

**REQUIREMENTS FOR THE BACHELOR OF SCIENCE/MASTER OF SCIENCE
MEWBOURNE COLLEGE OF EARTH AND ENERGY
THE UNIVERSITY OF OKLAHOMA**

Academic Year
For Students Entering the Oklahoma State System for Higher Education Summer 2024 through Spring 2025

General Requirements	
Minimum Total Credit Hours	147-153
Minimum Retention/Graduation Grade Point Averages:	
Overall - Combined and OU	3.00
Major - Combined and OU	3.00
Curriculum - Combined and OU	3.00

Program
Petroleum Engineering A764/F765 Bachelor of Science/Master of Science

OU encourages students to complete at least 30 hours of applicable coursework each year to have the opportunity to graduate in 5 years.

Minimum Total Credit Hours: 147-153

Overall GPA - Combined and OU: 3.00

Major GPA - Combined and OU: 3.00

Curriculum GPA - Combined and OU: 3.00

Program Code: A764/F765

General Education and College Requirements

Courses for fulfillment of General Education and college requirements must be from the approved General Education course list at <http://www.ou.edu/content/gened/courses.html>. **Courses graded P/NP will not apply**

UNIVERSITY-WIDE GENERAL EDUCATION (MINIMUM 40 HOURS) AND COLLEGE REQUIREMENTS

At least three hours of Upper-Division General Education coursework must be completed **outside the major**.

Code	Title	Credit Hours
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Core Area I: Symbolic and Oral Communication

English Composition (6 hours)

ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	

Language (0-10 hours)

(0-10 hours in the same language) Students who have not completed two years of the same language in high school are required to take two college courses in the same language

Beginning Course		0-5
Beginning Course, continued		0-5

Mathematics (minimum 3 hours)

MATH 1914	Differential and Integral Calculus I ¹	3-4
or MATH 1823	Calculus and Analytic Geometry I	

Core Area II: Natural Science (minimum 7 hours, 2 courses)

CHEM 1315	General Chemistry (Science with Lab) ¹	5
or CHEM 1335	General Chemistry I: Signature Course	
PHYS 2514	General Physics for Engineering and Science Majors ¹	4

Core Area III: Social Science (6 hours)

P SC 1113	American Federal Government	3
Choose one General Education Social Science course		3

Core Area IV: Arts and Humanities

Artistic Forms (3 hours)

Choose one course from the General Education Artistic Forms list.		3
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<i>Western Culture (6 hours)</i>		
HIST 1483	United States to 1865	3
or HIST 1493	United States, 1865 to the Present	
Choose one course from the General Education Western Culture list (Excluding HIST 1483 and HIST 1493)		3
<i>World Culture (3 hours)</i>		
Choose one course from the General Education World Culture list		3
Core Area V: First Year Experience (3 hours)		
CEE 1513	Towards Just and Responsible Energy Engineering (Core V-FYE) ²	3
Total Credit Hours		39-50

¹ Mewbourne College of Earth and Energy Sciences requirements that also satisfy University General Education requirements.

² Mewbourne School of Petroleum and Geological Engineering requirements that also satisfy University General Education requirements.

ADDITIONAL MEWBOURNE COLLEGE OF EARTH & ENERGY REQUIREMENT

Code	Title	Credit Hours
PHYS 2524	General Physics for Engineering and Science Majors	4
Total Credit Hours		4

Free Electives

Electives to bring total applicable hours to 147-153 including 40 upper-division hours.

Undergraduate Major Requirements

Bachelor of Science in Petroleum Engineering accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Petroleum and Similarly Named Engineering Programs Program Criteria.

A minimum grade of C is required for each course in the curriculum.

Students may enter the accelerated program based on the undergraduate degree pattern offered in the year they first enrolled in the Oklahoma State System of Higher Education or later.

Students must maintain a 3.0 GPA from the time of entering the accelerated program until graduation.

Students must take the GRE and apply for the MS program during the third year; minimum OU GPA and combined GPA of 3.0 is required. Students should submit an application to the School of Petroleum Engineering for the accelerated program during the fall semester of the Junior year. Students must also apply to the Graduate College during the spring semester of the Senior year to be admitted by that college to the MS program.

Code	Title	Credit Hours
P E 2113	Statics and Dynamics	3
P E 2213	Thermodynamics	3
P E 2153	Mechanics of Materials	3
P E 3021	Technical Communications	1
P E 3213	Reservoir Rock Properties	3
P E 3221	Rock Properties Laboratory	1
P E 3220	Petroleum Engineering Internship ¹	0
P E 3123	Petroleum Reservoir Fluids	3
P E 3223	Fluid Mechanics	3
P E 3313	Drilling I	3
P E 3712	Petroleum Economics	2
P E 3723	Numerical Methods for Engineering Computation	3
P E 3413	Production Engineering I	3
P E 3513	Reservoir Engineering I	3
P E 3813	Formation Evaluation with Well Logs	3
P E 4033	Oil, Gas and Environmental Law ²	3
P E 4331	Drilling Engineering Laboratory	1
P E 4323	Drilling II	3
or P E 4533	Reservoir Engineering II	
P E 4423	Production Engineering II	3
P E 5463	Data Analytics ²	3
P E 4521	Reservoir Fluid Mechanics Laboratory	1
P E 4711	Petroleum Project Evaluation	1
P E 5553	Integrated Reservoir Management ²	3
Total Credit Hours		55

¹ An approved PE elective may be taken in place of P E 3220 for 1 to 3 credit hours.

² These 9 hours of coursework are applied to both the BS and MS degrees.

Major Support Requirements

Code	Title	Credit Hours
MATH 2924	Differential and Integral Calculus II ¹	4
MATH 2934	Differential and Integral Calculus III ¹	4
MATH 3113	Introduction to Ordinary Differential Equations	3
C S 1213	Programming for Non-Majors with Python	3
GEOL 1114	Physical Geology for Science and Engineering Majors	4
GEOL 3003	Structural Geology and Stratigraphy for Petroleum Engineers	3
GPHY 3423	Introductory Petroleum Geology and Geophysics	3
Technical Electives ²		3
Total Credit Hours		27

¹ The MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.

² Technical Electives to be selected from upper-division courses from the College of Earth and Energy and College of Engineering.

Graduate Requirements

- Students may apply only 3 credit hours of S/U graded coursework (excluding thesis research) toward the M.S.

Code	Title	Credit Hours
P E 5980	Research for Master's Thesis ¹	6
Applied Math Course ²		3
Choose 12 hours of Approved Graduate Elective		12
Total Credit Hours		21

¹ For non-Thesis option M.S. students P E 5980 will be replaced by 12 hours of graduate-level electives approved by the graduate liaison. The Thesis option requires one of the following: 1. Publish a paper in a refereed journal or conference proceeding. 2. Paper accepted for publication in a journal. 3. Oral presentation of a paper at a conference. 4. Oral presentation as part of the department graduate seminar. The student must be listed as first or second author and the topic must relate to the student's thesis. The Graduate College will not authorize a student to defend until the graduate liaison has confirmed the student has met this requirement.

² Applied Math course - One course from the following list or approved by the department: MATH 4163, P E 5563, or P E 5990 (Topic: Petroleum Inverse Studies).

More information in the catalog: (<http://ou-public.courseleaf.com/mewbourne-earth-energy/mewbourne-petroleum-geological-engineering/petroleum-engineering-bachelor-science-petroleum-engineering-master-science/>).

Suggested Semester Plan of Study

Bachelor of Science in Petroleum Engineering accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Petroleum and Similarly Named Engineering Programs Program Criteria.

In order to progress in your curriculum, and as a specific graduation requirement, a grade of C or better is required in each course in the curriculum. Students must successfully complete prerequisite courses (with a minimum C grade) before proceeding to the next course.

Year	FIRST SEMESTER		Hours	SECOND SEMESTER		Hours	
FRESHMAN	ENGL 1113	Principles of English Composition (Core I)	3	ENGL 1213 or EXPO 1213	Principles of English Composition (Core I) or Expository Writing	3	
	CHEM 1315	General Chemistry (Core II) ¹	5	MATH 2924	Differential and Integral Calculus II ²	4	
	MATH 1914	Differential and Integral Calculus I (Core I) ²	4	PHYS 2514	General Physics for Engineering and Science Majors (Core II)	4	
	CEE 1513	Towards Just and Responsible Energy Engineering (Core V-FYE)	3		Approved Elective: Western Culture (Core IV) ³	3	
	CREDIT HOURS		15	CREDIT HOURS		14	
SOPHOMORE	MATH 2934	Differential and Integral Calculus III ²	4	P E 2213	Thermodynamics	3	
	PHYS 2524	General Physics for Engineering and Science Majors	4	P E 3021	Technical Communications	1	
	GEOL 1114	Physical Geology for Science and Engineering Majors	4	P E 3213	Reservoir Rock Properties	3	
	P E 2113	Statics and Dynamics	3	P E 3221	Rock Properties Laboratory	1	
		Approved Elective: Artistic Forms (Core IV) ³	3	C S 1213	Programming for Non-Majors with Python	3	
				MATH 3113	Introduction to Ordinary Differential Equations	3	
					Approved Elective: World Culture (Core IV) ³	3	
	CREDIT HOURS		18	CREDIT HOURS		17	
	SUMMER						
	P E 3220	Petroleum Engineering Internship ⁴	0				
	CREDIT HOURS		0				
JUNIOR	P E 3123	Petroleum Reservoir Fluids	3	P E 2153	Mechanics of Materials	3	
	P E 3223	Fluid Mechanics	3	P E 3413	Production Engineering I	3	
	P E 3313	Drilling I	3	P E 3513	Reservoir Engineering I	3	
	P E 3712	Petroleum Economics	2	P E 3813	Formation Evaluation with Well Logs	3	
	P E 3723	Numerical Methods for Engineering Computation	3	P E 4331	Drilling Engineering Laboratory	1	
	P E 4711	Petroleum Project Evaluation	1	GPHY 3423	Introductory Petroleum Geology and Geophysics	3	
	GEOL 3003	Structural Geology and Stratigraphy for Petroleum Engineers	3				
	CREDIT HOURS		18	CREDIT HOURS		16	
SENIOR	P E 4323 or P E 4533	Drilling II or Reservoir Engineering II	3	P E 5463	Data Analytics ⁵	3	
	P E 4423	Production Engineering II	3	P E 5553	Integrated Reservoir Management ⁵	3	
	P E 4521	Reservoir Fluid Mechanics Laboratory	1	P SC 1113	American Federal Government	3	
	HIST 1483 or HIST 1493	United States to 1865 (Core IV) or United States, 1865 to the Present	3		Technical Elective ⁶	3	
		Social Science (Core III) ³	3				
	P E 4033	Oil, Gas and Environmental Law ⁵	3				
		CREDIT HOURS		16	CREDIT HOURS		12
		SUMMER					
	P E 5980	Research for Master's Thesis ⁷	2				
		Applied Math Course ⁸	3				
	CREDIT HOURS		5				
FIFTH YEAR	P E 5980	Research for Master's Thesis ⁷	2	P E 5980	Research for Master's Thesis ⁷	2	
		Approved Graduate Elective	3		Approved Graduate Elective	3	
		Approved Graduate Elective	3				
		Approved Graduate Elective	3				
	CREDIT HOURS		11	CREDIT HOURS		5	

¹ CHEM 1315 and CHEM 1415 can be substituted with CHEM 1335 (Fall only) and CHEM 1435 (Spring only), respectively.

² The MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.

³ To be chosen from the University-Wide General Education Approved Course List. Three of these twelve hours must be upper-division (3000-4000). See list in the Class Schedule.

⁴ An approved PE elective may be taken in place of P E 3220 for 1 to 3 credit hours.

⁵ Shared Hours: 9 hours may be applied to both BS and MS degrees.

4 Requirements for the Bachelor of Science/Master of Science

6 Technical Electives to be selected from upper-division courses from the College of Earth and Energy and College of Engineering.

7 For non-Thesis option M.S. students P E 5980 will be replaced by 12 hours of graduate-level electives approved by the graduate liaison. The Thesis option M.S. requires publication or acceptance of a paper or conference proceeding with the student as first or second author in a topic relating to the student's thesis. The Graduate college will not authorize a student to defend until the graduate liaison has confirmed the student has met this requirement.

8 Applied Math course - One course from the following list or approved by the department: MATH 4163, P E 5563, or P E 5990 (Topic: Petroleum Inverse Studies).

- Courses designated as Core I, II, III, IV, or V are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved lists.
- Two college-level courses in a single language are required; this may be satisfied by successful completion of 2 years in a single language in high school. Students who must take language at the University will have an additional 6-10 hours of coursework.
- Students may apply only 3 credit hours of S/U graded coursework (excluding thesis research) toward the M.S.