

Master of Science in Petroleum Engineering

Mission Statement

KU Chemical & Petroleum Engineering integrates teaching excellence and research innovation to educate students and produce future leaders.

Key Research Fields

- Classic and Unconventional Reservoirs
- Enhanced Oil/Gas Recovery and CO₂ Sequestration
- Data Mining Applications in Reservoir Engineering
- Computational Intelligence Application in Real Time Reservoir Monitoring
- Numerical Modeling and Simulation
- Advanced Transport and Phase Phenomena

Associated Research Centers

- C0GEiS: Center for Net Carbon Zero GeoEnergy Intelligence and Sustainability (<https://c0geis.ku.edu/>)
- TORP: Tertiary Oil Recovery Program (<https://torp.ku.edu/>)

New Program Options

- 1 year MS in Petroleum Engineering with a Data Science focus

Standard Admission Requirements for all Graduate Programs

- All applicants must meet the requirements outlined in the Admission to Graduate Study (<https://policy.ku.edu/graduate-studies/admission-to-graduate-study/>) policy.
- Bachelor's degree: A copy of official transcripts showing proof of a bachelor's degree (and any post-bachelor's coursework or degrees) from a regionally accredited institution, or a foreign university with equivalent bachelor's degree requirements is required.
- English proficiency: Proof of English proficiency (<https://gradapply.ku.edu/english-requirements/>) for non-native or non-native-like English speakers is required. There are two bands of English proficiency, including Admission and Full proficiency. For applicants to online programs, Full proficiency is required.

Graduate Admission to the Department of Chemical & Petroleum Engineering

To qualify for study in any of the graduate programs in the Department of Chemical & Petroleum Engineering a student generally must have earned an accredited bachelor's degree in chemical or petroleum engineering. However, a student with good preparation in another engineering discipline or a related field, such as chemistry, physics, geology, or other engineering disciplines may qualify by taking the appropriate prerequisite undergraduate courses. These courses are determined on a case-by-case basis by the Department's Graduate Admissions Committee/Director.

Application Deadlines

- Fall Priority Deadline: January 5; final deadline March 1
- Spring Deadline: October 1

All application materials must be submitted before the final deadlines, March 1 for Fall semester and October 1 for Spring semester, to be considered for admission. All admitted students are considered for any funding opportunities for which they qualify. See our Graduate Admissions (<http://cpe.engr.ku.edu/graduate-admissions/>) page or the Graduate Studies website (<http://www.graduate.ku.edu/>) for the application procedure and fees. Additional resources for international applicants can be found on the International Support Services website (<https://iss.ku.edu/>).

Application Materials

- Statement of Purpose
- Resume or Curriculum Vitae
- Three letters of recommendation
- TOEFL, PTE, or IELTS scores (non-native English speakers)

The following documents are required only after a student has been admitted:

- Financial Statement (International students only if no department funding offered)
- Official transcript(s) sent directly from the applicant's university to the University of Kansas

TOEFL Scores

- TOEFL scores should be sent by ETS to KU institution Code – 6871.

IELTS Scores

- IELTS should be sent to KU Graduate Admissions via the e-delivery service.
- Email the electronic version to graduateadm@ku.edu

PTE SCORES

- PTE score sheets containing the Score Report Code and Registration ID should be emailed to graduateadm@ku.edu for verification.

* As of October 2020, GRE scores are no longer required.

Students admitted with baccalaureate degrees in chemical or petroleum engineering enroll in the graduate core courses listed in our Graduate Program Manual (<https://cpe.ku.edu/enrollment-resources-and-course-listings/>). Up to 9 credit hours from an outside institution may be transferred into upon approval of both department and university offices. Learn more about the degree requirements on the CPE Graduate Degree webpage (<https://cpe.ku.edu/degrees/>).

All graduate applications must be submitted online (<https://gradapply.ku.edu/apply/>).

Regular Status

For admission to regular status, the student must have an undergraduate grade point average of at least B (3.0 on a 4.0 scale). For students whose undergraduate GPA is below 3.0, admission on provisional status will

be considered on a case-by-case basis. Graduate Record Examination scores are required.

Non-native English Speakers

For up-to-date details about the University's English Proficiency Requirements, visit the Graduate Studies Website (<https://gradapply.ku.edu/english-requirements/>).

Visit Us

Graduate program staff can assist prospective students in determining the fit between the student and the program. In order to determine this, we feel that visiting our campus in Lawrence is an important step. If you would like to schedule a visit, there are two main options:

The first, and most preferred, entails simply applying for admission to the program. All prospective students are welcome to attend our Open House in mid-October or mid-March. Eligible admitted students are invited to participate in Campus Visit Days in February (prior to the fall semester of your intended matriculation). These organized visits opportunities will allow you to gather a great deal of first-hand information which we hope will help you in making a final decision about whether to attend KU.

The second option is making arrangements to visit us on your own, outside of organized events. With early notification, we will do our best to work with you to provide information and schedule appointments with faculty when possible.

Contact Information

Please contact the CPE Graduate Program Coordinator, CPEgrad@ku.edu or (785) 864-2900, if you would like to schedule a campus visit, or have questions about the program or the application process.

The University of Kansas
CPE Graduate Program
4132 Learned Hall
1530 W. 15th Street
Lawrence, KS 66045

M.S. in Petroleum Engineering

Three degree options are available. Option A is the thesis option, Option B is a non-thesis (coursework-only) option, and Option C is the Online, non-thesis option. There is no online, research-based, thesis option. Thesis research must be done on campus under the guidance of a research advisor. Options are chosen during the application process and moving from one option to the other post-admissions is not permitted without petition approval. Each option will consist of a total of 30 credit hours of enrollment, and the average time to degree is under two years.

- **Option A** requires in-person research, a written thesis, and final oral defense presentation to a committee of three faculty members. Students enrolled in Option A are considered for departmental research assistantships, teaching assistantships, and fellowships. Tuition cost and fees are based on residency status.
- **Option B** is a project-only option that does not require a final thesis. Students in Option B are not eligible for departmental research assistantships and fellowships but may be considered for teaching assistantships although priority is given to students in Option A. Tuition cost and fees are based on residency status.

- **Option C** is a coursework-only option offered Online that can be completed entirely remotely. No funding is available for students enrolled in Option C. Tuition cost is set at \$850/credit hour.

Academic Preparation

Depending on a student's academic background and proposed Plan of Study, additional undergraduate prerequisite courses may be required. Up to 3 credit hours of undergraduate prerequisite courses (numbered 500 or above) may be counted toward the M.S. degree as elective hours. Undergraduate prerequisite courses are C&PE 527, C&PE 618, C&PE 625, and GEOL 535, or equivalent.

Enrollment Plans and Courses

The following tables represent typical plans of study that might be established by a student and his or her advisor.

The **five core** courses apply to all three degree options and are all three credit hours of enrollment:

| Code | Title | Hours |
|----------|--|-------|
| C&PE 701 | Methods of Chemical and Petroleum Calculations | 3 |
| C&PE 771 | Advanced Reservoir Engineering | 3 |
| C&PE 790 | Introduction to Flow in Porous Media | 3 |
| C&PE 795 | Enhanced Petroleum Recovery | 3 |
| C&PE 798 | Phase Equilibrium | 3 |

M.S. in Petroleum Engineering: Option A

| Code | Title | Hours |
|---|--|-----------|
| Petroleum Engineering Graduate Core Courses | | |
| C&PE 701 | Methods of Chemical and Petroleum Calculations | 3 |
| C&PE 771 | Advanced Reservoir Engineering | 3 |
| C&PE 790 | Introduction to Flow in Porous Media | 3 |
| C&PE 795 | Enhanced Petroleum Recovery | 3 |
| C&PE 798 | Phase Equilibrium | 3 |
| Electives | | 6 |
| It is recommended that part of the electives be from other departments. Maximum of 1 course can be below 700 level. | | |
| Research | | |
| C&PE 800 | Seminar | 3 |
| C&PE 803 | Research | 6 |
| Thesis, including oral defense or examination | | |
| Total Hours | | 30 |

M.S. in Petroleum Engineering: Option B (In-Person, Project only)

| Code | Title | Hours |
|--|--|----------|
| Petroleum Engineering Graduate Core Courses | | |
| C&PE 701 | Methods of Chemical and Petroleum Calculations | 3 |
| C&PE 771 | Advanced Reservoir Engineering | 3 |
| C&PE 790 | Introduction to Flow in Porous Media | 3 |
| C&PE 795 | Enhanced Petroleum Recovery | 3 |
| C&PE 798 | Phase Equilibrium | 3 |
| Electives (It is recommended that part of the electives be from other departments. Maximum of 1 course is below 700 level). | | 9 |
| C&PE 800 | Seminar | 3 |

| | | |
|--------------------|---|-----------|
| C&PE 825 | Graduate Problems in Chemical and Petroleum Engineering | 6 |
| Total Hours | | 33 |

M.S. in Petroleum Engineering: Option C (Online, Coursework only)

| Code | Title | Hours |
|---|--|--------------|
| Petroleum Engineering Graduate Core Courses | | |
| C&PE 701 | Methods of Chemical and Petroleum Calculations | 3 |
| C&PE 771 | Advanced Reservoir Engineering | 3 |
| C&PE 790 | Introduction to Flow in Porous Media | 3 |
| C&PE 795 | Enhanced Petroleum Recovery | 3 |
| C&PE 798 | Phase Equilibrium | 3 |
| Electives | | 15 |
| It is recommended that part of the electives be from other departments. Maximum of 1 course can be below 700 level. | | |
| Total Hours | | 30 |

At the completion of this program, students will be able to:

- Demonstrate broad Chemical and Petroleum Engineering knowledge.
- Demonstrate an in-depth knowledge in one area of expertise in Chemical & Petroleum Engineering.
- Conduct independent, publishable, and impactful research on a significant area in Chemical & Petroleum Engineering.
- Document and communicate a compelling, focused, and logical technical argument in writing and orally at a professional level.