

DISASTERS & DEVELOPMENT

Spring 2016

CourseNo: U6260

CourseNo: W3360

Meeting Location: Hamilton 304

Meeting Time: TR 6:10pm-7:25pm

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Introduction

The course investigates the impact of natural disasters on sustainable development with emphasis on the role they may play in developing countries, poorer communities in developed countries, and the role of factors such as inequality, governance and social inclusion. In the first decade of the 21st century an unusually large number of natural disasters - from earthquakes and associated tsunamis, to hurricanes floods and droughts - have struck across the world, affecting countries from the wealthiest and most openly governed to the poorest with failed, fragile or authoritarian governments. The socio-economic effects in all places affected by these disasters are still unfolding. Some seem to be deeply impacted while others have had relatively little lasting impact.

The study of natural disasters and development is relatively new and few scholarly papers have reached the recognized literature, especially in economics. But it is also an area of increasing interest as we strive for a deeper understanding of the impacts of disasters on poverty, inequality and the process of development. This becomes particularly important in light of the expectation that climate change may bring about more weather extremes in hurricanes, floods and droughts but also because an increasing population places more people and more critical assets at risk. This course will examine key issues in this highly topical field.

The first half of the semester will consist of lectures. In the second half of the semester students will present case studies.

Assignments / Grading

- Jitts (Just in time teaching assignments) are short online tests on the current readings, which are due one hour before each class (15% of final grade)
- Midterm (30% of final grade) on 3/10
- Case study presentations (15% of final grade), dates will be assigned.
- Final paper (2500 words) due on 5/2. Proposal for final paper (200 – 300 words) is due on March 22. Both have to be submitted via courseworks. (35% of final grade)

- Attendance and participation (5% of final grade)

Schedule of classes

January 19

- Lecture: Introduction and overview
- Readings: There are no readings to prepare for this class.

January 21

- Lecture: Disaster types and measurements
- Jitt: Online test on the readings due one hour before class.
- Readings:
 - The human cost of weather related disasters 1995 - 2015. Read until page 11 and chapter 5.
http://www.unisdr.org/2015/docs/climatechange/COP21_WeatherDisastersReport_2015_FINAL.pdf

January 26

- Lecture: Earthquake basics
- Jitt: Online test on the readings due one hour before class.
- Readings:
 - Stein, R. S. (2003). Earthquake conversations. *Scientific American*, 288(1), 72-79.
<http://www.nature.com/scientificamerican/journal/v288/n1/pdf/scientificamerican0103-72.pdf>
 - Oreskes, N. (2013). How plate tectonics clicked. *Nature*, 501(7465), 27-29.
https://ilearn.csumb.edu/pluginfile.php/191197/mod_resource/content/1/HowPlateTectonicsClicked_Nature501.pdf
 - Lay, T. (2012). Seismology: Why giant earthquakes keep catching us out. *Nature*, 483(7388), 149-150.
<http://www.nature.com/nature/journal/v483/n7388/full/483149a.html>

January 28

- Lecture: Climate basics
- Jitt: Online test on the readings due one hour before class.
- Readings:
 - Climate Module by John Mutter. Read chapters 1, 2 and 5. Posted on courseworks.

February 2

- Lecture: Cyclone basics
- Jitt: Online test on the readings due one hour before class.
- Readings:

- Peduzzi, P., Chatenoux, B., Dao, H., De Bono, A., Herold, C., Kossin, J., ... & Nordbeck, O. (2012). Global trends in tropical cyclone risk. *Nature climate change*, 2(4), 289-294.
<http://www.nature.com/nclimate/journal/v2/n4/full/nclimate1410.html>
- Sobel, A. (2014). Read chapter 7 and 25!

February 4

- Lecture: Other natural extreme events
- Jitt: Online test on the readings due one hour before class.
- Readings: Pick three from the list!
 - Mann, M. E., & Gleick, P. H. (2015). Climate change and California drought in the 21st century. *Proceedings of the National Academy of Sciences*, 112(13), 3858-3859. <http://www.pnas.org/content/112/13/3858>
 - Moritz, M. A., Batllori, E., Bradstock, R. A., Gill, A. M., Handmer, J., Hessburg, P. F., ... & Syphard, A. D. (2014). Learning to coexist with wildfire. *Nature*, 515(7525), 58-66.
<http://www.nature.com/nature/journal/v515/n7525/full/nature13946.html>
 - Underwood, E. (2015). Models predict longer, deeper US droughts. *Science*, 347(6223), 707-707.
<http://science.sciencemag.org/content/347/6223/707>
 - Witze, A. (2015). Global volcano risk quantified. *Nature*, 519(7541), 16-17.
<http://www.nature.com/news/world-s-deadliest-volcanoes-identified-1.17035>
 - Keefer, D. K., & Larsen, M. C. (2007). Assessing landslide hazards. *Science*, 316(5828), 1136-1138.
<http://science.sciencemag.org/content/316/5828/1136>
 - Hirabayashi, Y., Mahendran, R., Koirala, S., Konoshima, L., Yamazaki, D., Watanabe, S., ... & Kanae, S. (2013). Global flood risk under climate change. *Nature Climate Change*, 3(9), 816-821.
<http://www.nature.com/nclimate/journal/v3/n9/full/nclimate1911.html>
 - González, F. I. (1999). Tsunami!. *Scientific American*, 280(5), 44-55.
<http://www.miracosta.edu/home/kmeldahl/articles/tsunami.pdf>

February 9

- Lecture: Measuring Development
- Jitt: Online test on the readings due one hour before class.
- Readings:
 - Sustainable Development Goals.
<http://www.icsu.org/publications/reports-and-reviews/review-of-targets-for-the-sustainable-development-goals-the-science-perspective-2015/sdgs-report-supplement-goals-and-targets>
 - Human Development Report 2010. Read chapter 2!
http://hdr.undp.org/sites/default/files/reports/270/hdr_2010_en_complete_reprint.pdf

- Heal, G. (2012). Reflections—defining and measuring sustainability. *Review of Environmental Economics and Policy*, rer023. <http://reep.oxfordjournals.org/content/6/1/147>

February 11

- Lecture: Socioeconomics of Natural Disasters
- Jitt: Online test on the readings due one hour before class.
- Readings:
 - Mutter (2015), Appendix 1
 - Hsiang, S. M., & Jina, A. S. (2014). *The causal effect of environmental catastrophe on long-run economic growth: evidence from 6,700 cyclones* (No. w20352). National Bureau of Economic Research. Read Abstract, Introduction, Background and Summary and discussion. <http://www.nber.org/papers/w20352>

February 16

- Lecture: Macroeconomic models of economic growth
- Jitt: Online test on the readings due one hour before class.
- Readings:
 - Mutter (2015), Appendix 2

February 18

- Lecture: Economic impacts of disasters
- Jitt: Online test on the readings due one hour before class.
- Readings:
 - Skidmore, M., & Toya, H. (2002). Do natural disasters promote long-run growth?. *Economic Inquiry*, 40(4), 664-687. <http://onlinelibrary.wiley.com/doi/10.1093/ei/40.4.664/abstract;jsessionid=8E8621F699C4D19CF53238C5018F7AA0.f03t02>
 - Albala-Bertrand, J. M. (2006). *The unlikeliness of an economic catastrophe: Localization & globalization* (No. 576). Working Paper, Department of Economics, Queen Mary, University of London. <http://www.econstor.eu/bitstream/10419/62907/1/519772970.pdf>
 - Stiglitz, J. E. (1989). Markets, market failures, and development. *The American Economic Review*, 197-203. http://www.jstor.org/stable/1827756?seq=1#page_scan_tab_contents
 - Agrawal, A. (2011). Economics: A positive side of disaster. *Nature*, 473(7347), 291-292. <http://www.nature.com/nature/journal/v473/n7347/full/473291a.html>

February 23

- Guest speaker: [Jesse Anttila-Hughes](#)
- Lecture: Disaster impacts
- Jitt: Online test on the readings due one hour before class.
- Readings:

- Anttila-Hughes, J. K., & Hsiang, S. M. (2013). Destruction, disinvestment, and death: Economic and human losses following environmental disaster. Available at SSRN 2220501. Read until page 10 and pages 41-47!
http://papers.ssrn.com/sol3/Papers.cfm?abstract_id=2220501

February 25

- Lecture: Natural disasters, poverty, and inequality
- Jitt: Online test on the readings due one hour before class.
- Readings:
 - Mutter (2015), Read chapters 2 and 8.
 - Ravallion, M. (2014). Income inequality in the developing world. *Science*, 344(6186), 851-855.
<http://science.sciencemag.org/content/344/6186/851>

March 1

- Lecture: Human behaviour and natural disasters
- Jitt: Online test on the readings due one hour before class.
- Readings:
 - Rebuilding the coastline, but at what cost?
<http://www.nytimes.com/2013/05/19/nyregion/rebuilding-the-coastline-but-at-what-cost.html?pagewanted=all&r=0>
 - Kenett, D. Y., & Portugali, J. (2012). Population movement under extreme events. *Proceedings of the National Academy of Sciences*, 109(29), 11472-11473. <http://www.pnas.org/content/109/29/11472>
 - Kinston, W., & Rosser, R. (1974). Disaster: Effects on mental and physical state. *Journal of Psychosomatic Research*, 18(6), 437-456.
<http://www.sciencedirect.com/science/article/pii/002239997490035X>
 - *Riad, J. K., Norris, F. H., & Ruback, R. B. (1999). Predicting evacuation in two major disasters: risk perception, social influence, and access to Resources1. *Journal of Applied Social Psychology*, 29(5), 918-934.
<http://onlinelibrary.wiley.com/doi/10.1111/j.1559-1816.1999.tb00132.x/abstract>
 - *Lu, X., Bengtsson, L., & Holme, P. (2012). Predictability of population displacement after the 2010 Haiti earthquake. *Proceedings of the National Academy of Sciences*, 109(29), 11576-11581.
<http://www.pnas.org/content/109/29/11576.long>
 - *Solnit (2010)
 - *Ripley (2009)

March 3

- Lecture: Disaster preparation and response in the digital age
- Jitt: Online test on the readings due one hour before class.
- Readings:
 - PAGER
http://earthquake.usgs.gov/research/pager/images/pager_back.pdf

- Wald, D. J., Quitariano, V., Worden, C. B., Hopper, M., & Dewey, J. W. (2012). USGS “Did you feel it?” internet-based macroseismic intensity maps. *Annals of Geophysics*, 54(6).
<http://www.annalsofgeophysics.eu/index.php/annals/article/view/5354>
- Crooks, A., Croitoru, A., Stefanidis, A., & Radzikowski, J. (2013). # Earthquake: Twitter as a distributed sensor system. *Transactions in GIS*, 17(1), 124-147.
<http://onlinelibrary.wiley.com/doi/10.1111/j.1467-9671.2012.01359.x/e.pdf>
- Minson, S. E., Brooks, B. A., Glennie, C. L., Murray, J. R., Langbein, J. O., Owen, S. E., ... & Hauser, D. L. (2015). Crowdsourced earthquake early warning. *Science Advances*, 1(3), e1500036.
http://advances.sciencemag.org/content/1/3/e1500036?hc_location=ufi
- *Meier (2014)

March 8

- Lecture: post disaster reconstruction
- Jitt: Online test on the readings due one hour before class.
- Readings:
 - There are a couple of reports for this lecture on courseworks. Please skim through them!

March 10

- **Mid-term exam (in class)**

Spring Break

March 22

- Student Presentation - Case study: Hurricane Sandy (2012)
 - Setting presenter: [REDACTED]
 - Setting discussant: [REDACTED]
 - Event presenter: [REDACTED]
 - Event discussant: [REDACTED]
 - Recovery presenter: [REDACTED]
 - Recovery discussant: [REDACTED]
 - Theory presenter: [REDACTED]
- Jitt: no jitt this week
- **Hand in proposal for final paper**

March 24

- Student Presentation - Typhoon Haiyan (2013)
 - Setting presenter: [REDACTED]
 - Setting discussant: [REDACTED]
 - Event presenter: [REDACTED]
 - Event discussant: [REDACTED]
 - Recovery presenter: [REDACTED]

- o Recovery discussant: [REDACTED]
- o Theory presenter: [REDACTED]

- Jitt: based on presentation from previous class.

March 29

- Student Presentation - Report presenter: [REDACTED]
 - o Report: Global Assessment Report on Disaster Risk Reduction 2015
- Guest speaker: [Amir Jina](#)
- Jitt: based on presentation from previous class and reading.
- Readings: Please revisit this previously assigned reading!
 - o Hsiang, S. M., & Jina, A. S. (2014). *The causal effect of environmental catastrophe on long-run economic growth: evidence from 6,700 cyclones* (No. w20352). National Bureau of Economic Research. Read Abstract, Introduction, Background and Summary and discussion. <http://www.nber.org/papers/w20352>

March 31

- Student Presentation - Hurricane Katrina (2005)
 - o Setting presenter: [REDACTED]
 - o Setting discussant: [REDACTED]
 - o Event presenter: [REDACTED]
 - o Event discussant: [REDACTED]
 - o Recovery presenter: [REDACTED]
 - o Recovery discussant: [REDACTED]
 - o Theory presenter: [REDACTED]
- Jitt: based on presentation from previous class.

April 5

- Student Presentation - Tohoku Earthquake and Tsunami (2011)
 - o Setting presenter: [REDACTED]
 - o Setting discussant: [REDACTED]
 - o Event presenter: [REDACTED]
 - o Event discussant: [REDACTED]
 - o Recovery presenter: [REDACTED]
 - o Recovery discussant: [REDACTED]
 - o Theory presenter: [REDACTED]
- Jitt: based on presentation from previous class.

April 7

- Student Presentation - Sumatra Earthquake and Indian Ocean Tsunami (2004)
 - o Setting presenter: [REDACTED]
 - o Setting discussant: [REDACTED]
 - o Event presenter: [REDACTED]
 - o Event discussant: [REDACTED]
 - o Recovery presenter: [REDACTED]

- o Recovery discussant: Juliet Brooks (jb3620)
- o Theory presenter: N/A
- Jitt: based on presentation from previous class.

April 12

- Student Presentation - Sichuan Earthquake (2008)
 - o Setting presenter: [REDACTED]
 - o Setting discussant: [REDACTED]
 - o Event presenter: [REDACTED]
 - o Event discussant: [REDACTED]
 - o Recovery presenter: [REDACTED]
 - o Recovery discussant: [REDACTED]
 - o Theory presenter: [REDACTED]
- Jitt: based on presentation from previous class.

April 14

- Student Presentation - Haiti Earthquake (2010)
 - o Setting presenter: [REDACTED]
 - o Setting discussant: [REDACTED]
 - o Event presenter: [REDACTED]
 - o Event discussant: [REDACTED]
 - o Recovery presenter: [REDACTED]
 - o Recovery discussant: [REDACTED]
 - o Theory presenter: [REDACTED]
- Student presentation on Nepal earthquake (2015) by Lauren Butler (lmb2263)
- Jitt: based on presentation from previous class.

April 19

- Student Presentation - Drought in the Horn of Africa (2011)
 - o Setting presenter: [REDACTED]
 - o Setting discussant: [REDACTED]
 - o Event presenter: [REDACTED]
 - o Event discussant: [REDACTED]
 - o Recovery presenter: [REDACTED]
 - o Recovery discussant: [REDACTED]
 - o Theory presenter: [REDACTED]
- Jitt: based on presentation from previous class.

April 21

- Student Presentation - Flooding in Pakistan (2010)
 - o Setting presenter: [REDACTED]
 - o Setting discussant: [REDACTED]
 - o Event presenter: [REDACTED]
 - o Event discussant: [REDACTED]
 - o Recovery presenter: [REDACTED]
 - o Recovery discussant: [REDACTED]

- o Theory presenter: [REDACTED]
- Jitt: based on presentation from previous class.

April 26

- Student Presentation - Afghanistan Blizzard (2008)
 - o Setting presenter: [REDACTED]
 - o Setting discussant: [REDACTED]
 - o Event presenter: [REDACTED]
 - o Event discussant: [REDACTED]
 - o Recovery presenter: [REDACTED]
 - o Recovery discussant: [REDACTED]
 - o Theory presenter: [REDACTED]
- Jitt: based on presentation from previous class.

April 28

- Student Presentation - Report presenter: [REDACTED]
 - o Report: IFRC World Disasters Report 2015
- Student Presentation - Report presenter: [REDACTED]
 - o Report: Shock Waves : Managing the Impacts of Climate Change on Poverty
- Lecture: Summing up and review of recent disasters
- Jitt: based on presentation from previous class.

May 2: Deadline for final paper!

Readings

Readings are assigned to each week and will be uploaded to courseworks. Readings with an * are not required but recommended.

The required books are:

Mutter, J. C. (2015). *The Disaster Profiteers: How Natural Disasters Make the Rich Richer and the Poor Even Poorer*. Saint Martin's Press

Sobel, A. (2014). *Storm Surge: Hurricane Sandy, Our Changing Climate, and Extreme Weather of the Past and Future*. Harper Collins.

Recommended books:

Abbott, P. L. (2008). *Natural disasters*. New York: McGraw-Hill.

Blaikie, P., Cannon, T., Davis, I., & Wisner, B. (2014). *At risk: natural hazards, people's vulnerability and disasters*. Routledge.

- Coen, D. R. (2012). *The earthquake observers: disaster science from Lisbon to Richter*. University of Chicago Press.
- Farmer, P. (2012). *Haiti after the earthquake*. PublicAffairs.
- Klinenberg, E. (2015). *Heat wave: A social autopsy of disaster in Chicago*. University of Chicago Press.
- Meier, P. (2014). *Digital Humanitarians: How Big Data Is Changing the Face of Humanitarian Response*. CRC Press.
- Ripley, A. (2009). *The unthinkable: Who survives when disaster strikes-and why*. Harmony Books.
- Rozario, K. (2007). *The culture of calamity: Disaster and the making of modern America*. University of Chicago Press.
- Solnit, R. (2010). *A paradise built in hell: The extraordinary communities that arise in disaster*. Penguin.

Guidelines for the final paper

The final paper can be

- A case study on a disaster that wasn't covered in one of the student presentations
- A comparison of two (or more) events (must not overlap with the events of your own student presentations)
- A discussion of a topic related to disasters and development.

If a case study or comparison of events is chosen, then the final paper has to include components related to the dual perspectives of the natural phenomenon (the natural science) as well as the social economics.

It should be at least 2500 words, and not more than 3000 words in the body of the text (not counting references, footnotes, figure captions, etc). The paper should include at least 8 references for undergraduates and at least 12 references for graduate students (either reports or journal articles, it is allowed to reference newspaper articles or websites, but they don't count to the 10 references).

The paper will be evaluated on three criteria – content, clarity and referencing. You can use whatever referencing scheme (footnotes, endnotes etc) that you prefer.

Guidelines for the proposal

The proposal should provide a brief description of the topic you want to cover for your final paper and consist of 200-300 words (excluding citations). You should also include a list of at least 5 references that you intend to use.

Guidelines for case studies

The class discussion on each case study will focus on four topic areas:

1. Setting - The social, economic and physical setting in which disaster took place.
2. Event - The disaster event itself, including the immediate response phase.
3. Recovery - The longer-term economic and social recovery after the disaster.
4. Theory (for graduate students only) - The relation of the specific disaster to the (mainly economic) theory discussed in the lectures.

Topic 1: Setting.

The purpose is to examine the conditions existing in the country before the event occurred. This includes patterns of economic growth and development, poverty and welfare, and inequality. You should also discuss the style of governance and the role of the military and civil society and institutions intended to support relief and recovery. Furthermore, you should describe the geophysical setting – what are the typical climate conditions (if the disaster was meteorological), the tectonics (if an earthquake), the hydrology (if flooding). Also the preparation practice (building codes, existence of emergency routes etc.) should be discussed.

Topic 2: Disaster Event.

Describe the geophysical nature of the event and its impact in terms of immediate losses as well as the response -- warnings, evacuations, treatment of survivors, etc. Given the magnitude of the event were the losses relatively high, low or more or less normal? You could include discussion of estimates of damage, losses and needs here too.

Topic 3: Recovery.

This will include discussion of recovery in terms of overall economic growth and the performance of specific sectors after the disaster. In addition, some of the following issues should be focused on – recovery in terms of housing and shelter, health and education indicators, infrastructure, economic assets and livelihoods. This discussion should ask whether some income groups and social groups recovered better than others. It should also look at the effects of the disaster on poverty and inequality. In addition, the role of the state and governance in the recovery process as well as the contribution of international donors should be examined.

Topic 4: Theory

Analysis of the ways in which theoretical approaches to post disaster economic development relate to empirical evidence as demonstrated by the case studies will be expected of graduate students. The main focus should be on whether evidence supports or questions theoretical models and the potential sources of disagreement.

Class presentations

For each topic one student will make a presentation of the key issues in their topic area. This will be based on the prescribed readings and other research they have been able to do.

A second person will then provide a critique of the key readings for this topic area and highlight the shortcomings in the existing literature on this topic issue. This critique should be informed by theoretical/conceptual issues we have covered in the lectures.

It is essential that the rest of the class who are not making presentations also do some reading and contribute to the discussion. Here you can even focus on one specific aspect of the disaster that interests you. Participation in discussions in all classes will enter into your participation grade.

Each presentation has to be no longer than 10-15 minutes (5-6 minutes for critiques) to allow for discussion.