

Technical Electives

The technical electives in the Petroleum Engineering undergraduate curriculum can be used to take a minor or create an emphasis within your curriculum.

Electives must be upper level science, technology, engineering, or mathematics (STEM) courses, or courses in the College of Business or College of Law (with a technical component). Lower level courses (1000/2000 level) may be allowed, only if they are prerequisites for higher-level courses in an area in which the student has an appropriate educational objective and the student must have a clearly articulated argument for the course to be included.

Students must complete 48 upper-division credit hours. The number of credits of upper-division courses must still be satisfied, therefore, 13 credits of technical electives must be 3000+, regardless of the discipline.

Minors

Technical elective courses can also be used to obtain a minor (Math, Geology, Economics, Management, and Business). If you want to obtain a minor, you must officially declare the minor using the Program Change Form. Students are referred to the respective departments for further information about the minor curriculum and advising. The respective department, not Petroleum Engineering Department, checks the minor requirements!

At the present time, we allow students to use the technical elective courses to obtain the following minors:

Business Minor

ACCT 1010 Principles of Accounting I (3)
ACCT 1020 Principles of Accounting II (3)
FIN 3250 Corporate Finance (3)
MGT 1040 Legal Environment of Business (3)
MGT 3110 Business Ethics (3)
MGT 3210 Management and Organization (3)
MKT 3210 Introduction to Marketing (3)
STAT 2010, 2050, or 2070 Statistics (4)
Upper Division Business Course (3)

Chemistry Minor

CHEM 2230 Quantitative Analysis (4)
CHEM 3000+ (4)
Approved electives –
GEOL (4)
PETE courses (6)

Economics Minor

ECON 1010 Principles of Macroeconomics (3)
ECON 1020 Principles of Microeconomics (3)
ECON 3010 Intermediate Macroeconomics (3)
ECON 3020 Intermediate Microeconomics (3)
ECON 3000+ (3)
ECON 4000+ (6)

Geology Minor

GEOL 2000 Geochemical Cycles & the Earth System (4)
GEOL 3000+ (5)
Approved elective (3000+) (5)
Choose one of the following:
GEOL 3400 Geological Hazards (4)
GEOL 3500 Global Change (4)
GEOL 3600 Earth and Mineral Resources (4)

Management Minor

MGT 3210 Management & Organization (3)
MGT 3410 Human Resource Management (3)
Choose five courses from the following:
MGT 3420 Org Behavior & Leadership (3)
MGT 4425 Supervision (3)
MGT 4430 Organization Design and Change (3)
MGT 4440 Managerial Problem Solving (3)
MGT 4445 Managing Risk & Knowledge (3)
MGT 4455 Systems Analysis & Design (3)
MGT 4465 Managerial Tools (3)
MGT 4470 Mgmt Negotiation & Conflict Resolution (3)
DSCI 4250 Revenue Management (3)
DSCI 4260 Project Management (3)

Math Minor

MATH 2250 Elementary Linear Algebra (3)
MATH 2800 Mathematics Major Seminar (2)
MATH 3205/3500/3340 (3)
MATH 3000+ (6)
Approved elective (3000+) (4)

Emphases

The Department of Petroleum Engineering established emphases that could shape your education further or help you acquire useful transferrable skills. An emphasis is not a minor and will not be stated on your diploma, but you can add it on your resume as part of your academic qualifications.

Petroleum Engineering allows for the following emphases:

- Unconventional Reservoirs
- Chemical Engineering
- Mechanical Engineering
- Graduate School Preparation
- Self-Directed

Unconventional Reservoirs

PETE 4215 Rock Mechanics (3)
PETE 4450 Unconventional Reservoirs (3)
PETE 4400 Tight Gas Sands & Coal Bed Methane (3)
PETE 4800 Shale Reservoir Development (3)
PETE 3000+ (3)
PETE 3000+ (3)

Chemical Engineering

CHE 2005 Process Analysis (3)
CHE 3026 Heat Transfer
CHE 3030 Unit Operations (3) or
CHE 3028 Mass Transfer
CHE 4060 Reaction Engineering (3)
CHE 3070 Process Simulation and Economics (3)
CHE 3000+ (3)

Mechanical Engineering

ME 3040 Thermodynamics II (3)
ME 3360 Fundamentals of Transport Phenomenon (3)
ME 3450 Properties of Materials (3)
ME 3170 Machine Design (3)
ME Electives (3000+ or higher) (6)

Graduate School Preparation

PETE 3900 Undergraduate Research (3)
COSC 3340 Scientific Computing (3)
MATH 4340 Numerical Methods for Ordinary & Partial
Differential Equations (3)
PETE 4060 Flow Through Porous Media (3)
PETE 4310 Fundamentals of EOR (3)
MATH or PETE 3000+ (3)

Self-Directed Emphasis

If you elect not to choose a recognized minor or one of these emphases, **your technical electives must be approved by your advisor and must contain at least one GEOL and two PETE courses.**

The technical electives policy must be followed for students who choose the self-directed emphasis.

The following is a list (in alphabetical order) of disciplines in which appropriate elective courses may be found.

Agriculture (<i>except Ag Economics, Family & Consumer Science</i>)	Energy Resources
Agroecology/Entomology/Soil Science	Engineering (<i>all disciplines</i>)
Anthropology	Environment and Natural Resources
Astronomy	Geography
Atmospheric Science	Geology and Geophysics
Biology/Life Science	Law (<i>see below for College of Law</i>)
Botany	Mathematics
Business (<i>see below for College of Business</i>)	Molecular Biology
Chemistry	Physics
Computer Science	Statistics
Earth Systems Science	Zoology

*****Courses in the arts, culture, humanities, social sciences, government and the like, generally, those areas which are addressed in the University Studies Program, will not be accepted as technical electives.*****

Approved courses in the [College of Business](#) for the self-directed emphasis:

DSCI 4240 Computer Applications in Decision Sciences (3)
ECON 4320 Mathematical Economics (3)
ECON 4350 Game Theory (3)
ECON 4400 Environmental Economics (3)
ECON 4410 Natural Resource Economics (3)
ECON 4430 Energy Economics (3)
FIN 3250 Corporate Finance (3)
FIN 3310 Investment Management (3)
FIN 3520 Financial Markets and Institutions (3)
FIN 4250 Advanced Corporate Finance (3)
FIN 4400 Empirical Finance (3)
FIN 4710 Risk Management (3)
IMGT 2400 Introduction to Information Management (3).
IMGT 3400 Database Management Systems (3)
IMGT 4020 Information Security (3). X-listed ACCT 4020.
IMGT 4455 Systems Analysis & Design (3). X-listed MGT 4455.

Approved courses in the [College of Law](#) for the self-directed emphasis:

LAW 6660 Environmental Law (3)
LAW 6725 Intellectual Property (3)
LAW 6780 Mining Law (2)
LAW 6790 Oil and Gas (3)
LAW 6800 Public Lands (3)
LAW 6860 Water Rights (3)
LAW 6865 Natural Resources Law (3)
LAW 6870 Water Pollution (3)
LAW 6875 Hazardous Waste & Water Pollution Law (3)

Note If an approved course in one of the above lists requires a prerequisite course that is not an approved course, the prerequisite course will need to be taken first, but it will not be counted as a technical elective toward your degree.