

MS in Biological Engineering

About

Biological Engineering or bioengineering is a science-based engineering discipline that integrates engineering and biological sciences in one curriculum. Bioengineers apply scientific and engineering principles to develop products, systems, and/or processes to improve human and animal health, bio-resource utilization, and environment protection.

The Department of Biomedical, Biological and Chemical Engineering offers both thesis and non-thesis based Master of Science (MS) degrees in Biological Engineering. Our MS degree programs have three emphasis areas: biomedical engineering, bioprocess engineering and bioenvironmental engineering.

The department also offers a 100% online, non-thesis Master's degree (<https://online.missouri.edu/degrees-programs/mu/engineering/biological-engineering-non-thesis/ms/>) in Biological Engineering with a focus in biomedical engineering. In addition, the department administers the Master of Engineering (ME) (<https://catalog.missouri.edu/collegeofengineering/engineering/me-engineering/>) degree with a focus in Biological Engineering that is offered by the College of Engineering.

Degree Requirements

- The **MS thesis (MST)** degree requires a minimum of 30 semester hours beyond the baccalaureate degree. The Program of Study for **MST** should include the following:

BIOL_EN 8402	Research Methods	2
BIOL_EN 8087	Seminar in Biological Engineering	1
BIOL_EN 8180	Numerical Methods in Engineering Research	3
BIOL_EN 8990	Masters Thesis Research in Biological Engineering	6-12
A graduate level Statistics course		3
Two additional Bioengineering 8000 level courses (excluding Problems or Thesis Research)		6-9

Additional graduate level courses to fulfill the requirement of a minimum of 30 semester hours.

A M.S. thesis and a scholarly manuscript are required.

- The **MS non-thesis (MSNT)** degree requires a minimum of 30 semester hours (a minimum of 15 hours at 8000 level and above) beyond the baccalaureate degree. We offer both on campus and online MSNT. The detailed requirements for the **100% online, non-thesis MS degree** in Biological Engineering can be found on the degree website from Missouri Online (<https://online.missouri.edu/degrees-programs/mu/engineering/biological-engineering-non-thesis/ms/>). The Program of Study for **MSNT** should include the following:

BIOL_EN 8180	Numerical Methods in Engineering Research	3
A graduate level Statistics course		3
Three additional Bioengineering 8000 level courses (excluding Problems or Research)		9

Additional graduate level courses to fulfill the requirement of a minimum of 30 semester hours. The combined hours of Research (8990) and Problems (8085) cannot be more than 3 hours.

A project/independent study report is required.

- The **ME** degree requires a minimum of 36 semester hours beyond the baccalaureate degree. A minimum of 15 hours must be at 8000 level and above and a minimum of 21 hours must be from engineering.

The Program of Study for **ME** should include the following:

BIOL_EN 8087	Seminar in Biological Engineering	1
BIOL_EN 8000	Scientific Discovery Leading to Life Science Innovations	3
BIOL_EN 8180	Numerical Methods in Engineering Research	3

A graduate level Statistics course		3
Two additional Bioengineering 8000 level courses (excluding Problems or Research)		6

Additional graduate level courses to fulfill the requirement of a minimum of 36 semester hours. The combined hours of Research (8990) and Problems (8085) cannot be more than 3 hours.

- If approved by the student's Master's Program Committee, the MS program of study may include up to six hours of graduate credits transferred from another university or from another campus of the MU system. Graduate students are required to demonstrate proficiency in at least two of the technical proficiency areas listed in the current bioengineering graduate student handbook.

Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the Biological Engineering degree program (<https://gradschool.missouri.edu/degrecategory/bioengineering/>) and the minimum requirements of the graduate faculty (<https://gradschool.missouri.edu/admissions/eligibility-process/>), enforced by the Graduate School. Please visit our degree program's graduate admission page (<https://gradschool.missouri.edu/degrecategory/bioengineering/>) to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

For inquiries about the MS degrees in biological engineering, please visit the corresponding degree program's graduate admission page (<https://gradschool.missouri.edu/degrecategory/bioengineering/>) for detailed contact information.