

## Computer Science

### University of Central Missouri

Johnson County Community College Transfer Program to the University Central Missouri	Dr. Belinda Copus Chair, Department of Computer
Department of Computer Science and Cybersecurity	660-543-4930
College of Health, Science, and Technology Computer Science B.S. (Four options)	copus@ucmo.edu
Academic Year 2025-2026	www.ucmo.edu/cs

#### Program Description

The Associate of Arts degree (A.A.) (<https://catalog.jccc.edu/archives/2025-26/degree/requirements/associate-arts/>) 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. Visit the UCM General Education Program (<https://www.jccc.edu/student-resources/transfer/files/transfer-guides/ucmo-general-ed.pdf>) 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 visit the UCM General Education Program (<https://www.jccc.edu/student-resources/transfer/files/transfer-guides/ucmo-general-ed.pdf>) 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.

#### Admission Requirements

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 (<https://www.jccc.edu/student-resources/transfer/files/transfer-guides/ucmo-general-ed.pdf>) guide for details.

The Health Studies, BS degree requires a minimum of 120 credit hours.

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 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.*

## Program Requirements

### 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 four 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:

Course Code Code	Course Title Title	Course Hours	Transfer Code Hours	Transfer Title	Transfer Hours
<b>Select one of the following:</b>					
CS 200	Concepts of Programming Algorithms Using C++*	4	CS 1100	Computer Programming I	3
CS 201	Concepts of Programming Algorithms using C#*	4	CS 1100	Computer Programming I	3
CS 205	Concepts of Programming Algorithms using Java*	4	CS 1100	Computer Programming I	3
CS 210	Discrete Structures I*	3	CS 2400	Discrete Structures	3
CS 236	Object-Oriented Programming Using C#* ^	4	CS 1110	Computer Programming II	3
<b>Select one of the following:</b>					
CS 252	Basic Data Structures Using Python*	4	CS 2300	Data Structures	3
CS 255	Basic Data Structures Using Java*	4	CS 2300	Data Structures	3
CIS 204	UNIX Scripting and Utilities*	3	CS 3500	C and UNIX Environment	3
CIS 260	Database Management*	4	CS 4600	Database Theory Applications	3

### 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 ([https://catalog.ucmo.edu/preview\\_program.php?catoid=23&pooid=7356&returnto=972](https://catalog.ucmo.edu/preview_program.php?catoid=23&pooid=7356&returnto=972)) in the UCM Catalog.

**General Education Requirements for Computer Networking Option:** 39 hours. All students must complete a minimum of 42 credit hours in general education. The following general education classes are required for this option:

Course Code Code	Course Title Title	Course Hours	Transfer Code Hours	Transfer Title	Transfer Hours
MATH 201	Statistics* +	3	ACST 2310	Statistics Data Analysis	
<b>Select one of the following:</b>					
COMS 121	Public Speaking	3	COMM 1000	Public Speaking	3
COMS 125	Personal Communication	3	COMM 1000	Public Speaking	3

42 hours of Core for the Computer Science Major (see list above (p. 2))

**Computer Networking Option Electives:** Total of 27 hours from the two elective categories below as specified. A grade of “C” or better is required.

Course Code Code	Course Title Title	Course Hours	Transfer Code Hours	Transfer Title	Transfer Hours
<b>Electives from the following: 12-15 semester hours required</b>					
CIS 275	Web-Enabled Database Programming*	4	CS 4130	Server Side Web Programming	3
IT 223	Azure Administration*	3	CS 4610	Intro to Cloud Computing	3
<b>Electives from the following: 3-9 semester hours required</b>					
IT 230	Linux Fundamentals	3	CYBR 1500	Command Line Environments	3
<b>Electives from the following: 3-12 semester hours required</b>					
CIS 240	Advanced Topics in Java*	4	CS 4120	Adv App Programming in Java	3
<b>Select one of the following:</b>					
CS 134	Programming Fundamentals	4	CS 1030	Python Programming I	3
IT 202	IT Scripting*	3	CS 1030	Python Programming I	3
CS 202	Concepts of Programming Algorithms using Python*	4	CS 2030 Python Programming II		
CS 236	Object-Oriented Programming Using C#* ^	4	CS 3110	Apps Programming in C# .NET	2-3
GAME 121 & GAME 221	Game Programming I* and Game Programming II*	4	CS 4830	Game Development 3D	3
GAME 242	Agile Game Development*	3	CS 4000	Special Problems in Comp. Sci	1-3
GAME 255	Mobile Game Programming*	4	CS 4110	Mobile App Programming Android	3
IT 141	Introduction to Networks	3	NET 1060	Introduction to Networks	3
IT 150	Switching, Routing, and Wireless Essentials*	3	NET 1061	Switching/Routing/Wireless Ess	3
IT 175	Cybersecurity Fundamentals*	3	CYBR 1800	Introduction to Cybersecurity	3
IT 230	Linux Fundamentals	3	CYBR 1500	Command Line Environments	3
IT 239	Ethical Hacking*	3	CYBR 4840	Ethical Hacking	3
<b>Select one of the following:</b>					
IT 271	Information Technology Internship I*	3	CS 4020	Internship	1-8
IT 272	Information Technology Internship II*	3	CS 4020	Internship	1-8

**Free Electives:** 12 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.

^ 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 ([https://catalog.ucmo.edu/preview\\_program.php?catoid=23&pooid=7355&returnto=972](https://catalog.ucmo.edu/preview_program.php?catoid=23&pooid=7355&returnto=972)) in the UCM Catalog.

**General Education Requirements for Computer Science Option:** 29 hours. All students must complete a minimum of 42 credit hours in general education. The following general education classes are required for this option:

Course Code Code	Course Title Title	Course Hours Hours	Transfer Code Code	Transfer Title Title	Transfer Hours Hours
<b>Select one of the following:</b>					
COMS 121	Public Speaking	3	COMM 1000	Public Speaking	3
COMS 125	Personal Communication	3	COMM 1000	Public Speaking	3
MATH 241	Calculus I*	5	MATH 1151	Calculus I	5

42 hours of Core for the Computer Science Major (see list above)

**Computer Science Option:** Total of 32-35 hours from the categories below as specified. A grade of "C" or better is required.

Course Code Code	Course Title Title	Course Hours Hours	Transfer Code Code	Transfer Title Title	Transfer Hours Hours
MATH 246	Elementary Linear Algebra*	3	MATH 3710	Linear Algebra	3
<b>Electives from the following: 15 semester hours required</b>					
CIS 240	Advanced Topics in Java*	4	CS 4120	Adv App Programming in Java	3
CIS 275	Web-Enabled Database Programming*	4	CS 4130	Server Side Web Programming	3
CS 202	Concepts of Programming Algorithms using Python*	4	CS 2030 Python Programming II		
CS 236	Object-Oriented Programming Using C#* ^	4	CS 3110	Apps Programming in C# .NET	2-3
GAME 121 & GAME 221	Game Programming I* and Game Programming II*	4	CS 4830	Game Development 3D	3
GAME 242	Agile Game Development*	3	CS 4000	Special Problems in Comp. Sci	1-3
GAME 255	Mobile Game Programming*	4	CS 4110	Mobile App Programming Android	3
IT 223	Azure Administration*	3	CS 4610	Intro to Cloud Computing	3
IT 239	Ethical Hacking*	3	CYBR 4840	Ethical Hacking	3
<b>Select one of the following:</b>					
IT 271	Information Technology Internship I*	3	CS 4020	Internship	1-8

IT 272	Information Technology 3 Internship II*	CS 4020	Internship	1-8
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**Free Electives:** 9 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.
- ^ 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 visit the Computer Science BS, Game Development Option ([https://catalog.ucmo.edu/preview\\_program.php?catoid=26&poid=8476&returnto=1116](https://catalog.ucmo.edu/preview_program.php?catoid=26&poid=8476&returnto=1116)) in the UCM Catalog.**

**General Education Requirements for Game Development Option: 39 hours.**

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

Course Code	Course Title	Course Hours	Transfer Code	Transfer Title	Transfer Hours
<b>Code</b>	<b>Title</b>	<b>Hours</b>	<b>Hours</b>		
MATH 201	Statistics* +	3	ACST 2310	Statistics Data Analysis	
<b>Select one of the following:</b>					
COMS 121	Public Speaking	3	COMM 1000	Public Speaking	3
COMS 125	Personal Communication	3	COMM 1000	Public Speaking	3

42 hours of Core for the Computer Science Major (see list above (p. 2))

**Game Development Option:** 27 Hours. A grade of "C" or better is required.

Course Code	Course Title	Course Hours	Transfer Code	Transfer Title	Transfer Hours
<b>Code</b>	<b>Title</b>	<b>Hours</b>	<b>Hours</b>		
CS 236	Object-Oriented Programming Using C#* ^	4	CS 3110	Apps Programming in C# .NET	2-3
GAME 121 & GAME 221	Game Programming I* and Game Programming II*	4	CS 4830	Game Development 3D	3

**Electives from the following: 12 semester hours required**

<b>Select one of the following:</b>					
CS 134	Programming Fundamentals	4	CS 1030	Python Programming I	3

IT 202	IT Scripting*	3	CS 1030	Python Programming I	3
CIS 240	Advanced Topics in Java*	4	CS 4120	Adv App Programming in Java	3
CIS 275	Web-Enabled Database Programming*	4	CS 4130	Server Side Web Programming	3
GAME 242	Agile Game Development*	3	CS 4000	Special Problems in Comp. Sci	1-3
GAME 255	Mobile Game Programming*	4	CS 4110	Mobile App Programming Android	3
IT 175	Cybersecurity Fundamentals*	3	CYBR 1800	Introduction to Cybersecurity	3
IT 223	Azure Administration*	3	CS 4610	Intro to Cloud Computing	3
IT 230	Linux Fundamentals	3	CYBR 1500	Command Line Environments	3
IT 239	Ethical Hacking*	3	CYBR 4840	Ethical Hacking	3

**Select one of the following:**

IT 271	Information Technology Internship I*	3	CS 4020	Internship	1-8
IT 272	Information Technology Internship II*	3	CS 4020	Internship	1-8

**Free Electives:** 12 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.
- ^ CS 236 is equivalent to CS 1110 or CS 3110.
- + 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 visit the Computer Science BS, Software Development Option ([https://catalog.ucmo.edu/preview\\_program.php?catoid=26&poid=8473&returnto=1116](https://catalog.ucmo.edu/preview_program.php?catoid=26&poid=8473&returnto=1116)) in the UCM Catalog.**

**General Education Requirements for Software Development Option: 39 hours.**

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

Course Code	Course Title	Course Hours	Transfer Code	Transfer Title	Transfer Hours
MATH 201	Statistics* +	3	ACST 2310	Statistics Data Analysis	
<b>Select one of the following:</b>					
COMS 121	Public Speaking	3	COMM 1000	Public Speaking	3

COMS 125	Personal Communication	3	COMM 1000	Public Speaking	3
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42 hours of Core for the Computer Science Major (see list above (p. 2))

**Software Development Option Electives:** Total of 27 hours from the two elective categories below as specified.

Course Code	Course Title	Course Hours	Transfer Code	Transfer Title	Transfer Hours
Code	Title	Hours	Hours		
<b>Electives from the following: 12-24 semester hours required</b>					
CS 236	Object-Oriented Programming Using C#* ^	4	CS 3110	Apps Programming in C# .NET	2-3
CIS 240	Advanced Topics in Java*	4	CS 4120	Adv App Programming in Java	3
CIS 275	Web-Enabled Database Programming*	4	CS 4130	Server Side Web Programming	3
<b>Electives from the following: 3-15 semester hours required</b>					
<b>Select one of the following:</b>					
CS 134	Programming Fundamentals	4	CS 1030	Python Programming I	3
IT 202	IT Scripting*	3	CS 1030	Python Programming I	3
GAME 121 & GAME 221	Game Programming I* and Game Programming II*	4	CS 4830	Game Development 3D	3
GAME 242	Agile Game Development*	3	CS 4000	Special Problems in Comp. Sci	1-3
GAME 255	Mobile Game Programming*	4	CS 4110	Mobile App Programming Android	3
IT 175	Cybersecurity Fundamentals*	3	CYBR 1800	Introduction to Cybersecurity	3
IT 223	Azure Administration*	3	CS 4610	Intro to Cloud Computing	3
IT 230	Linux Fundamentals	3	CYBR 1500	Command Line Environments	3
IT 239	Ethical Hacking*	3	CYBR 4840	Ethical Hacking	3
<b>Select one of the following:</b>					
IT 271	Information Technology Internship I*	3	CS 4020	Internship	1-8
IT 272	Information Technology Internship II*	3	CS 4020	Internship	1-8

**Free Electives: 12 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.**

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

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