

## Department of Geology (Earth, Ocean & Atmospheric Sciences)

### GLY 4XXX – Advanced Topics in Geology

#### Syllabus

**INSTRUCTOR:** XXX

**TA:** XX

**OFFICE HOURS:** XXXX

**E-Mail:** [XXXX](#)

**MEETING TIME:** XXXX

**ROOM:** CAR XXX

**TEXTBOOKS/REQUIRED READING:** XXX

**RECOMMENDED BOOK/S:** XXX

*\*Additional readings to be assigned from textbook and other literature*

**COURSE GOALS AND CONTENT** – This course will introduce undergraduate students to advanced material, concepts and methods in a sub discipline of the geological sciences not available through other undergraduate classes. Students will demonstrate mastery of the material through a combination of in-class exams, class projects, field experiences, laboratory exercises, research papers, and/or classroom presentations. At the end of the course, students will be able to evaluate observational support for pertinent scientific theories, apply covered concepts to geologic phenomena, and derive appropriate solutions to geologic problems.

**GRADING:** X% Exams X% Group Project X% Lab Exercises X% Presentations

Exams will be of the form XXX. Grading will be based on correct application of class concepts and information.

**TECHNOLOGY POLICY:** Please set cell phones to silent and **refrain from texting or web surfing** during the lecture portion. Remember that in some cases, the use of electronic devices to retrieve information from the internet while in class may be in violation of the FSU honor code.

#### **University Attendance Policy:**

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

#### **Academic Honor Policy:**

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at <http://fda.fsu.edu/Academics/Academic-Honor-Policy>)

#### **Americans with Disabilities Act:**

Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the Student Disability Resource Center; and (2) bring a letter to the instructor indicating the need for accommodation and what type. Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from the Student Disability Resource Center has been provided. This syllabus and other class materials are available in alternative format upon request. For more information about services available to FSU students with disabilities, contact the: Student Disability Resource Center 874 Traditions Way 108 Student Services Building Florida State University Tallahassee, FL 32306-4167 (850) 644-9566 (voice) (850) 644-8504 (TDD) [sdrc@admin.fsu.edu](mailto:sdrc@admin.fsu.edu) <http://www.disabilitycenter.fsu.edu>

**Free Tutoring from FSU:** On-campus tutoring and writing assistance is available for many courses at Florida State University. For more information, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of on-campus tutoring options at <http://ace.fsu.edu/tutoring> or contact [tutor@fsu.edu](mailto:tutor@fsu.edu). High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to encourage the highest level of individual academic success while upholding personal academic integrity.

**Syllabus Change Policy:** Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.

## EXAMPLE OF A POTENTIAL COURSE SYLLABUS

### Department of Geology (Earth, Ocean & Atmospheric Sciences)

#### GLY 4XXX – Advanced Topics in Geology

#### Syllabus

**INSTRUCTORS:** Mr. Robert Maxwell, Dr. Thomas Herbert, Mr. Gregory Hitz

**TA:** Valarie J Smith (Carraway 314)      **OFFICE HOURS:** Mon/Wed: 9am – 11am and Tues/Thurs: 11am – 3pm

**E-Mail:** [vjs12@my.fsu.edu](mailto:vjs12@my.fsu.edu)

**MEETING TIME:** Tuesday/Thursday 5:15 pm - 6:30 pm      **ROOM:** CAR 104

**TEXTBOOKS/REQUIRED READING:** Selley, Richard. C., 1998, **Elements of Petroleum Geology**, Second or Third Ed., Academic Press, 470p

**RECOMMENDED BOOK/S:** Yergin, Daniel., 2009, **The Prize: The Epic Quest for Oil, Money and Power**

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**COURSE GOALS AND CONTENT** – This course is meant to provide an introduction to Petroleum Geology for upper level undergraduate students. Students are expected but not required to have some background in Geophysics, Sedimentology, Stratigraphy, and Structural Geology. The class will provide a brief introduction to the history and development of the petroleum industry including an explanation of why petroleum will remain a vital resource for modern society for the remainder of this century and beyond. The topics to be covered include (i) A brief history of petroleum/U.S. energy consumption (ii) Energy myths and realities (iii) Basin evolution and thermal history analysis (iv) Petroleum geochemistry (v) Fluid transport through porous media (vi) Reservoir characterization – carbonate, siliciclastic and fractured systems, (vii) Formation evaluation (viii) Exploration geophysics (ix) Background and research information for potential drilling sites.

Students considering employment in the petroleum industry or in the environmental sciences will find the course to be relevant and of value for careers in either of these fields. Energy myths and realities will be examined for both fossil fuels and renewables. Basic physical laws relating to energy, energy density, and power density will be discussed. The course will include a review of technologies, tools, and concepts fundamental to successful petroleum exploration and identify career pathways for geoscientist and environmental scientists in the petroleum industry.

**GRADING:** 40% Midterm Exam      40% Final Exam      20% Group Project

Exams will be eight short essay questions on material covered in lectures and in assigned readings. The group projects will be independent research questions assigned to groups of 3-5 students, requiring a written 2-4 page synopsis of the group's answer. Grading will be based on correct application of class concepts and information.

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## Advanced Topics in Geology

Textbooks by: (available at amazon.com)

- Daniel Yergin - The Prize (2009) – *suggested*
- Richard Shelly - Elements of Petroleum Geology Second Edition (1999) - *required*

### Lecture Content

Jan 9	<b><i>Petroleum History Modern Civilization and Our Energy</i></b>	Bill Maxwell
Jan 11	<b><i>Energy, Power and Common Sense</i></b>	Bill Maxwell
Jan 16	<b><i>Renewable Energy</i></b>	Bill Maxwell
Jan 18	<b><i>Thermal Maturation</i></b>	Dr. Seth Young
Jan 23	<b><i>Where do Geologist Fit In</i></b>	Dr. Tom Herbert
Jan 25	<b><i>Project Introduction</i></b>	Steve Boljen
Jan 30	<b><i>Oil Seeps in the Gulf</i></b>	Dr. Ian MacDonald
Feb 1	<b><i>Oil Seeps in the Gulf</i></b>	Dr. Ian Mac Donald
Feb 6	<b><i>Identifying an Oil Play</i></b>	Mrs. Smith
Feb 8	<b><i>Exploring and Planning</i></b>	Greg Hitz
Feb 13	<b><i>Basin Formation</i></b>	Dr. Rick Groshong
Feb 15	<b><i>Salt Tectonics</i></b>	Dr. Rick Groshong
Feb 20	<b><i>Formation Water</i></b>	Mrs. Smith
Feb 22	<b><u>Mid – Term</u></b>	
Feb 26	<b><i>Land Man – Property Acquisition</i></b>	Mr. Albury
March 1	<b><i>Geopatial Positioning</i></b>	Mr. John Clyatt
March 6	<b><i>Movie</i></b>	<i>“Switch-Discovering the Future of Energy”</i>
March 8	<b><i>Stakeholders</i></b>	Dr. Linda Lampl
March 13/15	<b><u>Spring Break</u></b>	
March 20	<b><i>Formation Evaluation</i></b>	Mr. Dennis Moore
March 22	<b><i>Formation Evaluation</i></b>	Mr. Dennis Moore
March 27	<b><i>Petroleum Exploration, The Process</i></b>	Mr. Bill Maxwell
March 29	<b><i>Student Article Presentations</i></b>	
April 2	<b><i>Reservoir Characteristics</i></b>	Mrs. Smith
April 4	<b><i>Movie</i></b>	<i>“Gas Lands”</i>
April 9	<b><i>Oil Identification and Oil Chemistry</i></b>	Dr. Steven Rowland
April 11	<b><i>Unconventional Petroleum Resources</i></b>	Mrs. Smith

April 16	<b><i>Carbon Environments</i></b>	Mr. Greg Hitz
April 18	<b><i>Movie</i></b>	<i>"Fracknation"</i>
April 23	<b><i>Group Presentations</i></b>	Mr. Dan Gish/Steve Boljen/Dr. Herbert
April 25	<b><i>Group Presentations</i></b>	Mr. Dan Gish/Steve Boljen/Dr. Herbert
May 3	<b><u><i>Final Exam</i></u></b>	Time to be Announced

**\*\* Please note that this syllabus schedule is subject to change and to be updated.**