



MEWBOURNE
COLLEGE OF EARTH AND ENERGY
The UNIVERSITY of OKLAHOMA

STRATEGIC PLAN EXECUTIVE SUMMARY | 2022

VERSION 5.2022



LEAD ON, UNIVERSITY

The mission of the University of Oklahoma is to provide the best possible educational experience for our students through excellence in teaching, research and creative activity, and service to the state and society.

Pillar 1 – Become a Top Tier University

Pillar 2 – Prepare Students for a Life of Success, Meaning, and Positive Impact

Pillar 3 – Make OU's Excellence Affordable and Attainable

Pillar 4 – Become A Place of Belonging and Emotional Growth for All Students, Faculty, Staff and Alumni

Pillar 5 – Positively Impact Oklahoma, the Nation, and the World Through Research and Creative Activity

MEWBOURNE COLLEGE OF EARTH AND ENERGY VISION

The Mewbourne College of Earth and Energy improves people's lives through research, education, and service by studying Earth's past and present, developing new energy tools and resources, and creating geoscientists and engineers who work across disciplines to address some of society's most critical challenges.

MEWBOURNE COLLEGE VALUES

WE ARE ALL ABOUT PEOPLE

The University's most treasured assets are its students, faculty and staff – their dreams, ambitions and talents.

EVERY DISCIPLINE MATTERS

All disciplines of scholarly endeavor are valued contributors to research and creative activity.

INTEGRITY AND MUTUAL RESPECT DEFINE US

Integrity, ethical conduct and mutual respect are uncompromising principles by which research and creative activity must be pursued.

OPEN DEBATE LEADS TO EXCELLENCE

Unfettered exchange and debate of competing ideas and perspectives expands understanding, promotes inclusion and ultimately leads to excellence.

WE ARE A COMMUNITY OF COLLABORATORS

Collaboration – whether among individuals in the same discipline or involving scholars across multiple disciplines, programs, institutions, and types of organizations – is recognized as a valuable means for strengthening research and creative activity and creates innovative scholarship and solutions.

BROAD PARTICIPATION IS FOUNDATIONAL

Broad participation in research and creative activity that encompasses but is not limited to gender, race, ethnicity, geography, organization, discipline, and perspective, is foundational to excellence in scholarly endeavors. Increasing the participation of traditionally underrepresented groups, particularly in STEM fields, is an institutional priority in research and creative activity.

RESEARCH AND EDUCATION ARE INTERTWINED

Research, creative endeavor, and education, at both the graduate and undergraduate levels, are inextricably intertwined and in combination represent the foundation of knowledge creation upon which the University's scholarly enterprise rests. Research includes both basic and applied, enhancing our capabilities, and contributing to science.

MEWBOURNE COLLEGE RESEARCH DIRECTIVES AND AREAS

WE WILL PURSUE INTERDISCIPLINARY SCHOLARSHIP

Petroleum Geosciences
Paleoclimatology
Geochemistry
Paleontology

Environmental Geology
Machine Learning
Critical Zone Geoscience
Paleoecology

WE WILL INVEST IN PEOPLE AND THE ENVIRONMENT

Induced Seismicity
Carbon Capture
Geothermal Energy
Energy Equity

Water Quality and Resources
Human Error in Drilling
Environmental Sustainability
Environmental Justice

WE WILL CONTINUE OUR LEGACY IN PETROLEUM ENGINEERING AND GEOSCIENCES

Rock Mechanics and Hydraulic Fracturing
Reservoir Engineering
Enhanced Oil Recovery
Shales

Drilling and Well Construction
Wellbore Integrity and Production Safety
Subsurface Characterization
Unconventional Resources

WE WILL FOSTER KNOWLEDGE IN THE SUBSURFACE

Petrophysics
Seismicity
Reservoir Characterization
Geophysics

Geothermal Energy
Reservoir Modeling
Paleoclimate
Environmental Geophysics

WE WILL UNDERSTAND THE PAST AND PREPARE FOR THE FUTURE

Paleoclimate
Paleontology
Critical Zone Geoscience
Hydrogen Energy

Planetary Geoscience
Paleoecology
Carbon Capture
Carbon Storage

WE WILL SERVE OKLAHOMA

Earth Science Education
Energy Education
Critical Zone Geoscience
Mapping

Earthquake Monitoring
K-12 Outreach
Outdoor Educational Experiences
Oklahoma Geological Survey

ENERGY IS IN TRANSITION AND
MEWBOURNE COLLEGE IS HERE TO LEAD.



We are **PROUD OF OUR HISTORY** and will
CONTINUE OUR LEGACY of research and education in petroleum
engineering and geoscience.

We believe **ALL ENERGY IS IMPORTANT** and that affordable,
abundant and equitable energy improves the **QUALITY OF LIFE** for
individuals and communities.

We know **OUR EXPERTISE WILL BE VITAL** at incorporating new
opportunities for the next generation of energy industry leaders.

STRATEGIC PLAN

MEWBOURNE COLLEGE'S ROLE IN ENERGY IN TRANSITION

We are committed to our 100-year legacy in petroleum engineering that has empowered a nation and are poised to continue leading in the area of unconventional reservoirs. Petroleum engineering at Mewbourne College is meeting today's changing energy landscape and includes environmental responsibility as a core value.

We are also expanding the breadth of our research and teaching to encompass more subsurface energy sources and tools. From cleaning produced water with nanoparticles, carbon capture and sequestration, to reducing emissions, Mewbourne College faculty are on the forefront of research to produce and use energy responsibly, and to ensure that we can meet the world's energy needs energy now and for years to come.

WE ARE: STAYING TRUE TO OUR EXPERTISE

Our core strength is the subsurface, and that is where our research and teaching will remain.

Our focus on the energy transition will include:

Geothermal energy | Hydrogen creation from fossil fuels | Carbon capture, utilization and storage |
Underground storage of energy | Eliminating methane emissions

WE ARE: RELAUNCHING GEOLOGICAL ENGINEERING AS GEOENERGY ENGINEERING

This forward-thinking degree will be a broad launchpad for the 21st century, preparing students to pursue any number of careers in traditional or renewable subsurface energy.

The curriculum will have three main areas of focus:

1. Geology and the subsurface
2. Petroleum engineering and geothermal engineering
3. New tools including big data and machine learning; carbon capture, sequestration and storage; and hydrogen produced from natural gas

The Mewbourne School of Petroleum and Geological Engineering has hired two new faculty who specialize in
Carbon capture, sequestration, utilization and storage
Hydrogen creation from fossil and biofuels

WE ARE: PREPARING FOR THE FUTURE

Petroleum engineers and geologists will continue to be crucial in the next iteration of the energy industry. Our skill sets are necessary to create the subsurface solutions the world will need. By embracing Energy in Transition, we are setting up our programs for success in the next 100 years.

Through the Irani Center for Energy Solutions, we are also helping professionals pivot their careers to stay prepared for future opportunities.

SCAN TO WATCH ENERGY IN TRANSITION AT MEWBOURNE COLLEGE



DEAN STICE:
ENERGY IN
TRANSITION



AFFORDABLE
ENERGY
CHANGES
LIVES



WHY WE ARE FOCUSING ON THE SUBSURFACE: BIOFUELS EXAMPLE

Our leadership in subsurface clean energy is crucial. This is best illustrated by looking at biofuel land use.

With a world-wide growth of the middle class, the world's energy needs are only going to increase. It is estimated that to fulfill 20% of the world's energy needs with biofuels by 2050, it would require the same the amount of land currently used for all of the world's agriculture (both crops and livestock) and all of the world's timber forests.

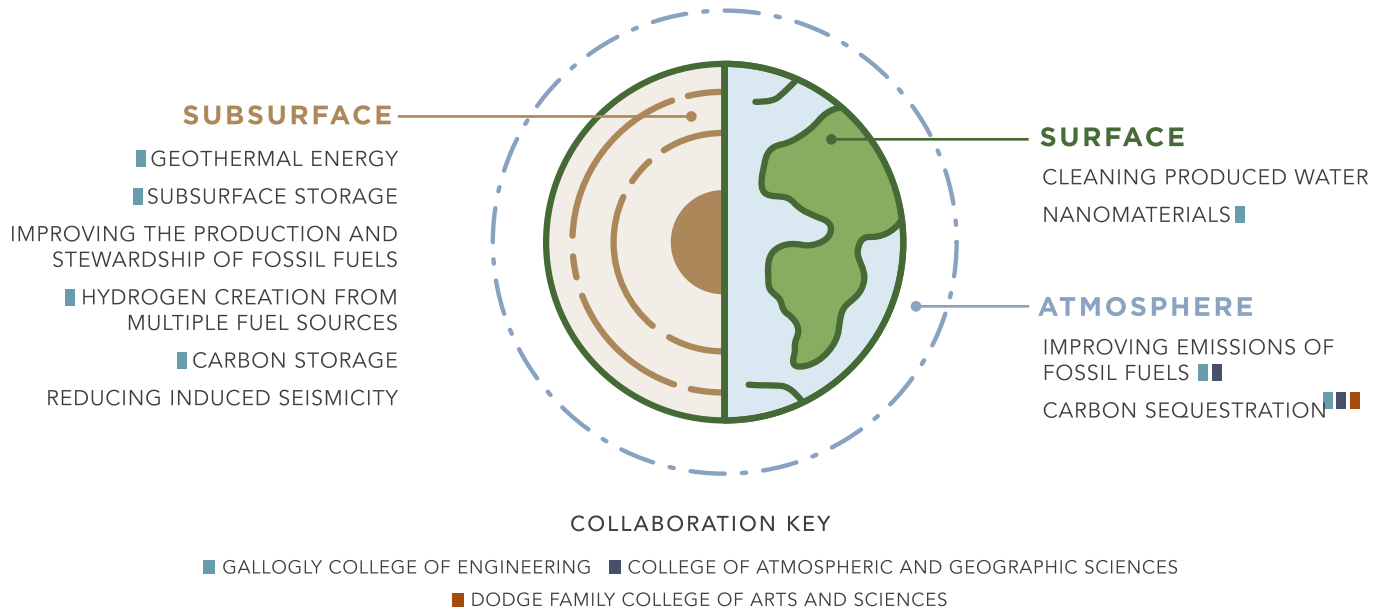
Space on the earth's surface is finite. To preserve the global food supply and the Earth's important and endangered ecosystems and species, we must look below ground.



Sources: 1. Kharas, H., February 2017, The Brookings Institution, The unprecedented expansion of the global middle class: an update, Global Economy & Development Working Paper 100. UN Food and Agriculture Organization (FAO).
2. World Resources Institute: Biofuels Are Not a Green Alternative to Fossil Fuels

CROSS-DISCIPLINARY RESEARCH: SPECIALIZATION + COLLABORATION

We are leaders in subsurface sustainable energy research, but Mewbourne College faculty are leading or collaborating on sustainable energy projects across OU. Here are some examples of our collaborative sustainability research.



PILLAR 1

Become a Top Tier University




THE UNIVERSITY OF
OKLAHOMA
THIS IS OUR HERITAGE
THE TRADITIONAL SOWER SPIRIT
BORN AT THE CROSSROADS OF PAINT
BLENDED WITH THE FAITH
IN THE COMMON MAN THE OPTIMISM
FOR THE MORROW THE RESPECT FOR
THE OPEN MIND AND ITS RELIANCE
UPON DIVINE LEADERSHIP TO AT
THE FACULTY AND STAFF OF THE UNI
VERSITY REDEDICATE THEMSELVES ON
THE SIXTIETH ANNIVERSARY OF THE
FOUNDING OF THE INSTITUTION

STRATEGY ONE	Expand the scope of the Mewbourne College to include an environmental focus on water, seismicity, paleoclimate, critical zone geoscience, carbon, geothermal and hydrogen energy.
TACTIC	Create expanded Environmental, Social, and Governance (ESG) professional development courses in the Irani Center for Energy Solutions (ICES).
KPI	Number of cohorts and enrollment in courses.
TACTIC	Launch GeoEnergy Engineering degree by 2023.
KPI	Number of students enrolled in the new degree program.
TACTIC	Collaborate with the Office of Admissions and Recruitment and Graduate College, to recruit the highest potential Mewbourne College students, emphasizing the importance of research for a successful graduate program. Total enrollment increase: 377 (2020) to 835 (2025).
KPI	Undergraduate enrollment increase: 210 (2020) to 550 (2025)
KPI	Graduate enrollment increase: 169 (2020) to 285 (2025)
STRATEGY TWO	Actively lead OU's Energy University Initiative to enhance the OU Brand in Energy Excellence by integrating geoscience and environmental sustainability.
TACTIC	Capture national recognition for cross disciplinary research in water, seismicity, paleoclimate, critical zone geoscience, carbon, geothermal, hydrogen and fusion energy.
KPI	Research expenditures per year in focus areas.
TACTIC	Increase K-12 STEM education and outreach in the areas of seismicity, paleoclimate, and geothermal energy.
KPI	Number of outreach sessions completed.
STRATEGY THREE	Become a Top 3 petroleum and geological engineering school by 2025 according to US News and World Report.
TACTIC	Review USNWR criteria and develop plan to improve rankings.

KPI	USNWR ranking of undergraduate and graduate petroleum engineering programs. 2021: #3 Undergraduate. #6 Graduate 2025: Top 3 Undergraduate and Graduate
STRATEGY FOUR	Become a Top 25 school of geosciences by 2025 according to US News and World Report.
TACTIC	Review USNWR criteria and develop plan to improve rankings.
KPI	USNWR ranking of undergraduate and graduate geosciences programs. 2021: #53 2025: Top 25



Mewbourne College students are in the field, having experiential learning opportunities from their very first classes. Pictured here is Dr. Elmore from the School of Geosciences with a group of students in Colorado.

PILLAR 2

Prepare Students for a Life of Success, Meaning and Positive Impact

STRATEGY ONE	Embrace global engagement with international field trips with a target of at least 50% of our students will study abroad during their tenure at OU.
TACTIC	In partnership with the College of International Studies, create unique study abroad programs tailored to Mewbourne College students.
KPI	Target 50% of all students who graduate, do so with a study abroad experience.
STRATEGY TWO	Ensure experiential learning experiences outside the classroom, such as field camp, faculty mentored research, service learning, and leadership opportunities are available and attainable for every student, undergraduate and graduate.
TACTIC	Support and further develop field trips and student experiences to both domestic and international destinations, expanding real life knowledge.
KPI	A year over year increase in field trips and student experiences.
TACTIC	Enhance the School of Geosciences Bartell Field Camp to include collaborations with other institutions and colleges across campus.
KPI	A year over year increase in number of students attending Field Camp.
TACTIC	Expand SEC Plaza Outdoor Teaching Classrooms to provide students with impactful, hands-on learning experiences.
KPI	Funding complete by FY23, project completed by FY25.

STRATEGY THREE	Offer research, coursework, and student experiences that target improving energy resources and environmental sustainability.
TACTIC	Develop research, coursework, and student experiences around improving energy and environmental sustainability including critical zone geoscience and paleoclimate/paleoecology.
KPI	Successfully recruit three new faculty in areas of emphasis.
TACTIC	Develop relationships with corporate sponsors to provide student projects, practical learning programs and research opportunities in emerging areas of energy and geosciences.
KPI	A year over year increase in the number of capstone projects and externships available to students through the Ronnie K. Irani Center for Energy Solutions.
STRATEGY FOUR	Maintain a Student Services office that both believes and behaves as a student-centric organization and can be measured by student satisfaction and retention rates.
TACTIC	Improve college six-year undergraduate student retention rate and doctoral completion rate.
KPI	OU undergraduate 6YR retention rate: 67% to 75%
	FTFTF(1YR) & @30HRS - College Goal = 6YR 85% (same+other+continued)
	College 2016 Cohort - 1YR 98.6% // 4YR 84.7% // 5YR 86.1% College 2017 Cohort - 1YR 97.7% // 4YR 77.3% College 2018 Cohort - 1YR 97.5% // 3YR 85% College 2019 Cohort - 1YR 95.1% // 2YR 87.8% College 2020 Cohort - 1YR 87%
KPI	OU doctoral completion rate: 62% to 70%
	College doctoral completion rate goal = 70%
	College completion rate: 2017 Cohort 40% // 2015 Cohort 66.7%
STRATEGY FIVE	Ensure that every academic program has an expectation that exposure to liberal arts, innovation and engagement provides all students with the essential skills to succeed.

TACTIC	Fully engage in GCoE Jerry Holmes Leadership Program and Diversity and Inclusion Program.
KPI	Year over year increase in number of students enrolled in JHLP.
TACTIC	Execute Mewbourne College "Crossing Jenkins" initiative to include student participation in OU theater, musical performance, choir, dance, and visual art.
KPI	A year over year increase in the number of students participating in program activities.

MEET JOHN SMITH

WHY I CHOSE MEWBOURNE COLLEGE

John Smith is a senior at the Mewbourne School of Petroleum and Geological Engineering.

"During my senior year of high school, I received an email from the Mewbourne School of Petroleum and Geological Engineering suggesting I apply for the Mewbourne Leadership Scholarship.

Looking back, I can point to that email and say that's what started it all. Had someone not taken the initiative to reach out to me, I probably would not have attended OU, and my life would be very different. After applying for the Mewbourne Leadership Scholarship and going through an interview process, I was selected. Since coming to Mewbourne College, I have had internships and now a job offer, and am president of Pick and Hammer.

The most important thing my parents ever taught me was that you can tell a lot about a person by how much effort they put into something. When someone took the time and effort to reach out to me, it showed me everything I needed to know about the Mewbourne College of Earth and Energy and OU."



PILLAR 3

Make OU's Excellence Affordable and Attainable

STRATEGY ONE	Grow revenue to improve affordability and accessibility.
TACTIC	Increase student support from \$4.5MM FY16 to \$7.5MM FY25
KPI	Add 25 four-year PhD Fellowships at \$25K each per year.
KPI	Provide 50% cost share for graduate student support.
STRATEGY TWO	Implement operational efficiencies across the college to provide the highest quality education at the lowest possible price for students.
TACTIC	Implement consistent and transparent policies and procedures across the college that streamline processes and eliminate bureaucracy.
KPI	Completion of an annual review of policies and compliance of policies.
STRATEGY THREE	Create a fundraising operation that underwrites the University's Strategic Plan.
TACTIC	Increase dollars raised by college Advancement staff.
KPI	An increase in annual giving from \$3MM to \$10MM.



Mewbourne College’s generous and devoted alumni are essential to the success of everything aspect of Mewbourne College. Curtis Mewbourne helped unveil a monument commemorating the centennial anniversary of petroleum engineering education at OU.

<p>STRATEGY FOUR</p>	<p>Increase accessibility to students who cannot be on campus by expanding our portfolio of online programs and certificates.</p>
<p>TACTIC</p>	<p>Create and expand Environmental, Social, and Governance professional development courses in the Irani Center for Energy Solutions.</p>
<p>KPI</p>	<p>A year over year increase in the number of students enrolled.</p>
<p>TACTIC</p>	<p>Develop three new online programs with stackable certificates that could contribute towards a future master’s degree.</p>
<p>KPI</p>	<p>A year over year increase in the number of students enrolled.</p>

PILLAR 4

Become A Place of Belonging and Emotional Growth for All Students, Faculty, Staff and Alumni

STRATEGY ONE	Make diversity, equity, and inclusion a cultural strength of the college with the goal of ensuring that everyone is valued and understood, is dignified and respectful toward others, and feels connected.
TACTIC	Collect and track relevant DEI data on student, faculty, and staff; use data for annual evaluation of gaps. Communicate college numbers on diversity, equity, and inclusion broadly.
KPI	Gender representation (Female) 2025: Faculty (50%). Students (50% Geosciences, 28% MPGE). Staff (50%).
KPI	Underrepresented percentage; 24% (2017), Goal - 35% (2025).
TACTIC	Recruit and retain a diverse population of students, faculty, and staff.
KPI	Annual demographic data for students, faculty, and staff population.
STRATEGY TWO	Partner with the OU Office of Diversity, Equity, and Inclusion to provide resources that facilitate growth in cultural competence, establish best practices and provide training and resources for students, faculty, and staff.
TACTIC	Use the college Faculty and Staff Bonus Awards Program to reward behavior consistent with the values that support our inclusive culture.
KPI	Annual increase in qualifying nominations and awards.
TACTIC	Support and actively participate in the student-centered DEI programs in the Gallogly College of Engineering and the College of Atmospheric and Geographic Sciences.
KPI	Year over year increase in the number of Mewbourne College students participating in DEI programming.
TACTIC	Cultivate relationships with young alumni leaders who provide diverse perspectives.
KPI	Complete two focus group meetings per academic year.

TACTIC	Identify and renovate college space in support of multicultural programs and services.
KPI	Confirm a space is provided by college.
TACTIC	Increase the pool of women and underrepresented communities as nominees for the Mewbourne College Alumni Awards.
KPI	Year over year increase in the number of women honored.



Saeed Salehi from the Mewbourne School of Petroleum and Geological Engineering is one of a handful of faculty researching various areas of geothermal energy. Salehi and his team of students, pictured here at the college's Well Construction Technology Center, have a grant from the Department of Energy to further explore the possibilities of geothermal energy as a reliable energy source.

PILLAR 5

Positively Impact Oklahoma, the Nation, and the World Through Research and Creative Activity

STRATEGY ONE	Achieve research and creative activity outcomes at public Association of American Universities (AAU)-quality benchmarks.
TACTIC	Create dashboard for research productivity and display on proper communication channels.
KPI	Increase annual research expenditures from \$9.7 (2015) to \$15 million (2025).
KPI	Increase Peer Reviewed Publications from 108 (2015) to 225 per year (2025).
STRATEGY TWO	Create an interdisciplinary Research Center of Excellence focused on significant and real-world challenges that provide solutions for energy and environmental sustainability.
TACTIC	Actively pursue a US Department of Energy Research Center to enhance our engagement in basic science.
KPI	Receive funding for hydrogen hub and energy research center.
TACTIC	Better-integrate collaboration, coursework, and group projects between OU colleges that work with the energy industry (Gallogly College of Engineering, College of Law, Price College of Business, and College of Atmospheric and Geographic Sciences).
KPI	Launch interdisciplinary school or program on energy systems.
STRATEGY THREE	Expand facilities, such as a Digital Visualization Center, interdisciplinary labs, classrooms, collaborative spaces, and faculty/staff offices.
TACTIC	Expand facilities to accommodate growth; a digital visualization center followed by a new state-of-the-art building for interdisciplinary labs, large classrooms, collaborative space, faculty offices, and program support staff.
KPI	University support and funding.

STRATEGY FOUR	Establish Mewbourne College as a role model for undergraduate education in energy and planetary sustainability.
TACTIC	Deepen relationships with regional professional organizations to perform outreach education on energy and environmental sustainability topics.
KPI	Year over year increase of participation in joint activities.
TACTIC	Develop relationships with new corporate sponsors to provide student projects and research opportunities in emerging areas of energy and geosciences.
KPI	Year over year increase in the number of corporate sponsors and/or projects.
TACTIC	Cultivate community-engaged research collaborations to solve critical challenges.
KPI	The number of energy and planetary sustainability research projects that faculty and students are engaged in; GOAL-2-6. CURRENT 2022-fusion (2), geothermal (3)

MEET BREN CABLE UNDERGRADUATE RESEARCHER

Environmental geology major Bren Cable has been an undergraduate researcher with the School of Geosciences' Dr. Michael Soreghan since her freshman year. Conducting undergraduate research has provided Bren with incredible experience and taken her all the way to Africa.

"If I could have a superpower, it would be manipulating time. So looking through time by analyzing mud is my own little way of time traveling.

My work as an undergraduate researcher began by analyzing grain-sized mud samples collected from a core out of Lake Tanganyika in Tanzania. The lake is a major protein supply for five surrounding countries. In summer 2021, Dr. Soreghan and I traveled to Tanzania and worked on four projects. I collected and chemically analyzed water samples to study how man-made changes on land leads to an increase of sediment washing into Lake Tanganyika. This sediment is destroying fish habits. If left unattended, the lake could stop maintaining a stable ecosystem. This means the surrounding five countries would be hard-pressed for food."





MEWBOURNE
COLLEGE OF EARTH AND ENERGY
The UNIVERSITY of OKLAHOMA

WATCH OUR COMMERCIAL

What will you explore?

