



## ABOUT US

The Louisiana State University (LSU) Cain Department of Chemical Engineering is the largest chemical engineering program in Louisiana, serving students at both the undergraduate and graduate levels.

One of our key strengths is our close proximity to a thriving industry boasting over 200 chemical/ petrochemical facilities, among the largest such clusters worldwide.

Our department is comprised of 20 experienced full-time research faculty and 60+ outstanding graduate students, all of whom share a strong commitment to driving innovative research and providing a world-class education in chemical engineering.

For MS/PhD questions, contact us at: [chemgrad@lsu.edu](mailto:chemgrad@lsu.edu).

Web: <https://www.lsu.edu/eng/che/>



# 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)

CHE 7110	Mathematical Models in ChE
CHE 7120	Chemical Eng. Thermodynamics
CHE 7130	Heat & Mass Transport
CHE 7140	Chemical Reactor Design Methods

### Other Courses (examples)

CHE 7800	Seminar
CHE 9000	Dissertation Res.
CHE 4285	Principles of Polymerization
CHE 4230	Adv. Proc. Control Systems
CHE 4220	Genetic Engineering
CHE 7700	Adv. Topics in ChE

## Research Areas

- Advanced Materials
- Biochemical Eng.
- Catalysis
- Energy
- Environment
- Process Sys. Eng.
- Theoretical Simulations

## Facilities

- World-class R&D laboratories
- Material Characterization ([SIF](#))
- Supercomputer Clusters ([HPC](#))
- Only Synchrotron in the South ([CAMD](#))
- Device Fabrication ([NFF](#))

More about our research:

[YouTube](#)



## 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 scores<sup>1</sup> (preferred minimum scores: 213 CBT/550 PBT/79 iBT). IELTS preferred minimum score: 6.5. GRE scores are not required.

<sup>1</sup>International applicants from qualifying English-speaking countries may be exempt.

## RESEARCH HIGHLIGHTS

### Smart colloids and nanomaterials for environmental applications



Al Harraq, A., et al. [ACS Env. Au 2022](#) | Leite, T.R., et al. [Nano Lett. 2022](#) | Willis, D., et al. [ACS App. Mat. Int. 2020](#)

### New electrochemical strategies for clean energy and catalysis



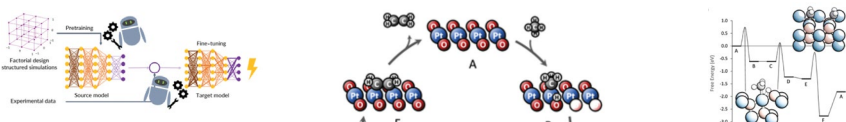
Ding, K., et al. [Science 2018](#) | Fang, Y., et al. [Cat. Sci. Tech. 2019](#) |

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



Ogbonna, N. et al. [JACS Au 2022](#) | Dearman, M. et al. [Poly Chem. 2022](#) | Whajah, B. et al. [Ind. Eng. Chem. Res. 2021](#) | Khan, A. et al. [ACS BSE 2022](#)

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



Briceno-Mena, L.A., et al. [Ind. Eng. Chem. Res. 2021](#) | Li, G., J., et al. [Electrochem. Soc., 2020](#) | Hong, S. et al. [Biomolecules 2021](#)

## 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](#)

## 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.*