Chemical Engineering
Master of Science

The Chemical Engineering graduate program, administered from the Department of Chemical Engineering, offers the Master of Science with thesis and non-thesis options, the Master of Engineering, and the Doctor of Philosophy degrees. The department also sponsors the Energy, Environmental, and Interdisciplinary Engineering tracks of the College of Engineering and Mines Ph.D. Engineering program, administers the Sustainable Energy Engineering masters program and participates in the multidisciplinary Environmental Engineering masters program. The M.S. and Ph.D. degrees are the most common options and financial aid is provided to the vast majority of students working towards these degrees. The M.S. or M.Engr. degree is typically completed in 18-24 months of full time study by students holding an accredited baccalaureate degree in chemical engineering.

Admission Requirements

The applicant must meet the School of Graduate Studies’ current minimum general admission requirements as published in the graduate catalog.

1. B.S. degree in chemical engineering from an ABET accredited program. Students applying for the combined BSChE/MS degree should see the “Chemical Engineering Combined Degree” section in the graduate catalog for additional details. Students holding a B.S. degree in a science or other engineering field may be admitted to Qualified Status with an obligation to acquire a background in chemical engineering.

2. An overall undergraduate GPA of at least 2.75 or a GPA of at least 3.00 for the last two years. (An overall GPA of at least 3.3 for the combined BSChE/MS degree is required).

3. Graduate Record Examination General Test for those with undergraduate degrees from non-ABET accredited programs.

4. Satisfy the School of Graduate Studies’ English Language Proficiency requirements as published in the Graduate catalog.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the School of Graduate Studies as well as particular requirements set forth by the Chemical Engineering Department.

Thesis Option:

- A minimum of 30 semester credits, including the credits granted for the thesis and the research leading to the thesis.
- At least one-half of the credits must be at or above the 500-level.
- A maximum of nine semester credits may be transferred from another institution.
- A thesis documenting research on a topic related to chemical engineering.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHE 562</td>
<td>Seminar in Chemical Engineering</td>
<td>2</td>
</tr>
<tr>
<td>CHE 591</td>
<td>Research</td>
<td>3</td>
</tr>
<tr>
<td>CHE 998</td>
<td>Thesis</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>At least 21 credits of coursework from chemical engineering and related fields, which may include a minor or cognate.</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>30</td>
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Deadlines apply. See our website for more details.

Email: questions@gradschool.und.edu

Last Updated: 6/5/2014
Non-Thesis Option:
- A minimum of 32 credits, including credits granted for independent study.
- At least one-half of the credits must be at or above the 500-level.
- A maximum of nine semester credits may be transferred from another institution.
- Preparation of a written independent study report approved by the faculty advisor.
- Comprehensive final examination.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHE 562</td>
<td>2</td>
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<tr>
<td>CHE 591</td>
<td>4</td>
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<tr>
<td>CHE 997</td>
<td>2</td>
</tr>
<tr>
<td>At least 24 credits of coursework from chemical engineering and related fields.</td>
<td>24</td>
</tr>
<tr>
<td>Total Credits</td>
<td>32</td>
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Faculty and Areas of Expertise
- **Steve Benson**, Renewable and fossil fuel properties, Clean and efficient gasification and combustion systems, Fireside behavior of ash and slag, Carbon products, Carbon dioxide separation, capture, and sequestration, Materials analysis – electron microscopy and x-ray microanalysis
- **Frank Bowman**, Atmospheric aerosols, organic aerosol partitioning, mathematical modeling of multicomponent aerosols, air quality modeling, educational technology, assessment of student learning, educational air pollution models
- **Yun Ji**, Renewable and sustainable energy, chemicals and biofuels from biomass, enzymatic hydrolysis, integrated energy and environmental projects, process simulation
- **Edward Kolodka**, Polymer reaction engineering, synthesis, rheological, and mechanical properties of novel polymers, biopolymers, development of improved adhesives for wood laminates
- **Gautham Krishnamoorthy**, Computational fluid dynamics, simulations of combustion reaction flows, carbon capture technologies, radiative heat transfer.
- **Michael Mann**, Performance issues in advanced energy systems firing coal and biomass, emission control, renewable energy systems, and the development of energy strategies based on thermodynamics and economics.
- **Wayne Seames**, Mitigation of the environmental impact of heavy metals, trace element partitioning from combustion and incineration, alternative fuels development, new products and improved processing of agriculture, biochemical unit operations, environmental impacts from wood and concrete contamination.
- **Brian Tande**, Phase behavior and rheology of polymeric and nanodisperse systems, block copolymer morphology, neutron scattering of polymers, novel materials for hydrogen storage, biopolymers and biocomposites.
- **Robert Wills**, Non-thermal drying of solids by chemical dehydration, vegetative oil extraction and product enhancement.

Contact Information
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* The Department of Chemical Engineering also offers a Master of Engineering degree, and a PhD degree.

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