

Fall 2006
Geos 692: Topics in Structural Geology

Fluid Flow in Rocks

Time and Location: TBD

In this seminar, we will read and discuss papers that examine the controls on fluid flow in sedimentary rocks from a geologic perspective, with emphasis on:

- rock properties that control and/or influence fluid flow
- fluid flow behavior in basins & thrust belts
- fluid flow and faults

Instructor:

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Office Hours: TBD

Seminar Format:

This seminar is structured fairly informally so that graduate students with differing backgrounds can interact with, and learn from, one another. The seminar meets for 1-1.5 hours a week in a local coffee house. I assign a paper to the entire group the week before; a person will be randomly chosen to lead the discussion during the first 5 minutes of the meeting, requiring that everyone come prepared. I act as a member of the seminar during the ensuing discussion and try to avoid being the seminar leader.

Attendance & Grading Policy

Students are graded on participation and a final project. During the last month of the class, each student (or in the case of a large group, pairs of students) pick an aspect of the seminars' topic of interest to them, research it and then present their results to the seminar group during the last meeting.

While this is a Pass/Fail course, the seminar will only be successful if everyone comes prepared to discuss the assigned paper. Please make your best efforts to do so. Your grade will depend upon the quality of your participation in discussions and attendance.

Preliminary Schedule

This schedule is subject to change, depending upon student interest and discovery of good papers. If you find a paper you want to talk about, feel free to give me the reference.

Week	Topic	Reference
1	Rock properties related to fluid flow	Richie, G.E., 1950, Introduction to the physics of reservoir rocks: AAPG Bulletin, vol 34, no 5, pp. 943-961
2	“”	Wardlaw and Taylor, 1976, Mercury capillary pressure curves and the interpretation of pore structure and capillary behavior in reservoir rocks: Bulletin of Canadian Petroleum Geology, vol. 24, no. 2, pp. 225-262
3	“”	Weber, K.J., 1982, Influence of common sedimentary structures on fluid flow in reservoir models: Journal of Petroleum Technology, vol. 34, no. 3, pp. 665-672
4	“”	Dickey, P. A., 1972, Migration of interstitial water in sediments and the concentration of petroleum and useful minerals
5	“”	Bradley, J.S., 1975, Abnormal formation pressure: AAPG Bulletin, vol. 59, no. 6, pp. 957-973
6	“”	Lindquist, S.J., 1983, Nugget Formation reservoir characteristics affecting production in the Overthrust Belt of southern Wyoming: Journal of Petroleum Technology, vol. 35, no. 7, pp. 1355-1365.
7	Reservoir Characterization	TBD
8	Faults and fluid flow	Yielding, Freeman and Needham, 1997, Quantitative fault seal prediction: AAPG Bulletin, vol. 81, no. 6, pp. 897-917
9	“”	Perez and Boles, 2004, Mineralization, fluid flow, and sealing properties associated with an active thrust fault: San Joaquin basin, California: AAPG Bulletin, vol. 88, no. 9, pp. 1295-1314.
10	“”	Fisher and Knipe, 2001, The permeability of faults within siliciclastic petroleum reservoirs of the North Sea and Norwegian continental shelf: Marine and Petroleum Geology, no. 18, pp. 1063-1081
11	Fluid flow in basins	TBD
12	“”	TBD
13	The Engineering Perspective	TBD
14	STUDENT PRESENTATIONS	

The University of Alaska Fairbanks implements the Americans with Disability Act (ADA) and insures that UAF students have equal access to the campus and course materials. We will work with the Office of Disabilities Services to provide reasonable accommodation to students with disabilities.