

REQUIREMENTS FOR THE BACHELOR 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 2023 through Spring 2024

General Requirements	
Minimum Total Credit Hours	129
Minimum Upper-Division Hours	40
Minimum Retention/Graduation Grade Point Averages:	
Overall - Combined and OU	2.50
Major - Combined and OU	2.50
Curriculum - Combined and OU	2.50

Program
GeoEnergy Engineering
B448
Bachelor of Science

OU encourages students to complete at least 33 hours of applicable coursework each year to have the opportunity to graduate in 4 years.

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
Core Area I: Symbolic and Oral Communication		
<i>English Composition (6 hours)</i>		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
<i>Language (0-10 hours)</i>		
(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
<i>Mathematics (minimum 3 hours)</i>		
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 course from the General Education Social Science list		
Core Area IV: Arts and Humanities		
<i>Artistic Forms (3 hours)</i>		
Choose one course from the General Education Artistic Forms list.		
<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)		
<i>World Culture (3 hours)</i>		
Choose one course from the General Education World Culture list		
Core Area V: First Year Experience (3 hours)		
Choose one course		
Total Credit Hours		39-50

¹Mewbourne College of Earth and Energy Sciences 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 129 including 40 upper-division hours.

MAJOR REQUIREMENTS

A minimum grade of C is required for each course in the curriculum, and students must successfully complete prerequisite courses (with a minimum C grade) before proceeding to the next course.

Code	Title	Credit Hours
G E 2013	Introduction to Energy Resources	3
P E 2113	Statics and Dynamics	3
P E 2153	Mechanics of Materials	3
P E 2213	Thermodynamics	3
P E 3022	Technical Communications	2
G E 3212	Porous Media Characterization	2
G E 3220	GeoEnergy Engineering Internship ¹	0
G E 3221	Porous Media Characterization Lab	1
P E 3223	Fluid Mechanics	3
G E 3313	Drilling and Well Construction	3
G E 3343	Applied Geomechanics	3
G E 3413	Production and Injection Systems	3
G E 3513	Fluid Flow and Heat Transfer in Porous Media	3
G E 3712	Energy Resource Economics	2
P E 3723	Numerical Methods for Engineering Computation	3
G E 3813	Formation Evaluation: Well Logs & Remote Sensing Methods	3
P E 4463	Data Analytics	3
G E 4553	GeoEnergy Capstone Design	3
G E 4613	Carbon Capture, Utilization and Storage	3
G E 4713	Overview of Geothermal Energy	3
or G E 4633	Hydrogen Energy Systems	
or G E 4623	Energy Conversion and Storage	
Technical Elective - choose one of the following:		3
upper-division (3000-4000 level) G E or P E course		
a course to fulfill a geology minor		
a course to fulfill the Data Science and Analytics Undergraduate Certificate		
Total Credit Hours		55

¹A G E or P E elective may be taken in place of G E 3220 for 1 to 3 credit hours.

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
CHEM 1415	General Chemistry (Continued)	5
or CHEM 1435	General Chemistry II: Signature Course	
GEOL 1114	Physical Geology for Science and Engineering Majors	4
GEOL 3003	Structural Geology and Stratigraphy for Petroleum Engineers	3
C S 1213	Programming for Non-Majors with Python	3
ENGR 2431	Electrical Circuits	1
Geoscience Elective: choose any upper-division (3000-4000 level) GEOL course		3
Total Credit Hours		30

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

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

SUGGESTED SEMESTER PLAN OF STUDY

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

Students must successfully complete prerequisite courses (with a minimum C grade) before proceeding to the next course.

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.

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	CHEM 1415	General Chemistry (Continued) ¹	5
	MATH 1914	Differential and Integral Calculus I (Core I) ²	4	MATH 2924	Differential and Integral Calculus II ²	4
		First Year Experience (Core V) ³	3	PHYS 2514	General Physics for Engineering and Science Majors (Core II)	4
	CREDIT HOURS		15	CREDIT HOURS		16
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 3022	Technical Communications	2
	GEOL 1114	Physical Geology for Science and Engineering Majors	4	G E 3212	Porous Media Characterization	2
	P E 2113	Statics and Dynamics	3	G E 3221	Porous Media Characterization Lab	1
	G E 2013	Introduction to Energy Resources	3	C S 1213	Programming for Non-Majors with Python	3
				MATH 3113	Introduction to Ordinary Differential Equations	3
					Approved Elective: Social Science (Core III) ³	3
	CREDIT HOURS		18	CREDIT HOURS		17
	SUMMER					
	G E 3220	GeoEnergy Engineering Internship ⁴	0			
	CREDIT HOURS		0			
JUNIOR	GEOL 3003	Structural Geology and Stratigraphy for Petroleum Engineers	3	P E 4463	Data Analytics	3
	P E 2153	Mechanics of Materials	3	G E 3343	Applied Geomechanics	3
	P E 3223	Fluid Mechanics	3	G E 3513	Fluid Flow and Heat Transfer in Porous Media	3
	P E 3723	Numerical Methods for Engineering Computation	3	G E 3813	Formation Evaluation: Well Logs & Remote Sensing Methods	3
	ENGR 2431	Electrical Circuits	1	HIST 1483 or HIST 1493	United States to 1865 (Core IV) or United States, 1865 to the Present	3
		Approved Elective: Artistic Forms (Core IV) ³	3		Approved Elective: World Culture (Core IV) ³	3
	CREDIT HOURS		16	CREDIT HOURS		18
SENIOR	G E 3313	Drilling and Well Construction	3	G E 4553	GeoEnergy Capstone Design	3
	G E 3413	Production and Injection Systems	3	G E 4713 or G E 4633 or G E 4623	Overview of Geothermal Energy or Hydrogen Energy Systems or Energy Conversion and Storage	3
	G E 4613	Carbon Capture, Utilization and Storage	3		Technical Elective ⁶	3
	G E 3712	Energy Resource Economics	2	P SC 1113	American Federal Government (Core III)	3
		Geoscience Elective ⁵	3		Approved Elective: Western Culture (Core IV) ³	3
	CREDIT HOURS		14	CREDIT HOURS		15

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 hours must be upper-division (3000-4000). See list in the Class Schedule.

⁴ A G E or P E elective may be taken in place of G E 3220 for 1 to 3 credit hours.

⁵ Geoscience Elective: Any upper-division (3000-4000 level) GEOL course.

⁶ Technical Elective - choose one of the following options: upper-division (3000-4000 level) G E or P E course, or a course to fulfill a geology minor, or a course to fulfill the Data Science and Analytics Undergraduate Certificate.