The Mines chemical engineering graduate program provides a rigorous educational and research experience where faculty and top-notch students work together on fundamental and applied high-impact research with far-reaching societal applications. This program is diverse and features research in biochemical and biomedical engineering, renewable energy, materials science, transport processes, theoretical and applied thermodynamics, computational methods and atomistic simulation. With a low student-to-faculty ratio, the department prides itself on providing strong mentoring from award-winning faculty - including seven NSF CAREER Award winners, one PECASE Award winner and one DOE Early Investigator Award winner.

DEGREE OPTIONS

- **Doctor of Philosophy**: 72 credit hours, comprised of at least 30 credit hours of coursework and 42 credit hours of research. Doctoral students must pass the qualifying exam, complete and successfully defend a satisfactory thesis.

- **Master of Science (thesis based)**: 30 credit hours, comprised of at least 18 credit hours of coursework and 12 credit hours of research.

- **Master of Science (non-thesis)**: 30 credit hours of coursework, including 18 credits of electives with many interdisciplinary options.
**CHEMICAL ENGINEERING | PhD, MS**

**RESEARCH AREAS**

The Department of Chemical and Biological Engineering has a diverse and dynamic research portfolio, managing approximately $8 million (NSF, NIH, DOE, NASA, etc.) annually in research awards. Current strengths include bioengineering, gas hydrates, simulation and modeling, complex fluids and soft materials, materials for energy applications such as solar cells, fuel cells, catalysis, and biofuels. There is extensive collaboration amongst faculty from these research areas giving students opportunity to develop a diverse skill set.

**CORE COURSE EXAMPLES**

- Applied Mathematics in Chemical Engineering
- Advanced Chemical Engineering Thermodynamics
- Transport Phenomena
- Reaction Kinetics and Catalysis
- Introduction to Chemical Engineering Research and Teaching

**PROGRAM ADMISSION REQUIREMENTS**

- The program considers a candidate’s entire academic record including performance in core chemical engineering and math courses, Graduate Record Examination (GRE) scores, research experience and letters of recommendation as evidence of potential to succeed in the graduate program.

- The average admitted student has an average GPA of 3.65 on a 4.0 scale and GRE scores in the 84th percentile for the quantitative section.

- While candidates are expected to have a strong foundation in STEM coursework, a bachelor of science in chemical engineering is not required to apply. Students with undergraduate degrees other than chemical engineering (e.g., chemistry and biology) are especially encouraged to apply to our Master of Science program.

**APPLICATION DEADLINE:** DECEMBER 15

TO LEARN MORE, VISIT: gradprograms.mines.edu/cbe or contact cbe@mines.edu