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GEO 451.01: Petroleum Geology

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GEO 451, PETROLEUM GEOLOGY – SPRING SEMESTER 2013 SYLLABUS

LECTURE: Monday, Wednesday and Friday; 1:10 to 2:00 PM; CHCB # 304

PROFESSOR: James R. Staub; CHCB # 353; phone 243-4953; james.staub@umontana.edu.
Office hours are from 2:00 to 3:00 PM Monday and Wednesday, other times by appointment.

TEXT: Elements of Petroleum Geology, by Richard C. Selley, 2nd edition, 1998, Academic Press., ISBN 10: 0-12-636370-6

COURSE OUTCOMES: This course is designed to introduce you to basic petroleum geology, whether you are an upper level undergraduate or a graduate student. Petroleum geology combines the disciplines of geology, geochemistry, geophysics, and engineering to understand the origin, distribution, and properties of petroleum and petroleum bearing rocks. This course is structured to deliver the fundamentals of petroleum geology, many of which are also directly applicable to CO₂ sequestration.

COURSE CONTENT:

Physical and Chemical Properties of Petroleum
Subsurface Environments
Source Rock Origins
Petroleum Generation and Migration
Exploration Methods
Reservoirs, Traps and Seals
Nonconventional Petroleum Resources
Sedimentary Basins and Petroleum Systems

GRADING: The final grade will be based on the results from three exams and a research project that includes a class presentation, as follows: 15 % research project, 10% presentation, 20 % first exam, 20 % second exam, 35 % final exam. Midterm exams will be scheduled as major content topics are completed.

Individual letter grades and final letter grades will be based on the following percentages: 100-90% A, 89-80% B, 79-70% C, 69-60% D, 59% and below F. Plus and minus scores will be assigned to letter grades following university guidelines.

RESEARCH PROJECT: A *term research paper* is required (15% of total grade) consisting of library research. The text of the paper (not including the abstract, figures, and references) should be 10 to 12 pages in length (one and one-half spaces for text) and follow the *American Association of Petroleum Geologists Bulletin* format. *Please schedule an appointment with the instructor to discuss paper topics before February 22nd*. The term research paper is due on, *Friday, May 3rd*, by 4:00 PM. Graduate students are also required to develop a graduate level research project based on the materials reviewed and explain/outline this in their term research paper with commensurate increase in depth/length.

PRESENTATION: Toward the end of the semester, you will give an in-class presentation on your research project (10% of total grade). This presentation will be based on the library research you conduct during the semester. You are required to use PowerPoint for your presentation and a digital copy of your presentation will be submitted to the instructor that includes the presentation as well as a complete listing of all reference/source materials used to generate the presentation.

To prepare the class for your presentation, you will need to select at least one published petroleum geology paper that the entire class reads. You must select this paper from one of the main published petroleum geology journals, e.g. *AAPG Bulletin*, *Marine and Petroleum Geology*, *Journal of Sedimentary Research*. This paper must be made available to the class to review by *Friday, March 1*, so it is necessary for you to figure out your research topic prior to that date.

STUDENT CONDUCT CODE: Please be familiar with the UM Student Conduct Code. It outlines the rights and responsibilities of students at The University of Montana. Being a student at UM presupposes a commitment to the principles and policies embodied in the code. The Student Conduct Code can be found on the Vice President for Student Affairs web site at http://life.umt.edu/vpsa/student_conduct.php.

COURSE ACCOMMODATIONS (DSS): Students with disabilities will receive reasonable accommodations in this course. To request course modifications, please contact me as soon as possible. I will work with Disability Services in the accommodation process. For more information, visit the Disability Services website at <http://life.umt.edu/dss> or call 406.243.2243 (Voice/Text).