

Submit original with signatures + 1 copy + electronic copy to Faculty Senate (Box 7500).  
See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for a complete description of the rules governing curriculum & course changes.

RECEIVED

**TRIAL COURSE OR NEW COURSE PROPOSAL**

SEP 28 2011

**SUBMITTED BY:**

Department	Petroleum Engineering
Prepared by	Catherine Hanks
Email Contact	chanks@gi.alaska.edu

College/School	
Phone	
Faculty Contact	

Dean's Office	College of Natural Science & Mathematics
Phone	474-5562 or 2668
Faculty Contact	chanks@gi.alaska.edu

**1. ACTION DESIRED**

(CHECK ONE):

Trial Course

New Course

**2. COURSE IDENTIFICATION:**

Dept	PETE	Course #	646	No. of Credits	3
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Justify upper/lower division  Course will require 300 level nonscience courses or graduate standing in petroleum

*instructor.* Cross-listed with GEOS F646. Stacked with GEOS F446. (3 + 0)

**GEOS F646**

**Petroleum Geology**

**3 Credit**

Offered Fall Even-numbered Years

**17. PREVIOUS HISTORY**

Has the course been offered as special topics or trial course previously?

Yes/No

Yes

If yes, give semester, year, course #, etc.:

**18. ESTIMATED IMPACT**

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

**19. LIBRARY COLLECTIONS**


Have you contacted the library collection development officer ([kljensen@alaska.edu](mailto:kljensen@alaska.edu), 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

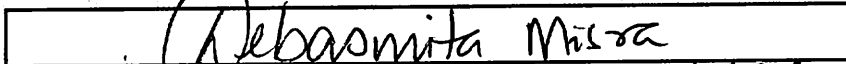
No

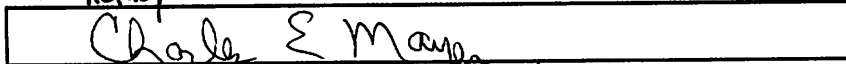
Yes,


MEMORANDUM

APPROVALS: Add additional signature lines as needed.

 Date 9/20/11  
Signature, Chair, Program/Department of: \_\_\_\_\_

 Date 9/30/11  
Signature, Chair, College/School Curriculum Council for: CEM

 Date 10/12/11  
Signature, Dean, College/School of: CEM

 Date 10/15/11  
Signature of Deponent (if applicable)

**GEOS 446**  
**Petroleum Geology**  
**3 credits**

Hydrocarbons fuel today's economy, but remain a relatively rare natural resource. The objective of this course is to review the geologic controls on the distribution and accumulation of

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Topics to be covered will include:

- the subsurface environment
- the origin and nature of hydrocarbons
- how and where hydrocarbons accumulate
- methods of hydrocarbon exploration and exploitation
- unconventional hydrocarbon resources
- basic reservoir engineering techniques

Examples from classic hydrocarbon-producing regions will be used to illustrate the principles and techniques discussed in class.

B = 83-86%  
B- = 80-82  
C+ = 77-79  
C = 73 - 76%  
C- = 70 - 72  
D+ = 65-69  
D = 55-64%  
D- = 50 - 54  
F = <55%

The instructor reserves the right to curve the grades where appropriate.

**COURSE OUTLINE: (28 CLASS DAYS)**

1	Intro— Why petroleum?		
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[The body of the page is almost entirely obscured by heavy black redaction bars.]



11	<ul style="list-style-type: none"> <li>Timing of Trap Development Relative to Migration.</li> </ul> <b>Petroleum systems &amp; plate tectonic habitat</b> <ul style="list-style-type: none"> <li>Passive continental margins</li> </ul>	Hwk 9: Using seismic data for structural interpretation and timing	Selley, Ch. 8
	<ul style="list-style-type: none"> <li>Passive continental margins, cont</li> </ul>		
12	<ul style="list-style-type: none"> <li>Convergent margins</li> <li>Strike slip basins</li> </ul>	Hwk 10: Plate tectonic setting of modern day basins	
	<b>Reservoir engineering:</b> <ul style="list-style-type: none"> <li>Reserve calculations</li> </ul>	Hwk 11: Simple reserve calculation	Selley, Ch. 6.8-6.9
13	<b>Well Drilling and Completion</b>		
	<b>Non conventional hydrocarbon resources</b> <ul style="list-style-type: none"> <li>Viscous oil</li> <li>Gas hydrates</li> <li>Coal bed methane</li> </ul>		
14	<ul style="list-style-type: none"> <li>Tight gas</li> <li>Shale resource plays</li> </ul>		

**Course Policies:** Attendance at class is your responsibility. Students are responsible for making up any missed work. Students are encouraged to arrive to class on time. Make-up examinations

will be given only in exceptional circumstances (e.g. illness, family crises, etc.). Medical

**PETE/GEOS 646**  
**Petroleum Geology**

**3 credits**

Hydrocarbons fuel today's economy, but remain a relatively rare natural resource. The objective of this course is to review the geologic controls on the distribution and accumulation of hydrocarbons, how those hydrocarbons are found, and how they are subsequently extracted.

Topics to be covered will include:

- the subsurface environment
- the origin and nature of hydrocarbons
- how and where hydrocarbons accumulate
- methods of hydrocarbon exploration and exploitation
- unconventional hydrocarbon resources
- hydrocarbon processing techniques

Examples from classic hydrocarbon-producing regions will be used to illustrate the principles and techniques discussed in class.

Students will be assigned additional readings each week that expand on the topics discussed in class. Students will then use the concepts and techniques discussed in both the class and the readings to research a petroleum topic related to their own area of research. Results will be summarized as a paper and presented to the class as a short presentation.

**Prerequisites:** Graduate standing or permission of the instructor

Final research paper presentation (200%)

Students will meet with the instructor during the first 2 weeks of class to determine

the research project. The results of the project will be presented as an 8-10 page research paper,

	Seismic--acquisition	seismic	
	<ul style="list-style-type: none"> <li>Seismic interpretation, 3 D, 4D</li> </ul>		
5	<p>The source: How oil forms</p> <ul style="list-style-type: none"> <li>Source rock characteristics</li> <li>Productivity Level Determination of</li> </ul>		Selley, Ch. 5

9	<ul style="list-style-type: none"> <li>• Trap types: <ul style="list-style-type: none"> <li>○ Structural Traps.</li> <li>○ Stratigraphic Traps.</li> <li>○ Combination Traps.</li> <li>○ Hydrodynamic Traps.</li> </ul> </li> </ul>	<b>Hwk 8:</b> <b>Constructing</b> <b>subsurface structure</b> <b>maps; Identifying</b> <b>play types from</b> <b>subsurface structure</b> <b>maps</b>	
	<ul style="list-style-type: none"> <li>• Salt-related structures</li> </ul>		
10	<u>Midterm II</u>		

Structural modifications of

