

The Honors Forum (UNHP 1100)
Earthquakes in the New Madrid Seismic Zone: Past, Present, and Future
W 9:10-10:05, Honors Hall 101
<http://www.ceri.memphis.edu/people/egdaub/unhp1100.html>

Instructor: Eric Daub, egdaub@memphis.edu, x4830, office in 3876 Central Avenue (CERI House 3). You are welcome to stop by my office any time, though it is best to make an appointment in advance.

Description: The New Madrid Seismic Zone poses earthquake risk to a large region in the Mid-South, including major cities such as Memphis and St. Louis. This course will examine earthquakes in the region from a historical, scientific, and preparedness perspective. We will first study the 1811-1812 earthquakes, which caused immense, widespread shaking, reshaped the local terrain, and played a significant role in the westward expansion of the United States. We will then cover how scientists estimate earthquake risk based on present day studies, as well as the potential to use short-term risk assessments such as earthquake prediction and earthquake early warning. Finally, we will discuss how society can best plan for and mitigate risk from earthquakes and other natural disasters

Book: *When the Mississippi Ran Backwards: Empire, Intrigue, Murder, and the New Madrid Earthquakes of 1811-12.* Jay Feldman, Free Press, New York, 2005. This book covers the historical context of the New Madrid Earthquakes, which we will discuss in class along with the scientific background of the earthquakes. Other course material will be presented in class lectures.

Evaluation: Class participation 40%, Homework 40%, Presentations 20%. Class time will be principally focused on discussions, with some lectures and other activities.

Homework: In addition to in-class discussions, this course will involve several homework assignments. There will be a homework assignment on locating earthquakes using seismic waves, and you will be required to examine seismic data for several earthquakes on the web and make a short in-class presentation on your results. You will also be required to draft an earthquake plan and put together a preparedness kit.

Optional Field Trip: At the end of September, there will be an optional all-day field trip to Reelfoot Lake to observe the effects of the 1811-1812 earthquakes. Details will be determined in early September.

Schedule:
8/30/17
Natural Disasters
9/6/17
1811-1812 Earthquakes (Feldman Chapters 1-3)
9/13/17
1811-1812 Earthquakes (Feldman Chapters 4-7)
9/20/17
1811-1812 Earthquakes (Feldman Chapters 8-10)
9/27/17
1811-1812 Earthquakes (Feldman Chapters 11-13, Epilogue)
10/4/17
Earthquake Science
10/11/17
Tour of CERI
10/18/17
Central US ShakeOut Earthquake Drill
10/25/17
Earthquake Science (HW Due)
11/1/17
Earthquake Monitoring Presentations
11/8/17
Earthquake Preparedness
11/15/17
Probabilistic Seismic Hazard Analysis
11/22/17
Thanksgiving (No Class)
11/29/17
Earthquake Prediction and Early Warning
12/6/17
Earthquake Preparedness