9-2002

GEOL 528.01: Analysis of Sedimentary Basins

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Syllabus: G528, Analysis of Sedimentary Basins
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DATE	LECTURE TOPIC	READING
4-Sep	Intro; What is a sedimentary basin?	Miall, Ch. 1
9-Sep	Crustal Properties, tectonic settings	Ingersoll, 1988
11-Sep	Tectonic settings	Busby and Ingersoll Ch. 1
16-Sep	Review of sedimentary structures	Miall, Ch. 2, 4.5.1-4.5.6
18-Sep	Stratigraphic Analysis Lab; Missoula Basin (7AM - noon)	
23-Sep	Paleocurrent Analysis & Lab Intro	Miall, Ch. 5.9
25-Sep	Paleocurrent Lab cont.; Strat Lab Due (15%)	
30-Sep	Provenance Analysis; Provenance Analysis Lab.	
2-Oct	Prov. Analysis Lab cont.; Paleocurrent Lab Due (10%)	Papers TBA
7-Oct	Well logs	Miall, Ch. 2.4.5, 5.4.2
9-Oct	Subsidence Analysis; Provenance Lab Due (15%)	
14-Oct	Subsidence Analysis Lab	
16-Oct	Midterm class project outing #1- Missoula/9Mile basin (7AM-noon)	
21-Oct	Sequence Stratigraphy, Sea Level change; Due date for decision on final project topic	Miall, Ch. 5.4.1, Ch. 88
23-Oct	Midterm class project outing #2- Missoula/9Mile basin (7AM-noon) Subsidence Analysis Lab Due (15%)	
28-Oct	Rift Basins	
30-Oct	NO CLASS - GSA	
4-Nov	Passive Continental margins	Papers TBA
6-Nov	Trenches, trench-slope basins, and forearcs	
11-Nov	NO CLASS - Veteran's Day	
13-Nov	Retroarc and Peripheral Foreland basins; Missoula/9Mile Valley Abstract Due	Papers TBA
18-Nov	Foreland basins, continued and catch up	Papers TBA
20-Nov	Strike-slip basins	Papers TBA
25-Nov	Student presentation of Missoula/9Mile Basin analysis; project hard copy due	
27-Nov	NO CLASS - Thanksgiving Holiday	
2-Dec	Student presentation of final papers, group 1	
4-Dec	Student presentation of final papers, group 2	
9-Dec	No Class - AGU meeting, San Francisco	
11-Dec	Student presentations of final project, group 3 - all final papers DUE	

This class will synthesize much of what you have learned about in other classes (sed/strat, geophysics, tectonics) and introduce you to a variety of new topics, all in the context of the interpretation of sedimentary basins, their history of fill, and their record of greater tectonic processes. You will be asked to do a significant amount of reading for this class. Most of the reading is in Miall's book (Principles of Sedimentary Basin Analysis, 3rd ed.; Springer-Verlag), but I will also assign various papers pertinent to individual topics. Please do your best to keep up with the reading.

Grades will be based on four laboratory exercises (10-15% each, depending on the lab), a basin analysis of the Missoula/9Mile basin that we will do as a group (25%), and one final presentation/paper (20%).

The basin analysis of the Missoula/9Mile Valley will involve two mornings of preliminary field work, along with an introduction to other available data sets (geophysical, well log, etc.) The idea behind this project is to give everyone experience working in a group setting to coordinate data acquisition and synthesis of an actual basin. This project will take most of the semester, but will culminate in the development of a GSA-style abstract (due November 13), a powerpoint presentation of all results on December 2, and a written report of all findings. All class participants must take part in this group presentation and development of the report.

The final project will consist of a 10 page (maximum) paper on the evolution of a sedimentary basin of your choice, as well as a 20-30 minute powerpoint presentation on your research. The sedimentary basin that you choose to study must be located somewhere off the North American continent and must be approved by Hendrix. The paper must contain the results of a geohistory analysis from at least one stratigraphic section you have extracted from the literature and should focus on integrating the different sorts of published data you can find (stratigraphic, provenance, paleocurrent data, etc.) for your basin. Because you may need to use the interlibrary loan system for obtaining some of your reference materials, it's important that you decide on your basin and begin to research it as soon as possible. (It may take several weeks to receive materials ordered via the IL system.) The due date for identifying the basin on which you will focus is Monday, October 23. Final papers will be due on **Wednesday, December 11 at class time and will not be accepted after the due date.**

There will be no final exam for this class.