 (Applying a Hazards Paradigm to the 2010 Haiti Earthquake) DUE TODAY**Sept. 29 (Tues.) Discussion – Live
Discussion of Japan's 2011 Disasters**REQ: Clarke, L. B. (2006). "The Sky Could be Falling." Chapter 2 in *Worst Cases: Terror and Catastrophe in the Popular Imagination* (Chicago: University of Chicago Press).REQ: Funabashi, Y., & Kitazawa, K. (2012). Fukushima in review: A complex disaster, a disastrous response. *Bulletin of the Atomic Scientists*, 68(2), 9-21.REQ: Perrow, C. (2011, April 1). Fukushima, risk, and probability: Expect the unexpected. *Bulletin of the Atomic Scientists web edition*.REQ: Rich, M. (2017, March 10). The lonely towns of Fukushima. *New York Times*.RCM: Beck, U. (2006). Living in the world risk society. *Environment and Society*, 35(3), 329-345.**Sept. 30 (Wed.) Lecture/Discussion – Live
Global Climate Change, Variability, and Extreme Events**

REQ: SMITH, ch. 14

REQ: Miller, P. (2012, September). Weather Gone Wild. *National Geographic*.REQ: Herring, S. C., et al., eds. (2017). Explaining Extreme Events of 2016 from a Climate Perspective. *Bull. Amer. Meteor. Soc.*, 98 (12), S1–S157.

RCM: Cullen, H. (2013, July 18). Extreme Weather Within the Context of Our Changing Climate. Briefing to the United States Senate Committee on Environment and Public Works

**Oct. 1 (Thurs.) Discussion – Live
Scholarly Skills Workshop**

Focus on assignment 6 and revision process for mid-semester portfolio.
REQ: *They Say, I Say*, Chapter 10-11

**Oct. 2 (Fri.) Lecture – Asynchronous
Tornadoes**

REQ: SMITH, ch. 9
REQ: Simmons, K. M., D. Sutter, and R. A. Pielke, Jr. (2013). Normalized tornado damage in the United States: 1950-2011. *Environmental Hazards* 12 (2) 132-147.

Assignment 6 (Review of a Documentary Film) DUE TODAY

WEEK 6

**Oct. 5 (Mon.) Wildfires and Climate Change
Lecture – Asynchronous**

REQ: SMITH, ch. 10 (section on wildfires)
REQ: Running, S. W. (2006). Is Global Warming Causing More, Larger Wildfires? *Science*, 313(5789), 927-928.
REQ: Gabbert, B. (2018, Nov. 25). Climate assessment predicts increasing wildfires. *Wildfire Today*.
RCM: *Fourth National Climate Assessment* (US), esp. chapter 6 on Forests.
RCM: McCarthy, P. (2012). Climate Change Adaptation for People and Nature: A Case Study from the U.S. Southwest. *Advances in Climate Change Research*, 3(1), 22-37.
RCM: McCaffrey, S. (2004). Thinking of Wildfire as a Natural Hazard. *Society & Natural Resources*, 17(6), 509-516.

Mid-Module Portfolio (revisions of papers 1-5) DUE TODAY

**Oct. 6 (Tues.) Discussion – Live
California Wildfires Case Study**

REQ: Mooallem, J. (2019, July 31). 'We Have Fire Everywhere': Escaping California's Deadliest Blaze. *New York Times Magazine*. ([link](#))
REQ: Boxall, Bettina (2019, January 11). "Southern California's ecosystems evolved to survive fire. But not like this." *Los Angeles Times* ([link](#))
REQ: "Californians in Fire-Prone Areas Find It Harder to Buy Insurance." *Wall Street Journal*. (Aug. 20, 2019) ([link](#))
REQ: "Despair for Many and Silver Linings for Some in California Wildfires." *NY Times* (Oct. 29, 2019). ([link](#))
RCM: Davis, M. (1998). "The case for letting Malibu burn." In *Ecology of fear : Los Angeles and the imagination of disaster*. New York: Metropolitan Books.

**Oct. 7 (Wed.) Lecture – Asynchronous
Drought, Hunger, and Famine**

REQ: SMITH, ch. 12
REQ: Sen, A. (1999). Famine and Other Crises, from *Development as Freedom*.

**Oct. 8 (Thurs.) Discussion – Live
Political Ecology and the Causes of Famine**

REQ: Wisner, B., et al. (2004). "Famine and Natural Hazards." Chapter 4 in *At Risk*, 2nd ed. (Routledge).

**Oct. 9 (Fri.) Discussion – Live
Discussion/Scholarly Skills Workshop**

REQ: *They Say, I Say*, Chapter 6
Focus on reviewing mid-module portfolio and preview assignment 7

WEEK 7**Oct. 12 (Mon.) Lecture – Asynchronous
Tropical Cyclones**

REQ: SMITH, ch. 9 (review section on hurricanes)

REQ: Comfort, L., et al. (1999). Reframing disaster policy: the global evolution of vulnerable communities. *Environmental Hazards*, 1(1), 39-44.

**Oct. 13 (Tues.) Video – Asynchronous
Hurricane Katrina**

Watch "When the Levees Broke" documentary or listen to "Floodlines" podcast (Vann R. Newkirk II, Atlantic Online) ([link](#))

Assignment 7 (Wildfires and Global Climate Change) DUE TODAY

**Oct. 14 (Wed.) Lecture/Discussion – Live
Hurricanes, Economic Development and Climate Futures**

REQ: Sellers, C. (2017, Nov. 19). "Storms hit poorer people harder, from Superstorm Sandy to Hurricane Maria." *The Conversation*. ([link](#))

REQ: Strader, S.M. (2019, Aug. 30). "How We Create Our Own Hurricane Catastrophes." *New York Times*. ([link](#))

REQ: "Conservative States Seek Billions to Brace for Disaster. (Just Don't Call It Climate Change)." *New York Times*, Jan. 20, 2020.

REQ: "Two Years After Hurricane Harvey, One Group Says It Has Been Overlooked: Renters." *New York Times*, Oct. 11, 2019. ([link](#))

**Oct. 15 (Thurs.) Lecture/Discussion – Live
Hurricane Katrina: Lessons Learned**

REQ: Various Authors (2005-present). Understanding Katrina: Perspectives from the Social Sciences. SSRC website.

Other readings TBA

**Oct. 16 (Fri.) Lecture/Discussion – Live
Hurricane Maria in Puerto Rico case study**

Guest Lecture by Marla Pérez-Lugo and Cecilio Ortiz-García (HHH Visiting Professors, Environmental Studies)

Readings TBA

WEEK 8 – LAST WEEK OF MODULE**Oct. 19 (Mon.) Lecture/Discussion – Live
Hurricanes and Hog Farms in the Southeastern US**

Guest Lecture by Jacob Ramthun '17 (U. of South Carolina)

Readings TBA

Assignment 8 (On Tropical Storms – other details TBA) DUE TODAY

**Oct. 20 (Tues.) Lecture/Discussion – Live
LAST DAY OF CLASS**

Course Wrap-Up

Activities TBA

Oct. 23 (Fri.) FINAL PORTFOLIO DUE by 5 pm

COURSE SCHEDULE AT-A-GLANCE (AS = asynchronous, i.e. not live)

	Monday	Tuesday	Wednesday	Thursday	Friday
1	31 (AUGUST)	1 (SEPT)	2 Discussion (live) Introduction Course Business	3 Lecture/Disc (live) Hazards Paradigms	4 Lecture (AS) Dimensions of Disaster
2	7 (Labor Day)	8 Discussion (live) Dimensions of Disaster	9 Lecture (AS) Risk Assessment Assignment 1 Due	10 Discussion (live) Risk Assessment	11 Lecture (AS) Risk and Vulnerability
3	14 Assignment 2 Due Lecture (AS) Flooding	15 Discussion (live) Flooding	16 Lecture/Disc (live) Flooding	17 Discussion (live) Flooding	18 Discussion (live) Scholarly Skills Workshop
4	21 Lecture (AS) Mass-Movement Hazards Assignment 3 Due	22 Discussion (live) Oso Landslide Case Study	23 Video (AS) Earthquakes	24 Discussion (live) Haiti Earthquake	25 Lecture (AS) Volcanoes Assignment 4 Due
5	28 Video (AS) Japan's Triple Disaster Assignment 5 Due	29 Discussion (live) Japan's Triple Disaster	30 Lecture/Disc (live) GCC, Variability and Extreme Events	1 (OCTOBER) Discussion (live) Scholarly Skills Workshop	2 Lecture (AS) Tornadoes Assignment 6 Due
6	5 Lecture (AS) Wildfires Mid-mod portfolio due	6 Discussion (live) Wildfires	7 Lecture (AS) Drought	8 Discussion (live) Causes of famine	9 Discussion (live) Scholarly Skills Workshop
7	12 Lecture (AS) Hurricanes	13 Video (AS) Hurricane Katrina Assignment 7 Due	14 Discussion (live) Hurricanes	15 Discussion (live) Hurricanes	16 Guest lecture (live) Cecilio Ortiz Garcia and Maria Perez Lugo
8	19 Guest lecture (live) Jake Ramthun Assignment 8 due	20 Course wrap-up LAST DAY OF CLASS	21 STUDY DAY	22 FINALS	23 FINALS Final Portfolio Due