CONTACT US
To learn more about Villanova’s Master of Science in Biochemical Engineering, please contact:

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HOW TO APPLY
To apply:
enggradapp.villanova.edu

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MASTER OF SCIENCE
BIOCHEMICAL ENGINEERING
ABOUT BIOCHEMICAL ENGINEERING

Biochemical Engineering, part of the Chemical Engineering department, is a growing and increasingly important discipline within the engineering profession. The Master of Science in Biochemical Engineering prepares you to design and optimize pharmaceutical facilities, processes and products using state-of-the-art analysis and technology.

CONVENIENCE

Regardless of your stage in life or career, graduate programs at Villanova’s College of Engineering are designed to meet your needs. You can enroll full-time and attend classes on campus, or, like most working professionals, you can choose to earn your degree part-time with conveniently scheduled classes on campus or through the E-Learning program.

Villanova’s Master of Science in Biochemical Engineering can be completed entirely through E-Learning which allows you to participate either in real-time as class is held on campus, or by accessing the recorded course online at your convenience.* The E-Learning program makes courses accessible regardless of where you are.

*While you can earn your degree with the classes available online, certain courses are only available on campus.

CURRICULUM

THESIS OPTION

- Two core courses in biochemical engineering (3 credits per course; 6 credits total)
- Minimum three additional courses in biochemical engineering (3 credits per course; 9 credits total)
- Maximum two courses in bioengineering (3 credits per course)
- Maximum three bio-science courses (3 credits per course)
- Maximum three courses in chemical engineering (3 credits per course)
- MS Thesis (6 credits)

Total Credits = 30

NON-THESIS OPTION

- Two core courses in biochemical engineering (3 credits per course; 6 credits total)
- Minimum three additional courses in biochemical engineering (3 credits per course)
- Maximum two courses in bioengineering (3 credits per course)
- Maximum four bio-science courses (3 credits per course)
- Maximum four courses in chemical engineering (3 credits per course)

Total Credits = 30

BIOCHEMICAL ENGINEERING COURSES

( * indicates required)
CHE 8588 – Biochemical Engineering I*
CHE 8589 – Biochemical Engineering II*
CHE 8586 – Biomaterials & Drug Delivery
CHE 7587 – Biopharmaceutical Facility Design
CHE 8586 – Systems Biology
CHE 8999 – Protein Engineering
CHE 7999 – Global Pharmaceutical Business

MEET THE FACULTY

William J. Kelly, PhD
Director of the Biochemical Engineering Graduate Program
Associate Professor of Chemical Engineering
Research interests:
- Upstream and downstream plasmid DNA bioprocessing
- Upstream and downstream mAb bioprocessing
- CFD modeling of bioprocesses
- Shear effects on cells and biomolecules

Noelle Comolli, PhD
Co-Director of the Biochemical Engineering Graduate Program, Assistant Professor of Chemical Engineering
Research interests:
- HER2 targeting microparticles for breast cancer
- Novel PLA-PEG Albuterol particles for severe asthma
- Chitosan based thin films for anti-inflammatory drug delivery
- Drug delivery for spinal cord injury

Zuyi (Jacky) Huang, PhD
Assistant Professor of Chemical Engineering
Research interests:
- Manipulating microbial metabolism to produce biofuel
- Identifying drug targets to eliminate pathogens
- Identifying drug targets to prevent the formation of liver cancer cells

Jacob Elmer, PhD
Assistant Professor of Chemical Engineering
Research interests:
- Earthworm hemoglobin as new blood substitute
- Development of novel vehicles for gene delivery
- Plasmid optimization for gene delivery