

EARTH & ENVIRONMENTAL SCIENCES 543
ADVANCED GEOPHYSICS & PLATE TECTONICS

Fall 2011

Instructor: Carol Stein	Office: SES 2472
Telephone: 312-996-9349	E-mail: cstein@uic.edu
Classroom: 2418 SES	Hours: Tues & Thurs 11 AM - 12:50 PM
Office hours:	to be announced

The topics for EAES 543 may change each time the course is taught. This year the focus is on Yellowstone National Park and the surrounding area. We will examine its geological and tectonic evolution starting in the Precambrian and extending to present-day conditions.

TOPICS:

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| 1. Archean Wyoming Province/crustal formation | 8. Crustal Structure near Yellowstone |
| 2. Early Proterozoic Rifting & Accretion | 9. Current Deformation- Seismicity & Faulting |
| 3. Nuna/Rodinia to the Sevier Orogeny | 10. Current Deformation- GPS & SAR |
| 4. Laramide Orogeny | 11. Hydrothermal Features- Heat & Geochemistry |
| 5. Absaroka Volcanism + Basin & Range Extension | 12. Glacial History |
| 6. About Hot Spots | 13. Ecology- Bacteria to Bison, Fires & Wolves |
| 7. Yellowstone Hot Spot Track | |

TERM PAPER: The term paper should be about a "narrow" plate tectonic or geophysical aspect of one United States National Park (excluding Yellowstone, Grand Tetons, and Glacier). Check out the web pages for the National Parks (<http://www.nps.gov>) for help choosing your area. No two students may choose the same park! The topic must be approved by Carol Stein by 10/04/11. A written outline of the paper is due by 11/10/11, including references. The paper is due by Thursday 12/08/11 at 11 AM. The paper should be at least 10 double-spaced text pages (maximum 12 point font). Figures, references, etc... do not count towards this total.

GRADING: Your grade will be based on your class participation and presentations of required readings (67%) and on your term paper and presentation (33%).

This is a graduate seminar course. Thus, lecturing by the instructor will be held to a minimum. The emphasis is on student presentations and student discussions of the assigned readings.