



Johnson County Community College  
**Academic Program Map for Transfer**  
**University of Missouri-Kansas City**  
**School of Science and Engineering**  
**Division of Biological and Biomedical Systems**  
**2023-2024 Catalog**

Contact: School of Science &  
Engineering  
Phone: 816-235-2399  
Email: [sse@umkc.edu](mailto:sse@umkc.edu)  
Homepage:  
<https://sse.umkc.edu>

The Associate of Science degree (A.S.) at JCCC is designed as a transfer degree. Student pursuing the A.S. may select courses that satisfy both the A.S. degree requirements and lower-division requirements for a bachelor's degree at four-year institutions. The 27 credit hours of electives within the A.S. allows students to complete additional general education and lower division courses required for specific majors. The A.S. degree requires the completion of 60 credit hours; please see [JCCC A.S. degree requirements](#). **Meeting with a JCCC counselor is strongly recommended for the selection of appropriate courses.**

The Division of Biological and Biomedical Systems at UMKC offers the following degrees:

- Bachelor of Arts
  - [Biology](#)
- Bachelor of Science
  - [Biology](#)
    - Emphasis Areas
      - [Bioinformatics](#)
      - [Biomedical Sciences](#)
      - [Biotechnology](#)
      - [Clinical Laboratory Science](#)
  - [Biomedical Engineering](#)

All UMKC undergraduate degrees require at least 120 credit hours, some programs may require more hours. Students must complete at least 30 credit hours at UMKC and at least 12 upper-division credit hours in their major department/program at UMKC to be eligible to receive an undergraduate degree from UMKC.

#### **General UMKC Transfer Admission Requirements**

- 2.0 or higher cumulative GPA

\*Credit/no credit may only be applied to elective coursework and will not apply towards UMKC's general education core or major requirements. *(UMKC did allow Credit/No-credit or Pass/Fail for Spring 2020 coursework. Please see the specific program for transfer guidelines.)*

- Equivalent courses can be repeated but all grades will be averaged for GPA calculation purposes and students will only receive credit for one attempt
- Full transfer admission requirements can be found at: <https://www.umkc.edu/transfer/apply.html>

#### **School of Science and Engineering Transfer Admission Requirements**

- 2.0 or higher GPA
- School of Science & Engineering admission requirements vary by major. Please visit <https://sse.umkc.edu/admissions/transfer-students.html> to read about the requirements for your program.

#### **General Education Requirements for Transfer students:**

All UMKC undergraduate students complete general education requirements. Completing an Associate of Arts (A.A.) degree or the Associate of Science (A.S.) in General Sciences at JCCC will satisfy all general education requirements at UMKC, including the Constitution requirement. The A.S. is a better option for most students wanting to transfer into SSE. JCCC students transferring to UMKC without completing the A.A. or A.S. will have the option to elect to complete either the UMKC Essentials or the Missouri Transfer (MOTR) Core 42 curriculum to meet general education requirements.

**^To learn more about these two options and UMKC general education requirements, including how transfer coursework applies to specific general education requirements, please refer to <https://www.jccc.edu/student-resources/academic-counseling/transfer/files/transfer-guides/umkc-general-education.pdf>**

**BIOLOGY REQUIRED CLASSES –****All Biological Sciences majors can complete the following courses at JCCC:**

<b>Major/Course</b>	<b>UMKC Course</b>	<b>JCCC Course</b>	<b>Req. Fulfilled</b>
General Biology I with Lab ** (or MOTRBIOL 110LB)	BIOLOGY 108 & 108L (or MOTRBIOL 100LB)	BIOL 135 Principles of Cell and Molecular Biology	Major Req Gen Edu^
General Biology II with Lab** (or MOTRBIOL 100LZ)	BIOLOGY 109 & 109L (or MOTRBIOL 100LZ)	BIOL 150 Biology of Organisms*	Major Req
Genetics**	BIOLOGY 206	BIOL 205 General Genetics*	Major Req
General Chemistry I with Lab**	CHEM 211 AND CHEM 211L	CHEM 124 General Chemistry I* AND CHEM 125 General Chemistry I Lab*	Major Req Gen Edu^
General Chemistry II with Lab**	CHEM 212R AND CHEM 212LR	CHEM 131 General Chemistry II* AND CHEM 132 General Chemistry II Lab*	Major Req
Pre-Calculus**	MATH 120	MATH 173 Precalculus*	Gen Edu^
<b>Biology (BA)</b>			
Calculus I** OR Elementary Statistics**	MATH 210 OR STAT 235	MATH 241 Calculus I* OR MATH 181 Statistics*	Major Req
General Physics I** OR Physics for Scientists & Engineers I**	PHYSICS 210 OR PHYSICS 240	PHYS 130 College Physics I* OR PHYS 220 Engineering Physics I*	Major Req Gen Edu^
<b>Biology (BS) Student must complete additional biology majors coursework for a total of 42 credit hours of biology courses with grades of "C-" or better. 26 of these hours must be 300-400 level. A minimum of 21 credit hours of biology courses must be taken from BIOLOGY or LIFE-SCI coursework at UMKC. The UM Biology GPA must be at least 2.0.</b>			
Organic Chemistry I** with Lab**	CHEM 321 AND CHEM 321L	CHEM 220 Organic Chemistry I*	Major Req
Organic Chemistry II** with Lab**	CHEM 322R AND CHEM 322L	CHEM 221 Organic Chemistry II*	Major Req
Calculus I**	MATH 210	MATH 241 Calculus I*	Major Req
Calculus II** OR Elementary Statistics**	MATH 220 OR STAT 235	MATH 242 Calculus II* OR MATH 181 Statistics*	Major Req
General Physics I** OR Physics for Scientists & Engineers I**	PHYSICS 210 OR PHYSICS 240	PHYS 130 College Physics I* OR PHYS 220 Engineering Physics I*	Major Req Gen Edu^
General Physics II** OR Physics for Scientists & Engineers II**	PHYSICS 220 OR PHYSICS 250	PHYS 131 College Physics II* OR PHYS 221 Engineering Physics II*	Major Req
<b>Biology – Bioinformatics Emphasis (BS)</b>			
Problem Solving & Programming I** with Lab**	COMP-SCI 101 AND COMP-SCI 101L	CS 200 Concepts of Programming Algorithms Using C++*	Major Req
Discrete Structures I**	COMP-SCI 191	CS 210 Discrete Structures I*	Major Req
Problem Solving & Programming II** with Lab**	COMP-SCI 201R AND COMP-SCI 201L	CS 235 Object-Oriented Programming Using C++*	Major Req
Data Structures	COMP-SCI 303	CS 250 Basic Data Structures using C++*	Major Req
Elementary Statistics**	STAT 235	MATH 181 Statistics*	Major Req
Calculus I**	MATH 210	MATH 241 Calculus I*	Major Req
Calculus II**	MATH 220	MATH 242 Calculus II*	Major Req
<b>Biology – Biomedical Science Emphasis (BS) Requires a supplemental application. Student must complete additional biology majors coursework for a total of 42 credit hours of biology courses with grades of "C-" or better. 26 of these hours must be 300-400 level. A minimum of 21 credit hours of biology courses must be taken from BIOLOGY or LIFE-SCI coursework at UMKC. The UM Biology GPA must be at least 2.0.</b>			
Intro. Anatomy** with Lab**	BIOLOGY 218 & 218L	BIOL 140 Human Anatomy	Major Req
Organic Chemistry I** with Lab**	CHEM 321 AND CHEM 321L	CHEM 220 Organic Chemistry I*	Major Req
Organic Chemistry II** with Lab**	CHEM 322R AND CHEM 322L	CHEM 221 Organic Chemistry II*	Major Req
Medical Terminology	HLSC/NURSE 125	HC 130 Medical Terminology for Healthcare Professions	Major Req

<b>Biology – Biomedical Science Emphasis (BS) cont.</b>			
Calculus I**	MATH 210	MATH 241 Calculus I*	Major Req
Calculus II** <b>OR</b> Elementary Statistics**	MATH 220 <b>OR</b> STAT 235	MATH 242 Calculus II* <b>OR</b> MATH 181 Statistics*	Major Req
General Physics I** <b>OR</b> Physics for Scientists & Engineers I**	PHYSICS 210 <b>OR</b> PHYSICS 240	PHYS 130 College Physics I* <b>OR</b> PHYS 220 Engineering Physics I*	Major Req Gen Edu^
General Physics II** <b>OR</b> Physics for Scientists & Engineers II**	PHYSICS 220 <b>OR</b> PHYSICS 250	PHYS 131 College Physics I* <b>OR</b> PHYS 221 Engineering Physics II*	Major Req
<b>Biology – Biotechnology Emphasis (BS)</b>			
Introduction to Financial Accounting	ACCTNG 210	ACCT 121 Accounting I <b>AND</b> ACCT 122 Accounting II*	Major Req
Problem Solving & Programming I** with Lab**	COMP-SCI 101 <b>AND</b> COMP-SCI 101L	CS 200 Concepts of Programming Algorithms Using C++*	Major Req
Elementary Statistics**	STAT 235	MATH 181 Statistics*	Major Req
Calculus I**	MATH 210	MATH 241 Calculus I*	Major Req
Calculus II**	MATH 220	MATH 242 Calculus II*	Major Req
<b>Biology – Clinical Laboratory Science Emphasis (BS)</b>			
Calculus I** <b>OR</b> Elementary Statistics**	MATH 210 <b>OR</b> STAT 235	MATH 241 Calculus I* <b>OR</b> MATH 181 Statistics*	Major Req
General Physics I**	PHYSICS 210	PHYS 130 College Physics I*	Major Req Gen Edu^
General Physics II**	PHYSICS 220	PHYS 131 College Physics II*	Major Req
<b>Biomedical Engineering (BS)</b>			
Intro. Anatomy	BIOLOGY 218	BIOL 140 Human Anatomy	Elective
Physics for Scientists & Engineers I	PHYSICS 240	PHYS 220 Engineering Physics I*	Major Req
Physics for Scientists & Engineers II	PHYSICS 250	PHYS 221 Engineering Physics II*	Major Req
Calculus I	MATH 210	MATH 241 Calculus I*	Major Req
Calculus II	MATH 220	MATH 242 Calculus II*	Major Req
Calculus III	MATH 250	MATH 243 Calculus III*	Major Req
Ordinary Differential Equations	MATH 345	MATH 254 Differential Equations*/***	Major Req
General Chemistry I with Lab	CHEM 211 <b>AND</b> CHEM 211L	CHEM 124 General Chemistry I* <b>AND</b> CHEM 125 General Chemistry I Lab*	Major Req
General Chemistry II with Lab**	CHEM 212R <b>AND</b> CHEM 212LR	CHEM 131 General Chemistry II* <b>AND</b> CHEM 132 General Chemistry II Lab*	Major Req
Engineering Statics	CIV-ENGR 275	ENGR 251 Statics*	Major Req
Engineering Dynamics	MEC-ENGR 285	ENGR 254 Dynamics*	Major Req
General Biology I with Lab** (or MOTRBIOL 110LB)	BIOLOGY 108 & 108L (or MOTRBIOL 100LB)	BIOL 135 Principles of Cell and Molecular Biology	Major Req Gen Edu^
Engineering Computation	E&C-ENGR 216	CS 200 Concepts of Programming Algorithms Using C++*	Major Req

\*JCCC course has a prerequisite or corequisite.

\*\* Denotes courses that must be completed with a grade of “C-“ or above.

\*\*\*Meets the requirement for the engineering degree, but will not count towards a major or minor in Math.

**It is the STUDENT’S RESPONSIBILITY to check for updates to all transfer information. This academic program map for transfer 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.**