

**ESS 255: Cordilleran Thrust Belts Fall, 1989**

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Grading: presentations 30%, final 20%, term paper 50%. *150 page GSA book*

Week	Topic
1. 10/2-6	<b>Thrust Tectonics: An Overview</b> 1. tectonic settings for the development of thrust belts. <i>Good X-sec</i> 2. geometry and kinematics of thrust systems <i>FLH - Bond DLF</i>
2. 10/9-13	<b>Canadian Rocky/western Montana disturbed belt (I):</b> 1. regional tectonic setting 2. tectonic development of the thrust belt.
3. 10/16-20	<b>Canadian Rocky/western Montana disturbed belt (II):</b> 1. geometry of the thrust belt (surface and subsurface data) 2. post-orogenic extension
4. 10/23-27	<b>Idaho-Utah-Wyoming thrust belt:</b> 1. regional tectonic setting 2. sequence of thrust faulting 3. geometry of the thrust belt.
5. 10/30-11/3	<b>Laramide foreland structures (I): Wyoming area:</b> 1. tectonic models for the development of the Wyoming foreland structures 2. mechanical models 3. structural geology of the Big Horn/Wind River/Owl Creek/Granite Mountains
6. 11/4-9	GSA meeting. No class.
7. 11/13-17	<b>Laramide foreland structures (II): interactions between the Cordilleran "thin-skin" thrust belt and the foreland structures.</b>
8. 11/20-22	<b>Mesozoic thrust belt in eastern California I: Death Valley and Clark Mountains area (Thanksgiving, 11/23-26)</b>
9. 11/27-12/1	<b>Mesozoic thrust belt in eastern California I: White-Inyo Mountain area</b>
12/1-12/3	<b>Field trip to Clark Mountains: Leave UCLA at 1:00 pm on Friday (12/1). We will be back to UCLA by 6:00 pm on Sunday.</b> <i>or NV</i>
10. 12/3-8	Thrust mechanics
11. 12/11-15	Final. Term paper is due on 12/15 (Friday).

*2-3*

*Based on papers  
defendants  
competing theories*

*Playing  
regional tectonics*

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**Reading list 1: Thrust Tectonics: An overview**

**Geometry of a single thrust fault:**

\*Suppe, J., 1983, Geometry and kinematics of fault-bend folding: American Journal of Science, 283, 684-721.

DISCUSSING  
WITHS 317A 006  
AND 1/1000

HANGING WALL W/ FOLD

NUMERICAL MODEL DURING GIVE GEOMETRIC

**Geometry of thrust systems:**

Boyer, S., and Elliott, D., 1982, Thrust systems, AAPG Bull., 66, 1196-1230.

Mitra, S., 1986, Duplex structures and imbricate thrust systems: Geometry, structural position, and hydrocarbon potential: AAPG Bull., 70, 1087-1112.

**Relationships between thrust kinematics and thrust geometry:**

801 2-sec  
POLYMET. KINEMATIC THEORY  
NOT WORKING BY THE  
MAG. OF 10 SEP  
KINEMATIC THEORY

\*Geiser, P. A., 1988, The role of kinematics in the construction and analysis of geological cross sections in deformed terranes: GSA Special Paper 222, 47-76.

HOW  
WAS IS SEQ OF FOLDING  
SEQ OF FOLDING FROM BEARING

**Tectonic setting for the development of foreland fold and thrust belt:**

CASUAL  
A Nappe subduction

Bally, A. W., 1981, Thoughts on the tectonics of folded belts, in K.R. McClay, and N.J. Price, eds., Thrust and nappe tectonics: Geological Society of London, Special Publication 9, 13-32.

\*: papers reviewed by students.

FIND ENU BACKGROUND PAPERS