



Johnson County Community College
Transfer Program to the University of Missouri-Kansas City
School of Science and Engineering
Division of Energy, Matter, and Systems
2023-2024 Catalog

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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 Energy, Matter, and Systems at UMKC offers the following degrees:

- Bachelor of Arts:
 - [Chemistry](#)
 - [Physics](#)
- Bachelor of Science
 - [Electrical and Computer Engineering](#)
 - [Chemistry](#)
 - [Physics](#)
 - [Physics with Astronomy Emphasis](#)
 - [Mechanical 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

- 2.25 or higher cumulative GPA (Students between 2.0-2.24 will have the opportunity to petition. Please contact Nate Jacobs in UMKC Admissions for the full policy).

*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

- 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>

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.

Major/Course	UMKC Course	JCCC Course	Req. Fulfilled
Chemistry (BA)			
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
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
Precalculus Algebra** OR Precalculus**	MATH 110 OR MATH 120	MATH 171 College Algebra* OR MATH 173 Pre-Calculus*	Major Req ^Gen Edu
Calculus I** OR Elementary Statistics**	MATH 210 OR STAT 235	MATH 241 Calculus I* OR 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
Physics (BA)			
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
Precalculus	MATH 120	MATH 173 Precalculus*	Major Pre-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
General Physics I AND General Physics II	PHYSICS 210 AND PHYSICS 220	PHYS 130 College Physics I* AND PHYS 131 College Physics II*	Major Req
Physics for Scientists & Engineers I AND Physics for Scientists & Engineers II	PHYSICS 240 AND PHYSICS 250	PHYS 220 Engineering Physics I* AND PHYS 221 Engineering Physics II*	Major Req
Electrical and Computer Engineering (BS) – A minimum of “C” or better in E&C – ENGR coursework is recommended.			
Calculus I	MATH 210	MATH 241 Calculus I*	Major Req
Calculus II	MATH 220	MATH 242 Calculus II*	Major Req
Applied Engineering Analysis I	E&C-ENGR 241	MATH 243 Calculus III* AND MATH 254 Differential Equations*	Major Req
Physics for Scientists and Engineers I	PHYSICS 240	PHYS 220 Engineering Physics I*	Major Req
Physics for Scientists and Engineers II	PHYSICS 250	PHYS 221 Engineering Physics II**	Major Req
Biology and Living AND Biology and Living Lab OR General Chemistry I with Lab	BIOLOGY 102 OR CHEM 211/211L	BIOL 121 Introductory Biology for Non-Majors OR CHEM 124/125 General Chemistry I*/Lab*	Major Req
Engineering Computation	E&C-ENGR 216	CS 200 Concepts of Programming Algorithms Using C++*	Major Req
Chemistry (BS)			
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
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
Precalculus**	MATH 120	MATH 173 Precalculus*	Major Req ^Gen Edu
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

Chemistry (BS) cont.			
Physics for Scientists & Engineers I** OR General Physics I**	PHYSICS 240 OR PHYSICS 210	PHYS 220 Engineering Physics I* OR PHYS 130 College Physics I*	Major Req
Physics for Scientists and Engineers II** OR General Physics II**	PHYSICS 250 OR PHYSICS 220	PHYS 221 Engineering Physics II* OR PHYS 131 College Physics II*	Major Req
Physics (BS)			
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
Precalculus	MATH 120	MATH 173 Precalculus*	Major Pre-req ^Gen Edu
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
Physics for Scientists & Engineers I AND Physics for Scientists & Engineers II	PHYSICS 240 AND PHYSICS 250	PHYS 220 Engineering Physics I* AND PHYS 221 Engineering Physics II*	Major Req
Physics with Astronomy Emphasis (BS)			
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
Precalculus	MATH 120	MATH 173 Precalculus*	Major Pre-req ^Gen Edu
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
Problem Solving & Prog. I	COMP-SCI 101	CS 200 Concepts of Programming Algorithms Using C++*	Major Req
Physics for Scientists & Engineers I AND Physics for Scientists & Engineers II	PHYSICS 240 AND PHYSICS 250	PHYS 220 Engineering Physics I* AND PHYS 221 Engineering Physics II*	Major Req
Mechanical Engineering (BS)			
Physics for Scientists and Engineers I	PHYSICS 240	PHYS 220 Engineering Physics I*	Major Req
Physics for Scientists and 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 AND CHEM 211L	CHEM 124 General Chemistry I* AND CHEM 125 General Chemistry I Lab*	Major Req
Engineering Statics	CIV-ENGR 275	ENGR 251 Statics*	Major Req
Engineering Dynamics	MEC-ENGR 285	ENGR 254 Dynamics*	Major Req
Engineering Computation	E&C-ENGR 216	CS 200 Concepts of Programming Algorithms Using C++*	Major Req
Elementary Statistics OR Linear Algebra	STAT 235 OR MATH 300	MATH 181 Statistics* OR MATH 246 Elementary Linear Algebra*/***	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.