

# IOWA ENGINEERING

## Choose a Focus That Fits YOU

The inclusion of **Elective Focus Areas (EFAs)** in the **Chemical Engineering** curriculum provides you with the opportunity to explore your interests in a specialty area where chemical engineers can have an impact, in addition to the strong foundation in the scientific, engineering, and chemical engineering principles provided by the common curriculum.



### Biochemical Engineering

Combine concepts of biology, biochemistry, and engineering.

**Future Opportunities:** Manufacture products of biological nature as production leaders and researchers in biotechnology and pharmaceutical industries, graduate school.



### Business

Gain foundational business knowledge and earn a minor in business.

**Future Opportunities:** Apply integrated business and technical knowledge in manufacturing plants, consulting firms, corporate offices, graduate school.



### Chemical Process Engineering

Tailor to individualized interest in choosing electives from engineering, math, and science courses.

**Future Opportunities:** Design, optimize, and operate systems that transform raw materials into valuable products, graduate school.



### Computation, Data Science, and Machine Learning

Blend advanced computation and programming with chemical engineering.

**Future Opportunities:** Bioinformatics, software development, remote sensing, artificial intelligence, graduate school.



### Energy and Environment

Passionate about the environment? Topics include air pollution, climate change, clean and renewable energy, and more!

**Future Opportunities:** Solve environmental challenges and revolutionize energy systems, graduate school.



### Entrepreneurship

Focus on the process of navigating the world of start-ups, innovation, business ownership, and new products while working towards a certificate in technological entrepreneurship.

**Future Opportunities:** Business ownership and innovation in an existing business environment, graduate school.



### Oil and Gas Engineering

Explore foundational elements of chemistry, geology, petrochemical refining, and environmental science

**Future Opportunities:** Oil and gas engineers, petroleum industry, graduate school.



### Pharmaceuticals

Explore biology, drug delivery, and the mechanisms and chemistry of drug interactions to apply to careers in medical applications.

**Future Opportunities:** Design, formulate, and manufacture pharmaceuticals, graduate school.



### Polymers

Study the development of chemical compounds by polymerization and the links between molecular and macroscopic scale properties to produce advanced materials.

**Future Opportunities:** Design and manufacture new materials, graduate school.



### Pre-Medicine

Interested in the medical field? Gain a deeper understanding of the atoms and molecules that comprise living organisms and the pathways through which they operate.

**Future Opportunities:** Medical careers and applications, graduate school.



### Sustainability

Explore topics in environmental science, societal impacts, energy usage, and natural systems and pursue the University-wide certificate in sustainability.

**Future Opportunities:** Consulting, environmental careers, graduate school.



### Custom EFA

Develop your own EFA consistent with your career goals. Subject to approval by the Chemical Engineering Curriculum Committee.