Twin Cities Campus

Chemical Engineering Minor

Chemical Engineering & Materials Science

College of Science and Engineering

Link to a list of faculty for this program.

Contact Information:
Department of Chemical Engineering and Materials Science, University of Minnesota, 151 Amundson Hall, 421 Washington Ave SE, Minneapolis, MN 55455 (612-625-0382; fax: 612-626-7246)
Email: cemsgrad@umn.edu
Website: http://www.cems.umn.edu

- Program Type: Graduate minor related to major
- Requirements for this program are current for Spring 2021
- Length of program in credits (Masters): 6
- Length of program in credits (Doctorate): 12
- This program does not require summer semesters for timely completion.

Along with the program-specific requirements listed below, please read the General Information section of the catalog website for requirements that apply to all major fields.

Research in the Chemical Engineering and Materials Science (CEMS) Department spans all aspects of chemical and materials engineering ranging from fluid mechanics, transport, catalysis, and reactor design to bioengineering, renewable energy, polymer synthesis and processing, and advanced semiconductor growth and characterization. A strong tradition in mathematical modeling and computation complements experimental efforts. The research of CEMS core faculty and affiliated graduate faculty is organized into 14 themes: applied and computational mathematics; biological engineering; catalysis, separations and reaction engineering; electrochemical materials and devices; electronic, magnetic and photonic materials; electron microscopy; energy; materials processing; materials theory; nanomaterials and nanotechnology; nanomechanics and plasticity; polymer science and engineering; systems engineering; and transport and fluid mechanics.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Prerequisites for Admission

Special Application Requirements:
Students interested in the minor are strongly encouraged to confer with their major field advisor and director of graduate studies, and the Chemical Engineering director of graduate studies regarding feasibility and requirements.

For an online application or for more information about graduate education admissions, see the General Information section of the catalog website.

Program Requirements

Use of 4xxx courses towards program requirements is not permitted.

Minor programs must be approved by the Chemical Engineering director of graduate studies.

Courses must be taken on the A-F grade basis, unless only offered S/N, with a minimum grade of B- earned for each course.

The minimum cumulative GPA for the minor is 3.00.

Minor Courses (6-12 credits)

Master's students select a minimum of 6 credits, and doctoral students select a minimum of 12 credits in consultation with the Chemical Engineering director of graduate studies.

CHEN 8001 - Structure and Symmetry of Materials (3.0 cr)
CHEN 8101 - Fluid Mechanics (3.0 cr)
CHEN 8201 - Applied Math (3.0 cr)
CHEN 8301 - Physical Rate Processes I: Transport (3.0 cr)
CHEN 8401 - Physical and Chemical Thermodynamics (3.0 cr)

CHEN 8402 - Statistical Thermodynamics and Kinetics (3.0 cr)
CHEN 8501 - Chemical Rate Processes: Analysis of Chemical Reactors (3.0 cr)

Program Sub-plans

Students are required to complete one of the following sub-plans.
Students may not complete the program with more than one sub-plan.

Masters

Doctoral