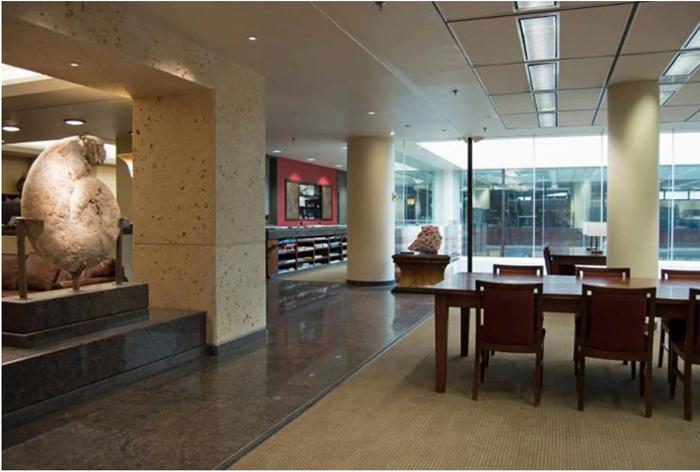


# MEWBOURNE COLLEGE OF EARTH AND ENERGY



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## Administrative Officers

John Antonio, Interim Dean and Lester A. Day Family Chair  
 email: antonio@ou.edu

## General Information

### Mewbourne College Vision

The Mewbourne College of Earth and Energy educates scientists and engineers and creates knowledge of Earth's past and present to navigate a future that meets societal needs for both energy and a livable environment.

### Mewbourne College Mission

The college offers an intellectual atmosphere combining scholarship, research, and teaching that leads to the creativity needed to address the issues of tomorrow and prepare our students for the global competition they will experience during their professional careers. We will also ensure that OU maintains and builds on its heritage in energy education by continuing to focus on exploration, development and extraction processes in petroleum geosciences and petroleum and geological engineering, while providing close ties to engineering fundamentals and the science base in geosciences. Through the Oklahoma Geological Survey, we will promote the wise use of Oklahoma's natural resources consistent with sound environmental practices.

### About Mewbourne College

In a progressive move by the University signaling its ongoing commitment to energy education and research, the Mewbourne College of Earth and Energy was established January 1, 2006. The Mewbourne College of Earth and Energy consists of the Mewbourne School of

Petroleum and Geological Engineering, the School of Geosciences, and the Oklahoma Geological Survey. Our academic programs are highly ranked nationally, and the petroleum engineering program is consistently ranked in the top three nationally.

The college provides an academic environment for the development of tomorrow's academic and industry leaders that contains the full breadth of the University of Oklahoma's educational experience while continuing to provide close ties to engineering fundamentals and the science base in geology, geophysics, and paleontology. The Mewbourne College focus is laboratory 'hands-on' education and is an academic leader for end-to-end energy education and research. Distinguished faculty, exceptional students, and state-of-the-art research laboratories are the bedrock of the Mewbourne College of Earth and Energy.

The college's name honors Curtis W. Mewbourne, a Shreveport, Louisiana, native who obtained his degree in petroleum engineering from OU, where he has been honored as a Distinguished Graduate. After serving as an officer in the U.S. Army and working as a petroleum engineer, he founded Mewbourne Oil Company in 1965. Mewbourne Oil is one of the most successful privately owned oil and gas producers in America.

In recognition of his longtime support, the University named the Mewbourne School of Petroleum and Geological Engineering in his honor in 2000 and granted him the Doctor of Humane Letters in 2002. In 2007 the Mewbourne College of Earth and Energy was named in his honor, and he was presented the Oklahoma Trailblazer Award for his professional achievement and lifetime commitment to the energy sector. Curtis Mewbourne and his family have contributed millions of dollars to endowed faculty positions and student support at OU.

## Programs Offered

- College of Earth and Energy Administrated Programs
  - Sustainable Energy Systems, Undergraduate Certificate
    - Sustainable Energy Systems Electives
- Mewbourne School of Petroleum and Geological Engineering
  - GeoEnergy Engineering, B.S.
  - Petroleum Engineering, B.S.
  - Petroleum Engineering, B.S./M.S.
  - Petroleum Engineering, B.S./M.B.A.
  - Geological Engineering, M.S.
  - Natural Gas Engineering & Management, M.S.
  - Petroleum Engineering (Standard), M.S.
  - Geological Engineering, Ph.D.
  - Petroleum Engineering, Ph.D.
- School of Geosciences
  - Environmental Geology, B.S.
  - Geology, B.S.
    - School of Geosciences Math & Science Elective Lists
  - Geophysics, B.S.
  - Paleontology, B.S.
  - Petroleum Geology, B.S.
  - Geology, Minor
  - Geology, M.S.
  - Geophysics, M.S.
  - Geology, Ph.D.
  - Geophysics, Ph.D.

## Programs & Facilities

### Oklahoma Geological Survey

100 East Boyd St., Suite N131 Norman, OK 73019

Phone: (405) 325-3031

ogs@ou.edu

www.ou.edu/ogs

The Oklahoma Geological Survey was created by directive of the State Constitution written in 1907. An enabling act was presented to Oklahoma's first legislature and signed into law by Gov. Charles N. Haskell on May 29, 1908.

The Oklahoma Geological Survey is charged with investigating the land, water, mineral, and energy resources of the state, and disseminating the results of those investigations to promote the wise use of Oklahoma's natural resources consistent with sound environmental practices.

The Oklahoma Geological Survey carries out this charter through fossil energy research, activities in geological carbon sequestration and low-carbon energy resources, geological mapping programs, earth-science education, operation of a state-wide seismograph network, development of geological databases, an industrial minerals program, and basic geological studies conducted in various areas of Oklahoma. The results of these investigations are made available through publications of technical and educational material, maps, a web site containing data for downloading, the Oklahoma Petroleum Information Center (OPIC), presentations to the public and professional organizations, and organizing workshops for technology transfer to industry and academia.

At the Oklahoma Petroleum Information Center (OPIC) in Norman, there are thousands of core and well samples, well logs, a well data library, and other petroleum-related material available to the public. The general public, industry, and academic groups have access to the OPIC facility resources and can purchase hard copies of OGS publications. Many publications, spanning over a century, are available for free on the OGS website. In pursuit of data and core preservation and seismic monitoring, the OGS works closely with local, state, and federal agencies, as well as with professional and educational organizations and agencies from other states. While not an academic unit, OGS staff serve as mentors, adjunct faculty, instructors, and committee members for students enrolled at the University of Oklahoma and other universities. As a unit of the Mewbourne College of Earth and Energy, the OGS supports a number of students with the college's research and service efforts.

### Ronnie K. Irani Center for Energy Solutions

The Ronnie K. Irani Center for Energy Solutions provides leadership to develop the energy solutions necessary to meet an ever-growing demand for energy. Under the direction of the Irani Center, students work in partnership with companies to solve real-world problems and provide innovative solutions. The Irani Center continues legacy programs established by the Energy Institute of the Americas to connect industry professionals with world-renowned faculty through professional development courses, as well as providing informative content via webinars and presentations. Through these and other efforts, the Irani Center has nurtured hundreds of students and industry participants to actively engage in the critically important mandate to provide sustainable, reliable, affordable, and responsible energy in our community, state, nation, and throughout the world.

### Institute for Resilient Environmental and Energy Systems

The University of Oklahoma's Institute for Resilient Environmental and Energy Systems (IREES) connects OU scholars from across our three campuses with national, regional, and place-based partners to understand the multiple interacting dimensions of transformational change and apply that knowledge to strengthen and empower communities, create new economic opportunities, and enable environmental improvement.

### Attribute-Assisted Seismic Processing and Interpretation Research Group

Seismic attributes have become crucial for mapping structure, stratigraphy, and quantifying reservoir properties. The AASPI research group focuses on four main goals: mapping reservoir compartments and fractures, optimizing seismic processing workflows for improved resolution, contextualizing seismic attributes with tectonic deformation and geomorphology, and developing predictive tools for guiding reservoir completion programs.

### Reservoir Geomechanics and Seismicity Research Group

The Reservoir Geomechanics and Seismicity Research Group (RGSR) at OU is recognized as a world-class experimental and numerical modeling research center. The RGSR develops and applies new knowledge of geomechanics/rock mechanics through experimental and modeling activities to develop solutions for a variety of engineering problems related to conventional and unconventional reservoirs and geothermal systems (enhanced geothermal systems) such as hydraulic fracturing, induced seismicity, wellbore stability, DFIT, injection geomechanics, etc.

### Well Construction Technology Center

The Well Construction Technology Center is an advanced technology research center that incorporates high pressure, high temperature fluid flow applications using both field scale and lab scale equipment for the oil industry.

### Integrated Core Characterization Center

The Integrated Core Characterization Center consists of the complete Amoco Rock Physics Laboratory. This lab has unparalleled industrial, commercial, and academic capabilities and offers the widest range of measurement and research opportunities in the industry. Originally established a seismic velocity measurement laboratory, it evolved into an integrated facility that provides a vast array of petrophysical, seismic, and rock mechanics capabilities.

### Jerry Holmes Leadership Program for Engineers and Scientists

The Jerry Holmes Leadership Program for Engineers and Scientists provides a variety of leadership and related development opportunities for students, faculty and staff. The program's mission is to help Gallogly College of Engineering & Mewbourne College of Earth and Energy students learn and practice the skills they will need to be effective and ethical leaders now and throughout their careers.

### Honors Program

A high percentage of eligible University undergraduate students participate in the University-wide Honors Program (refer to the Honors College section of this catalog for more information). Specially designed Honors courses and seminars provide the Honors student with small classes and opportunities for interaction with the University's best and

brightest faculty members, both within the student's major field of study and in other courses used to satisfy curricular requirements. Students may graduate with Latin Honorifics if they successfully meet the GPA requirements in addition to their regular degree program requirements.

## Undergraduate Study

### Admission to the College

Students will be admitted to the Mewbourne College of Earth and Energy once they declare a major within the college and complete the following requirements:

- Applicants who are direct from high school must be admitted to OU and have earned 24 semester credit hours with an OU and combined retention grade point average of 2.50 or higher.
- Students transferring to the University of Oklahoma must have a retention GPA of a 2.50 or higher.
- University of Oklahoma readmits must have an OU retention and combined retention GPA of a 2.50 or higher

### Academic Advising

The Mewbourne College of Earth and Energy **Pioneer Natural Resources Student Services Center** is staffed by academic advisors who are available for student support and curricular guidance. Prior to registering for the next term, students meet with an academic advisor to discuss advising recommendations, support services, and student engagement opportunities. The *Pioneer Natural Resources Student Services Center* is located in Sarkeys Energy Center, 1st floor, room P119. Students may call (405) 325-4005 or use iAdvise.ou.edu to schedule their advising appointments. Although the Dean's office checks each student's records, **the responsibility for meeting graduation requirements lies with the student** and not with the academic advisor, the school, or the Dean.

### Scholastic Requirements

Students in the Mewbourne College of Earth and Energy must meet the following academic standards:

- A minimum grade of C in each course required in the curriculum.
- No more than three attempts per course to successfully complete the course. Unsuccessful attempts include earned grades of D, F, I, U, AU, W, and AW. Terms with "complete withdrawal" notated on the transcript do not count towards these totals.
- A student must maintain at least 2.50 grade point averages to be in good standing in the college. This applies to the following GPAs:
  - OU retention grade point average
  - Combined retention grade point average
  - Term grade point average
  - Major retention grade point average

Students who do not meet these standards will be notified by the Director of Student Services and guided to meet with their academic advisor for support. Students on academic performance contract who fail to meet the terms of their academic performance contract after one semester may be dismissed (stopped out) from the Mewbourne College of Earth and Energy. Students who fail to make adequate progress toward their degree may be dismissed from the college.

A student dismissed from the Mewbourne College of Earth and Energy may be eligible for enrollment in another college under the University retention policy. To continue at the University of Oklahoma, the student will need to make an appointment with the Academic Advising Resource

Center (AARC), Cate 1, room 418 or phone (405) 325-1596. However, even if the student is able to continue at the University, further enrollment in Mewbourne College of Earth and Energy courses is not allowed.

A student dismissed from the Mewbourne College of Earth and Energy is unlikely to be readmitted to the college. Students are eligible to apply for readmission after at least 2 full (fall and spring) semesters have elapsed since the date of dismissal and they have significantly improved their performance in courses that are technically demanding and relevant to an engineering/science education. Applying for readmission does not guarantee that a student will be readmitted. Each request is considered on its individual merit. If the student is readmitted to the MCEE, the student will be placed on an Academic Performance Contract. Students who are dismissed from the MCEE for a second time are not eligible for readmission.

The Mewbourne School of Petroleum and Geological Engineering and the School of Geosciences have additional grade requirements. For details, see the specific school sections of the catalog.

### College Ten-Year Limitation Rule

A student may elect to graduate under the requirements for an undergraduate degree set forth in the catalog in effect at the time of their first enrollment in the state system, provided they complete the work for a degree within a maximum of six years. If the work for a degree covers a period longer than that specified by the college, the college will determine the degree plan in effect for that student's graduation. Credit in a student's major which is more than 10 years old may not be applied toward a bachelor's degree unless it is validated by the major department.

### Transfer Students

1. Students transferring to the University of Oklahoma Mewbourne College of Earth and Energy must have a retention GPA of a 2.50 or higher.
2. Students should check transfer equivalencies on the transfer equivalency database.
3. Students should visit the Pioneer Natural Resources Student Services Center to determine exactly how their transfer credits apply toward their degree program.
4. Pass/No Pass course enrollments may not be used to satisfy Mewbourne College of Earth and Energy course requirements.
5. Academic credit from any division of the University of Oklahoma — Norman campus, OU Health Sciences Center, OU-Tulsa, or Continuing Education — is considered resident credit at the University of Oklahoma. Grades and hours earned at any of these divisions are included in the OU and combined retention grade point averages for purposes of admission or readmission to the University, and to the individual colleges within the University. (See also Residence Requirements under Graduation Requirements.)

### Scholarships and Financial Aid

Students entering the University of Oklahoma are eligible to apply for scholarships. General scholarships are awarded on the basis of academic achievement and financial need. In addition to general scholarships offered through the University of Oklahoma, the Mewbourne College of Earth and Energy and both schools offer several scholarships sponsored by alumni and industry. Continuing students apply each year through the Student Financial Center's Centralized Academic Scholarship Hub (CASH). Financial questions may be directed to the Student Financial Center email: sfc@ou.edu or phone: (405) 325-9000.

## College Graduation GPA Requirements

Students recommended for a bachelor's degree in the Mewbourne College of Earth and Energy must have at least a 2.50 OU and combined retention grade point average in all coursework attempted, in their major area, and in their curriculum. The Schools of Petroleum and Geological Engineering and Geosciences may have additional grade requirements. For details, see the specific school section in this chapter of the catalog.

## Graduation Requirements

### Basic Requirements

The Mewbourne College of Earth and Energy is organized into two schools, Mewbourne School of Petroleum and Geological Engineering and School of Geosciences.

The student must satisfy the following requirements:

- Curricular Courses: Complete all prescribed curricular courses or equivalent courses as approved by the faculty.
- Two-year College Transfer Credits: A minimum of 60 semester hours must be earned in a 4-year institution for a baccalaureate degree.
- Catalog Requirements: Fulfill all requirements listed in the catalog. Although the Dean's office checks each student's records, **the responsibility for meeting graduation requirements lies with the student**, and not with the academic advisor, the school, or the Dean.
- Be in good academic standing with the college and the University.
- Complete graduation application by December 1 for spring graduation, May 1 for fall graduation and March 1 for summer graduation.
- Residency Requirements: To be recommended for a degree, a candidate must have:
  - a. spent two semesters or the equivalent in residence in the Mewbourne College of Earth and Energy;
  - b. completed at least 36 of the last 60 hours in residence. Twenty-four of these 36 hours must be in the major field;
  - c. fulfilled the grade and grade point requirements of the college and school; **Note:** Academic credit from any division of the University of Oklahoma – Norman campus, OU Health Sciences Center, OU-Tulsa, or Continuing Education – is considered resident credit at the University of Oklahoma. Grades and hours earned at any of these divisions are included in the OU and combined retention grade point averages for purposes of determining completion of degree requirements.

Degrees are awarded at the end of each fall and spring semester and summer session. All diplomas are mailed to students following the official graduation date. The degree and date of the diploma are entered on the student's permanent academic record. The date of graduation is the last day of the semester or summer session in which all requirements for the degree are completed. When a student completes all requirements for a degree other than at the close of a semester or summer session, the Office of Academic Records, upon request, will issue a certified statement that the student is eligible for the degree as of the date when the requirements for the degree were completed.

### Dean's Honor Roll

To be eligible for the Mewbourne College of Earth and Energy Dean's Honor Roll, a full-time undergraduate student must earn 12 or more hours and attain a grade point average of 3.00 or higher during a regular fall or spring semester. Part-time students may qualify for the Honor Roll by earning at least 6 but less than 12 hours and attaining a grade point

average of 3.00 or higher, provided they have no withdrawals for that semester.

### Minors

The Mewbourne College of Earth and Energy offers students the option of declaring a minor. A Geology minor is available in the college, and the specific minor requirements can be found in the School of Geosciences section of the catalog. Students may complete minors in other areas, and these will be posted on the transcript after graduation. For a listing of the minors offered at the University, reference the OU General Catalog Minors page.

### Certificates

A multidisciplinary undergraduate certificate in Sustainable Energy Systems is administered by the Mewbourne College. Details can be found on the MCEE website.

### Second Bachelor's Degrees

A student who has completed the requirements for a bachelor's degree at OU may also receive a second bachelor's degree upon the completion of the curriculum prescribed for the second degree, provided that the work completed includes at least 30 additional hours of upper-division geology, geophysics or engineering (according to second undergraduate degree program), applied science and elective courses appropriate to the field of the second degree. These courses must be over and above the credit hours required for the first degree.

### Graduate Study

The Mewbourne College of Earth and Energy offers programs leading to the Master of Science degree in geology, geophysics, geological engineering, natural gas engineering and management, and petroleum engineering. The college also offers Ph.D. degrees in geology, geophysics, geological engineering, and petroleum engineering.

Refer to the Graduate tabs within the Mewbourne School of Petroleum and Geological Engineering and the School of Geosciences pages of this catalog for information concerning graduate programs.

### Courses

#### CEE 1513 Towards Just and Responsible Energy Engineering 3 Credit Hours

Prerequisite: none. Introducing students to the role and impact of energy engineering in the world, energy sources and uses, natural resources, energy justice, the environment, and sustainability. Allows students to explore individual and collective responsibilities as engineers to the energy industry and to build some of the skills needed including cultural fluency, critical thinking, civil discourse, citizenship, and community engagement. (F) [V-FYE].

#### CEE 3440 Mentored Research Experience 3 Credit Hours

0 to 3 hours. Prerequisites: ENGL 1113 or equivalent, and permission of instructor. May be repeated; maximum credit 12 hours. For the inquisitive student to apply the scholarly processes of the discipline to a research or creative project under the mentorship of a faculty member. Student and instructor should complete an Undergraduate Research & Creative Projects (URCP) Mentoring Agreement and file it with the URCP office. Not for honors credit. (F, Sp, Su)

**CEE 4960 Directed Readings 1-4 Credit Hours**

1 to 4 hours. Prerequisite: good standing in University; permission of instructor and dean. May be repeated; maximum credit four hours.

Designed for upper-division students who need opportunity to study a specific problem in greater depth than formal course content permits.

(Irreg.)

**CEE 4970 Special Topics/Seminar 1-3 Credit Hours**

1 to 3 hours. Prerequisite: senior standing or permission of instructor.

May be repeated; maximum credit nine hours. Special topics or seminar course for content not currently offered in regularly scheduled courses.

May include library and/or laboratory research and field projects. (Irreg.)

**CEE 4990 Independent Study 1-3 Credit Hours**

1 to 3 hours. Prerequisite: senior standing and permission of instructor.

May be repeated; maximum credit nine hours. Contracted independent study for a topic not currently offered in regularly scheduled courses.

Independent study may include library and/or laboratory research and field projects. (Irreg.)

**CEE 5960 Directed Readings 1-3 Credit Hours**

1 to 3 hours. Prerequisite: graduate standing and permission of department. May be repeated; maximum credit twelve hours. Directed readings and/or literature reviews under the direction of a faculty

member. (F, Sp, Su)

**CEE 5970 Special Topics/Seminar 1-3 Credit Hours**

1 to 3 hours. Prerequisite: graduate standing or permission of instructor.

May be repeated; maximum credit nine hours. Special topics or seminar course for content not currently offered in regularly scheduled courses.

May include library and/or laboratory research and field projects. (Irreg.)

**CEE 5990 Independent Study 1-3 Credit Hours**

1 to 3 hours. Prerequisite: graduate standing and permission of

instructor. May be repeated; maximum credit nine hours. Contracted independent study for a topic not currently offered in regularly scheduled

courses. Independent study may include library and/or laboratory research and field projects. (Irreg.)