CHEMICAL ENGINEERING

Graduate Programs

Chemical engineering (ChE) is an established and versatile engineering discipline. An advanced degree in ChE provides numerous opportunities to work in energy, pharmaceuticals, materials, biotechnology, and consumer goods industries. At LSU, you will work with top faculty and researchers to apply engineering and scientific principles of chemistry, physics, and biology to design new materials, processes, and systems.

What We Look For

We welcome applicants with undergraduate degrees in diverse STEM disciplines, including but not limited to Chemical Engineering, Chemistry/Biochemistry, Biochemical Eng., Material Science & Eng., and Physics.

We also welcome applicants with MS degree and/or substantial work experience in areas relevant to chemical engineering and similar disciplines. Our admission committee will look for evidence for creativity, self-initiative, dedication, and perseverance. We aim to admit students whose specific interests are well matched with the research of our faculty.

Coursework

Master of Science
Available with either a thesis option (24 credit h coursework, 6 credit h thesis) or non-thesis option (36 credit h coursework).

Doctor of Philosophy
To earn a PhD in ChE, students are required to complete 30 credit h of coursework at the graduate level and 24 credit h of dissertation research. Students typically complete the degree in five years.

Program Components
Year 1: Core coursework; advisor matching, research
Year 2: Other coursework, PhD candidacy exam
Year 3+: PhD Research

Grad Core Courses (12 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CHE 7110</td>
<td>Mathematical Models in ChE</td>
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<tr>
<td>CHE 7120</td>
<td>Chemical Eng. Thermodynamics</td>
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<tr>
<td>CHE 7130</td>
<td>Heat &amp; Mass Transport</td>
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<tr>
<td>CHE 7140</td>
<td>Chemical Reactor Design Methods</td>
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Other Courses (examples)

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<th>Course Code</th>
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<tr>
<td>CHE 7800</td>
<td>Seminar</td>
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<tr>
<td>CHE 9000</td>
<td>Dissertation Res.</td>
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<tr>
<td>CHE 4285</td>
<td>Principles of Polymerization</td>
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<tr>
<td>CHE 4220</td>
<td>Genetic Engineering</td>
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<tr>
<td>CHE 7700</td>
<td>Adv. Topics in ChE</td>
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**Research Areas**
- Advanced Materials
- Biocatalysis
- Catalysis
- Energy
- Environment
- Process Systems Engineering
- Theoretical Simulations

**Facilities**
- World-class R&D laboratory
- Material Characterization (SIF)
- Supercomputer Clusters (HPC)
- Only Synchrotron in the South (CAML)
- Device Fabrication (NFF)

More about our research:
[YouTube](#)

**Research Highlights**

**Smart colloids and nanomaterials for environmental applications**

![Smart colloids and nanomaterials](image1)


**New electrochemical strategies for clean energy and catalysis**

![New electrochemical strategies](image2)


**Commodity & functional polymers: precision synthesis & depolymerization**

![Commodity & functional polymers](image3)


**Machine learning-based process control and multi-scale modeling**

![Machine learning-based process control](image4)


**Funding Sources**
- NSF, NIH, DOE, DOD
- LSU Board of Regents
- Private sectors (BASF, Dow, Chevron, ExxonMobil, and others)

**Employment**

Our graduates go on to work in the industry, academia, government facilities, and other fields.

See [AIChE employment database](#)

**ADMISSIONS REQUIREMENTS**

- Application to PhD program is encouraged. Application fee waiver is available for students with a GPA of ~3.5 (B+) or higher
- Completion of a bachelor’s degree from an accredited college or university in chemical engineering-related field
- Completed Graduate School Application Form
- A Statement of Purpose (a summary of research experience)
- Three letters of recommendation
- TOEFL scores1 (preferred minimum scores: 213 CBT/550 PBT/79 iBT). IELTS preferred minimum score: 6.5. GRE scores are not required.

1International applicants from qualifying English-speaking countries may be exempt.

**FINANCIAL AID**

**PhD Research and Teaching Assistantships:** Starts at $30.6 k, with full tuition waiver ($29.6 k) and waiver of non-resident fees

**Fellowships:** Up to $35 k, with full tuition waiver ($29.6 k), and waiver of non-resident fees

**DEADLINES**

**PhD Program:** May 15 (Fall), Oct 15 (Spring)

**MS Program:** May 15 (Fall)

**International students:** Please make plans to apply as early as possible

**APPLY HERE:**

[LSU GRADUATE SCHOOL](#)

*Individual ChE faculty do not admit applicants directly to their groups. Please do not send informal evaluation requests.*