ESS2222H1F Tectonics and Planetary Dynamics
2013 Topic: Neotectonics

Meeting details
Lecture: Fridays 10-12
Room: PGB003 (basement, Physical Geography Building, 45 St. George St.)

Instructor
Dr. Lindsay Schoenbohm
University of Toronto Mississauga, DV-4051
Tel: 647-885-7934
Email: Lindsay.schoenbohm@utoronto.ca

Suggested Textbook
Tectonic Geomorphology, Burbank and Anderson, 2011. ISBN: 1444338862

Course Objectives
This course will focus on understanding and quantifying tectonic deformation in active orogens. We'll cover a range of time scales, from years (geodetic), to thousands of years (geomorphic) to millions of years (geologic). We'll also explore typical geomorphic features of deformation in a variety of tectonic settings. Finally, we'll discuss useful dating techniques including C-14 dating, optically stimulated luminescence, U-series, cosmogenic nuclide dating and both bedrock and detrital thermochronology.

Course Structure
We'll meet 11 times over the course of the fall semester for two hours at a time. Meetings may include lecture material, group discussion and introduction of projects. Students will work in groups (with some individual components) on four technique-based projects (paleoseismology, terrace deformation/chronology, basin morphology and thermochronology) that will be due approximately every two weeks throughout the semester. In addition there will be one smaller project involving presentation of a paper and debate. Classroom participation is expected.

Course Grades
Each of the 4 projects will count for 20% of the grade. An additional 10% will be assigned based on the paper presentation/debate. The remaining 10% will be assigned on the basis of classroom participation.

Course Schedule

Month	Day	Lecture Topic	Reading Assignments
Sept.	13	NO MEETING	
Sept.	20	Paleoseismology ***FIRST PROJECT ASSIGNED, due Oct. 4***	TG 149-158
Sept.	27	Geodesy; Discussion of Friedrich et al., 2003	Friedrich et al. (2003) JGR Solid Earth, 108, B4:2199.
Oct.	4	Geomorphic surfaces and start of Quaternary Geochronology ***SECOND PROJECT ASSIGNED, due Oct. 18***	TG 168-178
Oct.	11	Quaternary Geochronology continued	TG 54-70
Oct.	18	Normal faults and basin morphology ***THIRD PROJECT ASSIGNED, due Nov. 1***	TG 97-101; 320-328
Oct.	25	Thrust faults and planform river changes	TG 103-115; 329-337
Nov.	1	Strike-slip faults and introduction to Asian tectonics	TG 93-97
Nov.	8	***TIMESCALE PRESENTATIONS/DEBATE***	Various, TBA
Nov.	15	Bedrock Thermochronology ***FOURTH PROJECT ASSIGNED, due Nov. 29***	Reiners and Brandon (2006) Ann Rev Earth Sci, 34:419-66
Nov.	22	Detrital Thermochronology	
Nov.	29	Tectonic-Climate interactions	TG 352-356; 358-368