

## Biomedical Engineering

### University of Missouri - Columbia

Johnson County Community College Transfer Program to the University of Missouri - Columbia	Engineering Advising Office
Engineering	(573) 884-6961
Biomedical Engineering, BS	muengradvising@missouri.edu
Academic Year 2025-2026	<a href="https://majors.missouri.edu/biomedicalengineering/">https://majors.missouri.edu/biomedicalengineering/</a>

#### Program Description

Biomedical engineering is a science-based engineering discipline that integrates engineering and biomedical sciences in one curriculum. The MU biomedical engineering program is a broad-based curriculum that prepares students for careers in traditional engineering as well as medicine, health professions, veterinary medicine, law, health care, policy, and academics. Biomedical engineering graduates are hired by biotechnology, medical, and pharmaceutical companies, as well as by government agencies and major research laboratories. Many of our undergraduate students attend graduate, medical, or law schools post-graduation. 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; many additionally take the MCAT, the LSAT, and the GRE in preparation for their graduate or professional studies.

**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 biomedical engineering principles and design. In a capstone design course sequence, each student completes a design project under the direction of a faculty mentor. Technical electives allow students to place emphasis on biomaterials, biomechanics, bioinformatics, and biomedical imaging and instrumentation. Students earning a Bachelor of Science in Biomedical Engineering are required to complete all University general education, University graduation requirements (<https://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>), degree, and major requirements, including selected foundational courses, which may fulfill some University general education requirements. All pre-requisites required for Basic Engineering, Biomedical Engineering, and Technical Elective courses must be completed with a grade of "C-" or better. Courses designated a core biomedical engineering course must be completed with a grade of "C-" or better.

Visit the JCCC/MU General Education guide (<https://www.jccc.edu/student-resources/transfer/files/transfer-guides/mu-gen-ed-reqs.pdf>) for equivalent courses.

## Admission Requirements

**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 visit the MU Office of International Admissions (<https://admissions.missouri.edu/international-students/>) for information on academic and English language admission requirements. Any questions regarding international student admissions can be directed to that office at [inter@missouri.edu](mailto: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.

## Program Requirements

Course Code Code	Course Title Title	Course Hours	Transfer Code Hours	Transfer Title	Transfer Hours
<b>Mathematics and Statistics – 19 hours</b>					
MATH 241	Calculus I*	5	MATH 1500 & MATH 1500H	Analytic Geometry/ Calculus I and Analytic Geometry Calc I	5
MATH 242	Calculus II*	5	MATH 1700	Calculus II	5
MATH 243	Calculus III*	5	MATH 2300	Calculus III	
MATH 254	Differential Equations*	4	MATH 4100	Differential Equations	
<b>Basic Sciences – 29 hours</b>					
BIOL 135	Principles of Cell and Molecular Biology	4	BIO_SC 1500	Introduction to Biological Systems with Laboratory	
CHEM 124 & CHEM 125	General Chemistry I Lecture* and General Chemistry I Lab*	4	CHEM 1400 & CHEM 1401	College Chemistry I and College Chemistry I Lab	1
CHEM 220	Organic Chemistry I*	5	CHEM 2100	Organic Chemistry I	
PHYS 220	Engineering Physics I*	5	PHYSICS 2750	University Physics I	5
PHYS 221	Engineering Physics II*	5	PHYSICS 2760	University Physics	5
<b>History – 3 hours</b>					
HIST 140	U.S. History to 1877	3	HIST 1100	Survey/Amer History to 1865	3
HIST 141	U.S. History Since 1877	3	HIST 1200	Survey/Amer History since 1865	3

POLS 124	American National Government	3	POL_SC 1100	American Government	3
POLS 126	State and Local Government	3	POL_SC 2100	State Government	
<b>Ethics – 3 hours</b>					
PHIL 155	Bioethics*	3	PHIL 1150	Introductory Bioethics	3
<b>Engineering Graphics</b>					
ENGR 131	Engineering Graphics I:AutoCAD*	4	ENGINR 1100	Engineering Graphics Fundamentals	
<b>Basic Engineering – 18 hours</b>					
ENGR 121	Engineering Orientation	2	ENGINR 1000	Introduction to Engineering	
ENGR 251	Statics*	3	ENGINR 1200	Statics and Elementary Strength of Materials	
ENGR 254	Dynamics* )	3	MAE 2600	Dynamics (Biomechanics Track	
ENGR 284	Thermodynamics*	4	ENGINR 2300	Engineering Thermodynamics	
<b>Biomedical Engineering Core – 17 hours</b>					
CS 134	Programming Fundamentals (Bioinformatics Track)	4	INFOTC 1040	Introduction to Problem Solving and Programming	
<b>Additional Requirements</b>					
ECON 231	Principles of Microeconomics	3	ECONOM 1014 & ECONOM 4	Principles of Economics and Principles of Microeconomics	3

\* JCCC course has a prerequisite or corequisite.

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