Division of Energy, Matter, and Systems

University of Missouri - Kansas City

Johnson County Community College Transfer Program to the University of Missouri - Kansas City	School of Science & Engineering
School of Science and Engineering	816-235-2399
Division of Energy, Matter, and Systems	sse@umkc.edu
Academic Year 2025-2026	https://sse.umkc.edu

Program Description

Students interested in UMKC's Engineering programs need to work closely with advisors at both JCCC and UMKC. This helps students stay on track and not prolong the time it takes to earn an engineering bachelor's degree from UMKC. Students are advised to complete the JCCC Associate of Science requirements, and the prerequisite courses listed on the transfer guide. Students are also encouraged to use the ***Reverse Transfer*** *option (if eligible) after transferring to UMKC.* ***Reverse Transfer*** *allows students to earn their associate degree from JCCC while working towards their bachelor's degree at UMKC.*

The Associate of Science, AS (https://catalog.jccc.edu/archives/2025-26/degreerequirements/associate-science/) at JCCC is a general transfer degree and partners well with the first two years of most bachelor degree programs. Students pursuing the AS may select courses that satisfy both the AS degree requirements and lower division requirements for a bachelor's degree at four-year institutions. The elective hours within the AS allow students to complete additional general education and lower division courses required for specific majors. The AS degree requires completion of 60 credit hours. Meeting with a JCCC counselor (https://www.jccc.edu/student-resources/counseling/academic-counseling/) is strongly recommended for selection of appropriate courses.

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

- Bachelor of Arts:
  - Chemistry (https://catalog.umkc.edu/colleges-schools/science-engineering/chemistry/bachelor-of-arts/)
  - Physics (https://catalog.umkc.edu/colleges-schools/science-engineering/physics-astronomy/physics-ba/)
- Bachelor of Science
  - Electrical and Computer Engineering (https://catalog.umkc.edu/colleges-schools/science-engineering/electrical-computer-engineering/bachelor-of-science-electrical-computer-engineering/)
  - Chemistry (https://catalog.umkc.edu/colleges-schools/science-engineering/chemistry/bachelor-of-science/)
  - Physics (https://catalog.umkc.edu/colleges-schools/science-engineering/physics-astronomy/physics-bs/)
  - Physics with Astronomy Emphasis (https://catalog.umkc.edu/colleges-schools/science-engineering/physics-astronomy/physics-bs-astro-emph/)
  - Mechanical Engineering (https://catalog.umkc.edu/colleges-schools/science-engineering/mechanical-engineering/bachelor-of-science-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.

2025-26 Catalog

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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.
- Equivalent courses can be repeated but all grades will be averaged for GPA calculation purposes and students will only receive credit for one attempt
- Visit the full transfer admission requirements (https://www.umkc.edu/transfer/apply.html) for more information.

School of Science and Engineering Transfer Admission Requirements

- Visit the School of Science & Engineering (https://sse.umkc.edu/admissions/transfer-students.html) admission requirements by major.

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 (https://nam12.safelinks.protection.outlook.com/?url=http%3A%2F%2Fnextcatalog.jccc.edu%2Ftransfer-guides%2Fumkc%2Fumkc-general-education%2F&data=05%7C02%7Cskhalif2%40jccc.edu%7C3bbbe8fc84564328cf7008de1320415e%7C15244239dcf245e7aefd127b69fc5438%7C1%7C0%7C638969226426393815%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=%2FvPga7IbeZ0jrCCeMsWei47YJU4Mi5k%2B50ooxjEZup4%3D&reserved=0).

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 information about the program, you must meet with an advisor at the transfer institution.

Chemistry (BA)

Course Code	Course Title	Course Hours	Transfer Code	Transfer Title	Transfer Hours
Code	**Title**	**Hours**			
CHEM 124 & CHEM 125	General Chemistry I Lecture* and General Chemistry I Lab*	4	CHEM 211 & CHEM 211L	General Chemistry I and Experimental Gen Chemistry I	1
CHEM 131 & CHEM 132	General Chemistry II Lecture* and General Chemistry II Lab*	4	CHEM 212R & CHEM 212LR	General Chemistry II and Experimental Gen Chemistry II	1
CHEM 220	Organic Chemistry I*	5	CHEM 321	Organic Chemistry I	3
CHEM 221	Organic Chemistry II*	5	CHEM 322R	Organic Chemistry II	3
Select one of the following:					
MATH 171	College Algebra*	3	MATH 110	"Math, Its Form and Impact"	3
MATH 173	Precalculus*	5	MATH 120	Precalculus	5
Select one of the following:					
MATH 241	Calculus I*	5	MATH 210	Calculus I	4
MATH 161	Elementary Statistics*	3	UMKC STAT 115		
PHYS 130	College Physics I*	5	PHYSICS 210	General Physic I	4
PHYS 131	College Physics II*	5	PHYSICS 220	General Physics II	4

Physics (BA)

Course Code	Course Title	Course Hours	Transfer Code	Transfer Title	Transfer Hours
Code	**Title**	**Hours**			
CHEM 124 & CHEM 125	General Chemistry I Lecture* and General Chemistry I Lab*	4	CHEM 211 & CHEM 211L	General Chemistry I and Experimental Gen Chemistry I	1
MATH 173	Precalculus*	5	MATH 120	Precalculus	5
MATH 241	Calculus I*	5	MATH 210	Calculus I	4
MATH 242	Calculus II*	5	MATH 220	Analytic Geometry Calc I	4
MATH 243	Calculus III*	5	MATH 250 Calculus III		
PHYS 130	College Physics I*	5	PHYSICS 210	General Physic I	4
PHYS 131	College Physics II*	5	PHYSICS 220	General Physics II	4
PHYS 220	Engineering Physics I*	5	PHYSICS 240	Physics Scientist/ Engineers I	5
PHYS 221	Engineering Physics II*	5	PHYSICS 250	Physics Scientist/ Engineers II	5

Electrical and Computer Engineering (BS) – A minimum of “C” or better in E&C – ENGR coursework is required.

Course Code	Course Title	Course Hours	Transfer Code	Transfer Title	Transfer Hours
Code	**Title**	**Hours**			
Select one of the following:					
BIOL 121	Introductory Biology for Non-Majors	4	BIOL 102 & BIOLOGY 102	Lab Experiences in Biology and Biology and Living	3
CHEM 124 & CHEM 125	General Chemistry I Lecture* and General Chemistry I Lab*	4	CHEM 211 & CHEM 211L	General Chemistry I and Experimental Gen Chemistry I	1
CS 200	Concepts of Programming Algorithms Using C++*	4	COMP SCI 201L & COMP SCI 201R	Prblm Slvng/Prgrmmng II Lab and Prblm Slvng/ Prgmmng II	3
MATH 241	Calculus I*	5	MATH 210	Calculus I	4
MATH 242	Calculus II*	5	MATH 220	Analytic Geometry Calc I	4
MATH 243	Calculus III*	5	EC-ENGR 241 Applied Engineering Analysis I		
MATH 254	Differential Equations*	4	MATH 345	Ordinary Differential Equation	4
PHYS 220	Engineering Physics I*	5	PHYSICS 240	Physics Scientist/ Engineers I	5
PHYS 221	Engineering Physics II*	5	PHYSICS 250	Physics Scientist/ Engineers II	5

Chemistry (BS)

Course Code	Course Title	Course Hours	Transfer Code	Transfer Title	Transfer Hours
Code	**Title**	**Hours**			
CHEM 124 & CHEM 125	General Chemistry I Lecture* and General Chemistry I Lab*	4	CHEM 211 & CHEM 211L	General Chemistry I and Experimental Gen Chemistry I	1

CHEM 131 & CHEM 132	General Chemistry II Lecture* and General Chemistry II Lab*	4	CHEM 212R & CHEM 212LR	General Chemistry II and Experimental Gen Chemistry II	1
CHEM 220	Organic Chemistry I*	5	CHEM 321	Organic Chemistry I	3
CHEM 221	Organic Chemistry II*	5	CHEM 322R	Organic Chemistry II	3
MATH 173	Precalculus*	5	MATH 120	Precalculus	5
MATH 241	Calculus I*	5	MATH 210	Calculus I	4
MATH 242	Calculus II*	5	MATH 220	Analytic Geometry Calc I	4
MATH 243	Calculus III*	5	MATH 250 Calculus III**		
Select one of the following:					
PHYS 220	Engineering Physics I*	5	PHYSICS 240	Physics Scientist/ Engineers I	5
PHYS 130	College Physics I*	5	PHYSICS 210	General Physic I	4
Select one of the following:					
PHYS 221	Engineering Physics II*	5	PHYSICS 250	Physics Scientist/ Engineers II	5
PHYS 131	College Physics II*	5	PHYSICS 220	General Physics II	4

Physics (BS)

Course Code	Course Title	Course Hours	Transfer Code	Transfer Title	Transfer Hours
Code	**Title**	**Hours**			
CHEM 124 & CHEM 125	General Chemistry I Lecture* and General Chemistry I Lab*	4	CHEM 211 & CHEM 211L	General Chemistry I and Experimental Gen Chemistry I	1
CHEM 131 & CHEM 132	General Chemistry II Lecture* and General Chemistry II Lab*	4	CHEM 212R & CHEM 212LR	General Chemistry II and Experimental Gen Chemistry II	1
MATH 173	Precalculus*	5	MATH 120	Precalculus	5
MATH 241	Calculus I*	5	MATH 210	Calculus I	4
MATH 242	Calculus II*	5	MATH 220	Analytic Geometry Calc I	4
MATH 243	Calculus III*	5	MATH 250 Calculus III**		
PHYS 220	Engineering Physics I*	5	PHYSICS 240	Physics Scientist/ Engineers I	5
PHYS 221	Engineering Physics II*	5	PHYSICS 250	Physics Scientist/ Engineers II	5

Physics with Astronomy Emphasis (BS)

Course Code	Course Title	Course Hours	Transfer Code	Transfer Title	Transfer Hours
Code	**Title**	**Hours**			
CHEM 124 & CHEM 125	General Chemistry I Lecture* and General Chemistry I Lab*	4	CHEM 211 & CHEM 211L	General Chemistry I and Experimental Gen Chemistry I	1
Select one of the following:					
CS 200	Concepts of Programming Algorithms Using C++*	4	COMP-SCI 101 Problem Solving Prog. I**		
CS 202	Concepts of Programming Algorithms using Python*	4	COMP-SCI 101 Problem Solving Prog. I**		

CS 205	Concepts of Programming Algorithms using Java*	4	COMP-SCI 101 Problem Solving Prog. I**		
MATH 173	Precalculus*	5	MATH 120	Precalculus	5
MATH 241	Calculus I*	5	MATH 210	Calculus I	4
MATH 242	Calculus II*	5	MATH 220	Analytic Geometry Calc I	4
MATH 243	Calculus III*	5	MATH 250 Calculus III**		
PHYS 220	Engineering Physics I*	5	PHYSICS 240	Physics Scientist/ Engineers I	5
PHYS 221	Engineering Physics II*	5	PHYSICS 250	Physics Scientist/ Engineers II	5

Mechanical Engineering (BS)

Course Code	Course Title	Course Hours	Transfer Code	Transfer Title	Transfer Hours
Code	**Title**	**Hours**			
CHEM 124 & CHEM 125	General Chemistry I Lecture* and General Chemistry I Lab*	4	CHEM 211 & CHEM 211L	General Chemistry I and Experimental Gen Chemistry I	1
Select one of the following:					
CS 200	Concepts of Programming Algorithms Using C++*	4	MEC-ENGR 219 Computer Programming for Engineers**		
CS 202	Concepts of Programming Algorithms using Python*	4	MEC-ENGR 219 Computer Programming for Engineers**		
ENGR 251	Statics*	3	CIV-ENGR 275	Engineering Statics	3
ENGR 254	Dynamics*	3	MEC-ENGR 285 Engineering Dynamics **		
ENGR 284	Thermodynamics*	4	MEC-ENGR 299 Engineering Thermodynamics		
MATH 246	Elementary Linear Algebra*	3	MATH 300	Linear Algebra I	3
MATH 241	Calculus I*	5	MATH 210	Calculus I	4
MATH 242	Calculus II*	5	MATH 220	Analytic Geometry Calc I	4
MATH 243	Calculus III*	5	MATH 250 Calculus III**		
MATH 254	Differential Equations*	4	MATH 345	Ordinary Differential Equation	4
PHYS 220	Engineering Physics I*	5	PHYSICS 240	Physics Scientist/ Engineers I	5
PHYS 221	Engineering Physics II*	5	PHYSICS 250	Physics Scientist/ Engineers II	5

* 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.
^ While this course can be transferred from JCCC to UMKC, students who take it at UMKC will be eligible for upperlevel credit.

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