

ENERGY EXPLORATION (GEO 330K)

SPRING 2011

Lecture: MW 1:00 -2:00 pm JGB 2.216

Labs: JGB 2.310 T 8-10am, TH 8-10am, F 8-10am, T 10-12pm, TH 12-2pm, M/W 1-2pm and M 2-4pm

Instructor:

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Teaching Assistants:

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Office Hours:

Flemings: MW 12-1 (or by appointment)

Janson: MW 12-1 (or by appointment)

Steel: MW 12-1 (or by appointment)

Grading Policy

Homework/Quizzes 10%

Labs 25%

Mid-Term 20%

Final Exam 20%

Final Project 25%

Class Attendance is required and there will be quizzes during class.

Labs are due no later than the start of the next lab. No late labs accepted (0 credit) except under pre-negotiated circumstances.

Note: All acts of dishonesty in any work constitute academic misconduct. This includes, but is not limited to, cheating, plagiarism, fabrication of information, misrepresentations, and abetting of any of the above. The Academic Misconduct Disciplinary Process will be followed in the event that academic misconduct occurs.

I-CLICKER: An i-clicker remote is required. You can purchase it through the bookstore.

References:

1) Gluyas, J. and Swarbrick, R., 2004, Petroleum Geoscience, Blackwell Publishing Company, 359 p. Recommended reading

Other background reading

2) Selley, Richard C., 1998, Elements of Petroleum Geology 2nd ed., Academic Press, 470 p.

3) A squith, G., 1982, Basic Well Log Analysis for Geologists, Methods in Exploration Series, AAPG, 216 p.

4) Yergin, D., The Prize, Simon and Schuster, 885 p.

5) Levorsen, A.I., 1967, Geology of Petroleum, W. H. Freeman and Company, 724 p.

Class Schedule

Week 1

Lect. 1	Wed, Jan 19	Course Overview & Fundamentals of Seismic Interpretation (PF)
Lab 1	Contouring exercises (RS)	

Week 2

Lect. 2	Mon, Jan 24	Seismic Interpretation (incl. shelf margins) (XJ)
Lect. 3	Wed, Jan 26	Fundamentals of Well Log Analysis (PF)
Lab 2	Seismic & log calibration; reservoir recognition on logs and seismic (RS and XJ)	

Week 3

Lect. 4	Mon, Jan 31	Clastic Reservoirs & their log patterns (RS)
Lect. 5	Wed, Feb 02	Clastic Reservoirs: change across shelf margins (RS)
Lab 3	Seismic Mapping: Faults (XJ & PF)	

Week 4

Lect. 6	Mon, Feb 07	Seismic interpretation-structure and traps (XJ)
Lect. 7	Wed, Feb 09	Seismic interpretation-reservoir and bright spots (XJ)
Lab 4	Seismic Mapping: horizons (XJ & PF)	

Week 5

Lect. 8	Mon, Feb 14	Mapping fluid distribution (PF)
Lect. 9	Wed, Feb 16	Volume calculation (PF)
Lab 5	Prospect Generation (PF)	

Week 6

Lect. 11	Mon, Feb 21	Review of seismic work so far (PF)
Lect. 12	Wed, Feb 23	Basins: Rift to Passive Margin (RS)
Lab 6	Trap Lab (XJ)	

Week 7

Lect. 13	Mon, Feb 28	Subsurface temperature, pressure & petroleum systems (RS)
Lect. 14	Wed, Mar 02	Exam Review (RS).
Lab 7	GeoHistorylab&MaturationModeling(RS)	

Week 8

Lect. 15	Mon, Mar 07	Source rocks, kerogen & HC generation & migration (XJ)
	Wed, Mar 09	6-8pm Mid-Term Exam (evening grading by TAs & Profs)
Lab 8	Exploration Project handout	

Spring Break – March 14- 18

Week 9

Lect. 17 Mon, Mar 21
Lect. 18 Wed, Mar 23
Lab 9 Exploration Project

Estimating in-situ Reserves (PF)
Guest Scott Tinker: 'Energy Demand'

Week 10

Lect. 19 Mon, Mar 28
Lect. 20 Wed, Mar 30
Lab 10 Risk Analysis Lab (PF)

Risk Analysis (Chevron)
Guest Bill Galloway: 'GOM Margin & HC Reserves'

Week 11

Lect. 21 Mon, Apr 04
Lect. 22 Wed, Apr 06
Lab 11 Exploration Project work

Guest Peter Flemings: Macondo Well (BP)
Exploration Project

Week 12 (AAPG week)

Lect. 23 Mon, Apr 11
Lect. 24 Wed, Apr 13
Lab 12 Exploration Project work

Guest lecture on Shale Gas
Exploration Project

Week 13

Lect. 25 Mon, Apr 18
Lect. 26 Wed, Apr 20
Lab 13 Exploration Project

Exploration Project assistance
Introduction to project presentation (tips for good talk)

Week 14

Lect. 40 Mon, Apr 25
Tue, Apr 26
Wed, Apr 27

Class Evaluation & Project assistance
Poster Presentation all day
Chevron Presentation

Week 15

Lect. 41 Mon, May 02
Mon, May 16

Profs available for exam help
9.00-12.00: Final Exam