The Mines operations research with engineering program involves mathematically modeling physical systems (both naturally occurring and man-made) with a goal of determining a course of action for the system to either improve or optimize its functionality. Examples of such systems include manufacturing systems, chemical processes, socioeconomic systems, mechanical systems (those producing energy) and mining systems. This interdisciplinary degree program allows students to take courses in several departments at Mines, while collaborating with faculty who use operations research techniques in their explorations.

**DEGREE OPTIONS**

- **Doctor of Philosophy**: 72 credit hours, comprised of at least 24 credit hours of core courses, 24 credit hours of research credit and 24 credit hours of coursework in a specialization track.
- **Master of Science (non-thesis)**: 30 credit hours with 6 core courses (18 credit hours) and an additional 12 credit hours tailored to specialty tracks.
SPECIALIZATION TRACKS

- Energy systems within mechanical engineering
- Additive manufacturing
- Applied mathematics and statistics
- Economics
- Business
- Computer science
- Geotechnics or structures within civil engineering
- Nuclear engineering
- Antennas and wireless communications within electrical engineering
- Energy systems and power electronics within electrical engineering
- Information and systems sciences within electrical engineering
- Mining and earth systems

PROGRAM ADMISSION REQUIREMENTS

- Bachelor’s degree in engineering, mathematics, applied science or computer science with a grade-point average of 3.0 or better on a 4.0 scale.
- Graduate Record Examination (GRE) with quantitative reasoning section score of 160 or higher. The GRE requirement may be waived for Mines undergraduate students.
- For international applicants or applicants whose native language is not English, a TOEFL score of 79 or higher (or 550 for the paper-based test, 213 for the computer-based test) is required. In lieu of a TOEFL score, an IELTS score of 6.5 will be accepted.
- Two prerequisites are required prior to beginning the degree program: Programming Concepts (or equivalent) and Data Structures (or equivalent).

ACCEPTING APPLICATIONS

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