

Petroleum Engineering

School of Mineral Engineering
Department of Petroleum Engineering
(907) 474-7734
www.uaf.edu/petrol/

B.S. Degree

Minimum Requirements for Degree: 134 credits

Petroleum engineering offers a unique look at the challenging problems confronting the petroleum industry. This program requires an understanding of many disciplines including mathematics, physics, chemistry, geology and engineering science. Courses in petroleum engineering deal with drilling, formation evaluation, production, reservoir engineering, computer simulation and enhanced oil recovery.

The curriculum prepares graduates to meet the demands of modern technology while emphasizing, whenever possible, the special problems encountered in Alaska. Located in one of the largest oil-producing states in the nation, the UAF petroleum engineering department offers one of the most modern and challenging degree programs available.

Major—B.S. Degree

- Complete the general university requirements (page 106. As part of the core curriculum requirements, complete: MATH 200X, CHEM 105X, CHEM 106X, and LS 101X.)
- Complete the B.S. degree requirements (page 112. As part of the B.S. degree requirements, complete: MATH 201X, PHYS 211X and PHYS 212X.)
- Complete the following program (major) requirements:*

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| ES 201—Computer Techniques | 3 |
| ES 208—Mechanics..... | 4 |
| ES 331—Mechanics of Materials..... | 3 |
| ES 341—Fluid Mechanics | 4 |
| ES 346—Basic Thermodynamics..... | 3 |
| GE 261—General Geology for Engineers (3) | |
| or GEOS 101X—The Dynamic Earth (4) | 3-4 |
| GEOS 370—Sedimentary and Structural Geology for Petroleum Engineers | 4 |
| PETE 103—Survey of Energy Industries | 1 |
| PETE 104—Fundamentals of Petroleum | 1 |
| PETE 205—Fundamentals of Drilling Practices | 1 |
| PETE 206—Introduction to Petroleum Production..... | 1 |
| PETE 301—Reservoir Rock and Fluid Properties..... | 4 |
| PETE 302—Well Logging | 3 |
| PETE 303W—Reservoir Rock and Fluid Properties Laboratory | 1 |
| PETE 407—Petroleum Production Engineering..... | 3 |
| PETE 411W—Drilling Fluids Laboratory..... | 1 |
| PETE 421—Reservoir Characterization | 3 |
| PETE 426—Drilling Engineering..... | 3 |
| PETE 431—Natural Gas Engineering | 2 |
| PETE 456—Petroleum Evaluation and Economic Decisions..... | 3 |
| PETE 466—Petroleum Recovery Methods..... | 3 |
| PETE 476—Petroleum Reservoir Engineering..... | 3 |
| PETE 478—Well Test Analysis..... | 2 |
| PETE 481W—Well Completions and Stimulation Design | 3 |
| PETE 487A—Petroleum Project Design** | 1 |
| PETE 487BW,O—Petroleum Project Design..... | 1 |
| PETE 489—Reservoir Simulation | 2 |

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|---|---|
| Engineering elective*** | 3 |
| Technical elective**** | 3 |
| 4. Complete the following program (major) requirements: | |
| MATH 202X—Calculus..... | 4 |
| MATH 302—Differential Equations | 3 |
| MATH 310—Numerical Analysis | 3 |

- Complete the Fundamentals of Engineering Exam (as approved by the Board of Architects, Engineers and Land Surveyors).
- Minimum credits required134

* Student must earn a C grade or better in each course.

** PETE 487A is prerequisite for PETE 487B. Must take both courses to meet the oral communication and writing intensive requirements.

*** As approved by advisor (e.g. ME 416 or ES 307).

**** As approved by advisor (e.g. CE 603).

Note: Page numbers refer to the UAF 2004-2005 academic catalog, which can be viewed online at www.uaf.edu/catalog/.

General University Requirements

All degrees (e.g. B.A., B.S., etc.) require additional courses.
Refer to specific degree and program requirements.

COMMUNICATIONS (9)

Complete the following:

ENGL 111X (3) _____
ENGL 211X OR 213X (3) _____
COMM 131X OR 141X (3) _____

LIBRARY & INFORMATION SKILLS (0-1)

Complete the following:

LS 100X OR 101X (0-1) _____
OR Successful completion of library skills competency test.

PERSPECTIVES ON THE HUMAN CONDITION (18)

Complete either the following six courses:

ANTH 100X OR SOC 100X (3) _____
ECON/PS 100X (3) _____
HIST 100X (3) _____
ART/MUS/THR 200X, HUM 201X OR ANS 202X (3) _____
ENGL/FL 200X (3) _____
PHIL 322X, NRM 303X, COMM 300X,
PS 300X OR JUST 300X (3) _____

OR Complete 12 cr from the above list PLUS two semester-length courses in a single non-English or Alaska Native language at the university level OR three semester-length courses (9 cr) in American Sign Language.

MATHEMATICS (3-4)

Complete 3-4 credits from the following:

MATH 107X (3) _____
OR MATH 131X (except for BBA) (3) _____
OR MATH 161X (3) _____
MATH 200X (4) _____
MATH 201X (4) _____
MATH 202X (4) _____
MATH 262X (4) _____
MATH 272X (3) _____

NOTE: Additional 3 cr of math needed for degree requirements.

NATURAL SCIENCES (8)

Complete 8 credits from the following:

ATM 101X (4) _____
BIOL 103X OR 104X (4) _____
BIOL 105X-106X (8) _____
BIOL 111X-112X (8) _____
CHEM 100X (4) _____
CHEM 103X-104X (8) _____
CHEM 105X-106X (8) _____
GEOG 205X (4) _____
GEOS 100X OR 120X OR 125X (4) _____
GEOS 101X-112X (8) _____
MSL 111X (4) _____
PHYS 102X OR 175X (4) _____
PHYS 103X-104X (8) _____
PHYS 211X-212X (8) _____
PHYS 211X-213X (8) _____
PHYS 212X-213X (8) _____