Johnson County Community College
Academic Program Map for Transfer to
University of Central Missouri
College of Health, Science, and Technology
Computer Science B.S. (Four options)
2023-2024 Catalog

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The Associate of Arts degree (A.A.) at JCCC is a general transfer degree and partners well with the first two years of most bachelor degree programs. Students who transfer to UCM with an Associate of Arts degree are considered to have met all 42 hours of UCM's General Education requirements, with the exception of Major/Minor-Required General Education courses and the Constitution Requirement. (See the UCM General Education Program guide for details.) The elective hours within the A.A. allow students to complete additional general education and lower division courses required for specific majors/minors.

Students who transfer to UCM without a degree (or a degree other than an AA) will have all coursework evaluated on a course-by-course basis. JCCC students not completing the AA degree should refer to the tables in the UCM General Education Program guide for course equivalents and also the UCM catalog for any specific or additional General Education requirements for their UCM program of study.

NOTE: Courses taken to fulfill General Education requirements may not be taken on the pass/fail basis.

Students should be cognizant of UCM's Upper-Level Course Requirement and Residence Requirement, especially if enrolling in more than 60 hours at JCCC. Please refer to the UCM General Education Program guide for details.

NOTE: The UCM General Education guide can be found at: https://www.jccc.edu/student-resources/academic-counseling/transfer/files/transfer-guides/ucmo-general-ed.pdf

There are four different Computer Science options at UCM:
- Computer Science Computer Networking Option, B.S.
- Computer Science Computer Science Option, B.S.
- Computer Science Game Development Option, B.S.
- Computer Science Software Development Option, B.S.
 Please refer to the following pages for course requirements for each option.

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.

COMPUTER SCIENCE MAJOR REQUIREMENTS FOR ALL OPTIONS – CORE (42 HOURS)
The 42 hours of Core courses required for the Computer Science BS are the same for all five options. A grade of "C" or better is required in all major coursework. The following courses have equivalent courses that can be taken at JCCC:

UCM Course	Hrs	JCCC Equivalents	Hrs
CS 1100 Computer Programming I	3	CS 200 Concepts of Programming Algorithms Using C++* **OR** CS 201 Concepts of Programming Algorithms using C#* **OR** CS 205 Concepts of Programming Algorithms using Java*	4 4 4
CS 2400 Discrete Structures	3	CS 210 Discrete Structures I*	3
CS 1110 Computer Programming II	3	^CS 236 Object-Oriented Programming Using C#*	4
CS 2300 Data Structures	3	CS 255 Basic Data Structures Using Java*	4
CS 3500 C and UNIX Environment	3	CIS 204 UNIX Scripting and Utilities*	3
CS 4600 Database Theory and Applications	3	CIS 260 Database Management*	4

COMPUTER NETWORKING OPTION

NOTE: The tables below show only courses with equivalent courses that may be taken at JCCC. For complete degree requirements for this option, please see Computer Science BS, Computer Networking Option in the UCM Catalog.

GENERAL EDUCATION REQUIREMENTS for COMPUTER NETWORKING OPTION – 39 semester hours:
All students must complete a minimum of 42 credit hours in general education. The following general education classes are required for this option:

UCM Course	Hrs	JCCC Equivalents	Hrs
CS 1000 Computers and Modern Society+	3	No equivalent	--
ACST 1300 Basic Statistics+	3	MATH 181 Statistics*	3
COMM 1000 Public Speaking	3	COMS 121 Public Speaking **OR**	3
		COMS 125 Personal Communication	3

42 HOURS OF CORE FOR THE COMPUTER SCIENCE MAJOR (see page 1)

COMPUTER NETWORKING OPTION ELECTIVES
(Total of 27 semester hours from the two elective categories below as specified) A grade of "C" or better is required.

UCM Course	Hrs	JCCC Equivalents	Hrs
Electives from the following: 12-21 semester hours required			
CS 4130 Server-Side Web Programming	3	CIS 275 Web-Enabled Database Programming*	4
NET 1060 Introduction to Networks	3	IT 141 Introduction to Networks	3
NET 1061 Switching, Routing, & Wireless Essentials	3	IT 150 Switching, Routing, and Wireless Essentials*	3
Electives from the following: 6-15 semester hours required			
CS 1030 Python Programming I	3	CIS 142 Beginning Programming using Python **OR**	4
		CS 134 Programming Fundamentals	4
CS 4110 Mobile Applications Programming with Android	3	CIS 208 Mobile Application Development* **OR**	4
		GAME 255 Mobile Game Programming*	4
CS 4120 Advanced Applications Programming in Java	3	CIS 240 Advanced Topics in Java*	4
CS 3110 Applications Programming in C# and .NET	3	^CS 236 Object-Oriented Programming Using C#*	4
CS 4000 Special Problems in Computer Science	3	GAME 242 Agile Game Development*	3
CYBR 4840 Ethical Hacking	3	IT 239 Ethical Hacking*	3
CS 4020 Internship	3	IT 271 Information Technology Internship I* **OR**	3
		IT 272 Information Technology Internship II*	3

FREE ELECTIVES: 10-12 Semester Hours
Free choice elective hours may vary depending on transfer coursework and course selection at UCM.
Students must take at least 30 upper-level (3000-4000) hours to graduate. Courses taken at JCCC that articulate to upper-level UCM courses do not count towards upper-level hours.

*JCCC course has a pre-requisite or co-requisite.
^JCCC CS 236 is equivalent to CS 1110 or CS 3110.
+Course requires a grade of "C" or better.

COMPUTER SCIENCE OPTION

NOTE: The tables below show only courses with equivalent courses that may be taken at JCCC. For complete degree requirements for this option, please see Computer Science BS, Computer Science Option in the UCM Catalog.

GENERAL EDUCATION REQUIREMENTS for COMPUTER SCIENCE OPTION – 30-34 semester hours:

All students must complete a minimum of 42 credit hours in general education. The following general education classes are required for this option:

UCM Course	Hrs	JCCC Equivalents	Hrs
CS 1000 Computers and Modern Society+	3	No equivalent	--
COMM 1000 Public Speaking	3	COMS 121 Public Speaking **OR**	3
		COMS 125 Personal Communication	3

42 HOURS OF CORE FOR THE COMPUTER SCIENCE MAJOR (see page 1)

COMPUTER SCIENCE OPTION

(Total of 32-35 semester hours from the categories below as specified) A grade of "C" or better is required.

UCM Course	Hrs	JCCC Equivalents	Hrs
MATH 1151 Calculus I	5	MATH 241 Calculus I*	5
Electives from the following: 7-9 semester hours required			
MATH 1152 Calculus II	5	MATH 242 Calculus II*	5
MATH 2153 Calculus III	3	MATH 243 Calculus III*	5
Electives from the following: 8-9 semester hours required – *Science electives must be from two different prefixes*			
CHEM 1131 General Chemistry I	5	CHEM 124 General Chemistry I* **AND**	4
		CHEM 125 General Chemistry I Lab*	1
BIOL 1004 Introduction to the Sciences: Ecology	4	EVRN 130/131 Environmental Science/Lab*	3/1
BIOL 1005 Introduction to Environmental Science	3	EVRN 130 Environmental Science	3
AND BIOL 1006 Environmental Science/Ecology Lab	1	No equivalent	--
GEOS 1004 Introduction to Geology	4	GEOS 130 General Geology	5
GEOS 1114 Weather and Climate	4	No equivalent	--
PHYS 1101 College Physics I	4	PHYS 130 College Physics I*	5
Electives from the following: 9 semester hours required			
CS 4110 Mobile Applications Programming with Android	3	CIS 208 Mobile Application Development* **OR**	4
		GAME 255 Mobile Game Programming*	4
CS 3110 Applications Programming in C# and .NET	3	^CS 236 Object-Oriented Programming Using C#*	4
CS 4120 Advanced Applications Programming in Java	3	CIS 240 Advanced Topics in Java*	4
CS 4130 Server-Side Web Programming	3	CIS 275 Web-Enabled Database Programming*	4
CS 4000 Special Problems in Computer Science	3	GAME 242 Agile Game Development*	3
CYBR 4840 Ethical Hacking	3	IT 239 Ethical Hacking*	3
CS 4020 Internship	3	IT 271 Information Technology Internship I* **OR**	3
		IT 272 Information Technology Internship II*	3

FREE ELECTIVES: 9-16 Semester Hours**.** Free choice elective hours may vary depending on transfer coursework and course selection at UCM. Students must take at least 30 upper-level (3000-4000) hours to graduate. Courses taken at JCCC that articulate to upper-level UCM courses do not count towards upper-level hours.

*JCCC course has a pre-requisite or co-requisite.
^JCCC CS 236 is equivalent to CS 1110 or CS 3110.
+Course requires a grade of "C" or better.

GAME DEVELOPMENT OPTION

NOTE: The tables below show only courses with equivalent courses that may be taken at JCCC. For complete degree requirements for this option, please see Computer Science BS, Game Development Option in the UCM Catalog.

GENERAL EDUCATION REQUIREMENTS for GAME DEVELOPMENT OPTION – 39 semester hours:

All students must complete a minimum of 42 credit hours in general education. The following general education classes are required for this option:

UCM Course	Hrs	JCCC Equivalents	Hrs
CS 1000 Computers and Modern Society+	3	No equivalent	--
ACST 1300 Basic Statistics+	3	MATH 181 Statistics*	3
COMM 1000 Public Speaking	3	COMS 121 Public Speaking **OR**	3
		COMS 125 Personal Communication	3

42 HOURS OF CORE FOR THE COMPUTER SCIENCE MAJOR (see page 1)

GAME DEVELOPMENT OPTION – 27 Semester Hours – A grade of "C" or better is required.

UCM Course	Hrs	JCCC Equivalents	Hrs
Required Courses: 15 Semester Hours			
CS 3110 Applications Programming in C# and .NET	3	^CS 236 Object-Oriented Programming Using C#*	4
CS 2820 Game Programming	3	GAME 121 Game Programming I* **AND**	4
		GAME 221 Game Programming II*	4
Electives from the following: 12 semester hours required			
CS 1030 Python Programming I	3	CIS 142 Beginning Programming using Python **OR** CS 134 Programming Fundamentals	4 / 4
CS 4110 Mobile Applications Programming with Android	3	CIS 208 Mobile Application Development* **OR** GAME 255 Mobile Game Programming*	4 / 4
CS 4120 Advanced Applications Programming in Java	3	CIS 240 Advanced Topics in Java*	4
CS 4130 Server-Side Web Programming	3	CIS 275 Web-Enabled Database Programming*	4
CS 4000 Special Problems in Computer Science	3	GAME 242 Agile Game Development*	3
CYBR 4840 Ethical Hacking	3	IT 239 Ethical Hacking*	3
CS 4020 Internship	3	IT 271 Information Technology Internship I* **OR** IT 272 Information Technology Internship II*	3 / 3

FREE ELECTIVES: 10-12 Semester Hours.

Free choice elective hours may vary depending on transfer coursework and course selection at UCM.

Students must take at least 30 upper-level (3000-4000) hours to graduate. Courses taken at JCCC that articulate to upper-level UCM courses do not count towards upper-level hours.

^JCCC CS 236 is equivalent to CS 1110 or CS 3110.

*JCCC course has a pre-requisite or co-requisite.

+Course requires a grade of "C" or better.

SOFTWARE DEVELOPMENT OPTION

NOTE: The tables below show only courses with equivalent courses that may be taken at JCCC. For complete degree requirements for this option, please see Computer Science BS, Software Development Option in the UCM Catalog.

GENERAL EDUCATION REQUIREMENTS for SOFTWARE DEVELOPMENT OPTION – 39 semester hours:

All students must complete a minimum of 42 credit hours in general education. The following general education classes are required for this option:

UCM Course	Hrs	JCCC Equivalents	Hrs
CS 1000 Computers and Modern Society+	3	No equivalent	--
ACST 1300 Basic Statistics+	3	MATH 181 Statistics*	3
COMM 1000 Public Speaking	3	COMS 121 Public Speaking **OR**	3
		COMS 125 Personal Communication	3

42 HOURS OF CORE FOR THE COMPUTER SCIENCE MAJOR (see page 1)

SOFTWARE DEVELOPMENT OPTION ELECTIVES (Total of 27 semester hours from the two elective categories below as specified)

UCM Course	Hrs	JCCC Equivalents	Hrs
Electives from the following: 12-24 semester hours required			
CS 3110 Applications Programming in C# and .NET	3	^CS 236 Object-Oriented Programming Using C#*	4
CS 4120 Advanced Applications Programming in Java	3	CIS 240 Advanced Topics in Java*	4
CS 4130 Server-Side Web Programming	3	CIS 275 Web-Enabled Database Programming*	4
Electives from the following: 3-15 semester hours required			
CS 4110 Mobile Applications Programming with Android	3	CIS 208 Mobile Application Development* **OR**	4
		GAME 255 Mobile Game Programming*	4
CS 1030 Python Programming I	3	CIS 142 Beginning Programming using Python **OR**	4
		CS 134 Programming Fundamentals	4
CS 4000 Special Problems in Computer Science	3	GAME 242 Agile Game Development*	3
CYBR 4840 Ethical Hacking	3	IT 239 Ethical Hacking*	3
CS 4020 Internship	3	IT 271 Information Technology Internship I* **OR**	3
		IT 272 Information Technology Internship II*	3

FREE ELECTIVES: 10-12 Semester Hours. Free choice elective hours may vary depending on transfer coursework and course selection at UCM. Students must take at least 30 upper-level (3000-4000) hours to graduate. Courses taken at JCCC that articulate to upper-level UCM courses do not count towards upper-level hours.

*JCCC course has a pre-requisite or co-requisite.
^JCCC CS 236 is equivalent to CS 1110 or CS 3110.
+Course requires a grade of "C" or better.