

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.:

GEOS/PETE 494/694 Fall 2008, 209, 2010

18. ESTIMATED IMPACT

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

No additional material needed other than what is already available

19. LIBRARY COLLECTIONS

Have you contacted the library collection development officer (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,

No additional material needed other than what is already available

MEMORANDUM

APPROVALS: Add additional signature lines as needed.



Date

9/20/17

Signature, Title, Program/Department of: |

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

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

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 for students who are absent for a medical emergency (e.g. illness, family crisis, 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

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

Instructor: Cathy Hanks, NSB 346/Duckering 417, 474-5562 or 2668
chanks@gi.alaska.edu

Text: Selley, 1999, Elements of Petroleum Geology. Academic Press, 470 p.

Additional readings will be assigned each week to augment the lectures.

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

9	<ul style="list-style-type: none"> • Trap types: <ul style="list-style-type: none"> ○ Structural Traps. ○ Stratigraphic Traps. ○ Combination Traps. ○ Hydrodynamic Traps. 	Hwk 8: Constructing subsurface structure maps; Identifying play types from subsurface structure maps	
	<ul style="list-style-type: none"> • Salt-related structures 		
10	<u>Midterm II</u>		
	<ul style="list-style-type: none"> • Structural modifications of a reservoir: Fractured reservoirs 		
11	<ul style="list-style-type: none"> • Timing of Trap Development 	Hwk 9: Using	Selley, Ch. 8

Disabilities Services The Office of Disabilities Services implements the Americans with

Disabilities 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 (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities.