Johnson County Community College
Transfer Program to University of Missouri
Biological Engineering, BSBE
2024-25 Catalog

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https://engineering.missouri.edu/degree/bachelor-of-science-in-biological-engineering/

Biological Engineering is a science-based engineering curriculum that integrates engineering and biological sciences in the areas of health, sustainability and environmental stewardship. Students are prepared in three engineering areas: biomedical, bioprocess, and bioenvironmental engineering. In addition to the core program courses, the program includes courses in basic sciences; social, behavioral and engineering sciences; and humanities and fine arts. In a capstone design course, each student completes a design project under the direction of a faculty advisor. Graduates are hired by biotechnology, medical, pharmaceutical, food and agricultural companies and government agencies, or opt to further their education in graduate, medical or veterinary medical school. Graduates are well prepared to take the Fundamentals of Engineering exam during their senior year, which is the first step toward obtaining a Professional Engineer license. The BS in Biological Engineering is accredited by the Engineering Accreditation Commission of ABET.

Major Program Requirements - The curriculum encompasses basic sciences, social and behavioral sciences, humanities and fine arts, engineering sciences and topics, and program core courses. The core courses cover topics of biological engineering principles and design. In a capstone design course, each student completes a design project under the direction of a faculty advisor. Technical electives allow students to place emphasis on biomedical, bioprocess or bioenvironmental engineering.

All requirements listed below are in addition to University graduation requirements, including University general education and College of Engineering requirements. All pre-requisites required for Basic Engineering, Biological Engineering, and Technical Elective courses must be completed with a grade of "C-" or better.

Refer to JCCC/MU General Education guide for equivalent courses.

Students are also required to complete one 3-hour cultural awareness course which is selected from an approved cultural awareness course list, created and maintained by the College of Engineering or which meets the Arts and Science (A&S) diversity intensive (DI) requirement.

Transfer Students - Students wishing to transfer to MU from an accredited college or university are subject to University regulations described in this catalog. The College of Engineering cooperates with many colleges through articulation agreements that help students transfer to MU with maximum ease and minimum loss of credits. A student may contact the College of Engineering Admissions Office to determine if their home institution participates in an agreement with the College of Engineering. Students who have completed all courses specified in the articulation agreement will be admitted into their desired degree program. All other transfer students are admitted on program discretion. Typically, transfer students with freshmen status must satisfy the same requirements as students entering college for the first time. Other students are admitted only after review of their transcript.

To be recommended for a BS degree from the College of Engineering, a student transferring from an accredited institution must complete at least 30 upper-level credits in the degree program at a UM System campus. At least 21 of the 30 credits must be upper-level engineering courses approved by the department awarding the degree.
A student transferring with senior standing from another UM System campus must complete the last 15 credits in residence on the campus where the degree program is located. Twelve of these 15 credits must be in engineering and approved by the department awarding the degree.

Any student whose enrollment in any college-level academic program resulted in dismissal, departure or who is on probation will not be admitted to the College of Engineering.

International Admission - International undergraduate students interested in studying in the College of Engineering can find information on academic and English language admission requirements on the website of the MU Office of International Admissions. Any questions regarding international student admissions can be directed to that office at inter@missouri.edu.

GPA Requirements for Graduation from the College of Engineering:

- GPA of record of at least 2.0
- GPA of at least 2.0 in all engineering courses offered by one of the four campuses of the UM System. "Engineering courses" include all courses that are offered through the College of Engineering or its equivalent on the four campuses, or that have "Engineering" in the curricular designator. Only the last grade in a repeated course will be used in the calculation.

MU Requirements	Hrs	JCCC Equivalents	Hrs
Mathematics and Statistics – 19 hours			
MATH 1500 Analytic Geometry and Calculus I	5	MATH 241 Calculus I*	5
MATH 1700 Calculus II	5	MATH 242 Calculus II*	5
MATH 2300 Calculus III	3	MATH 243 Calculus III*	5
MATH 4100 Differential Equations	3	MATH 254 Differential Equations*	4
STAT 4710 Intro to Statistics	3	MATH 246 Elementary Linear Algebra*	3
Basic Sciences – 28 hours			
PHYSCS 2750 University Physics I	5	PHYS 220 Engineering Physics I*	5
PHYSCS 2760 University Physics II	5	PHYS 221 Engineering Physics II*	5
CHEM 1400/1401 College Chemistry I/Lab	4	CHEM 124/125 General Chemistry I Lecture*Lab*	4/1
CHEM 2100 Organic Chemistry I	3	CHEM 220 Organic Chemistry I*	5
BIO SC 1500 Introduction to Biological Systems with Laboratory	5	BIOL 135 Principles of Cell and Molecular Biology	4
Biological Sciences Electives – 6 hours			
BIO SC 2200 General Genetics	4	BIOL 205 General Genetics*	4
PLNT SCI 2110 Plants and their Cultivation	3	HORT 214 Woody Plants, Deciduous **OR** HORT 215 Woody Plants, Evergreens	3
SOIL 2100 Introduction to Soils	3	HORT 260 Horticulture Soils	3
Basic Engineering – 18 hours			
ENGINR 1000 Introduction to Engineering	1	ENGR 121 Engineering Orientation	2
ENGINR 1200 Statics and Elementary Strength of Materials	3	ENGR 251 Statics*	3
Additional Requirements			
ECONOM 1014 Principles of Microeconomics *(recommended as it meets the requirement for a cultural awareness course)*	3	ECON 231 Principles of Microeconomics	3

* JCCC course has a prerequisite or corequisite.

It is the STUDENT'S RESPONSIBILITY to check for updates to all transfer information. This transfer guide is provided as a service and is updated as needed. Degree requirements at the four-year colleges are subject to change by those institutions. To ensure you have the most accurate up to date information about the program, it is imperative you meet with an advisor at the transfer institution.