

BACHELOR OF INFORMATION TECHNOLOGY - CYBERSECURITY EMPHASIS

University Requirements

General Education

UMKC Essentials is the university-wide curriculum that all undergraduate students will complete. The 30-credit hour program includes a First Year Experience course; three critical thinking courses in the areas of Arts & Humanities, Natural & Physical Sciences, and Social & Behavioral Sciences; a Culture and Diversity course; a Civic & Urban Engagement course; two courses in Written Composition and one course in Oral Communication; and a Math Pathway course. Transfer students entering UMKC will elect from the UMKC Essentials General Education Program or the Missouri Core 42 General Education Curriculum. Academic advisors will meet with incoming transfer students to determine which option best serves the student's educational needs. More information about General Education may be found here: <https://catalog.umkc.edu/undergraduate-academic-regulations-information/general-education-requirements/> (<http://catalog.umkc.edu/undergraduate-academic-regulations-information/general-education-requirements/>)

Constitution Course

Every undergraduate student must take a course covering the United States Constitution and the Missouri State Constitution before graduation. Course options are included in the program requirements section below.

Exit Examinations

Information on exit examinations is available in the Undergraduate Academic Regulations and Information (<http://catalog.umkc.edu/undergraduate-academic-regulations-information/graduation/exitexams/>) section of the catalog.

Missouri Higher Education Civics Achievement Examination

In accordance with Missouri Senate Bill 807 (section 170.013.1), 'any student entering a public institution of higher education for the first time after July 2019 who is pursuing an associate's or bachelor's degree from such institution shall successfully pass an examination on the provisions and principles of American civics with a score of seventy percent or greater as a condition of graduation from such institution'. To satisfy this requirement at UMKC, students access the exam through the Canvas site. This requirement will be listed in the degree audit system as, 'Take State Mandated Missouri Higher Education Civics Achievement Examination', and listed on the transcript as 'Missouri Civics Examination'.

Student Learning Outcomes

Students graduating from this program will:

- Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.
- Design, implement and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- Communicate effectively in a variety of professional contexts.
- Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- Function effectively as a member of a leader of a team engaged in activities appropriate to the program's discipline.
- Identify and analyze user needs and take them into account in the selection, creation, integration, evaluation and administration of computing-based systems.
- Apply cybersecurity principles and practices to the development and operation of security-critical cyber systems. (Cybersecurity emphasis only)

Program Description

The Bachelor of Information Technology is accredited by the Computing Accreditation Commission of ABET (<http://www.abet.org> (<http://www.abet.org/>)).

The use of computers in commerce and industry keeps the college educated IT professional at the forefront of occupational demand. The Bachelor of Information Technology (B.I.T.) program prepares for a career path where the student contributes to the continued deployment of technology infrastructure (operating systems, browsers, applications, software, networking, etc.). It blends both CS, IT, and Business coursework and requires an internship for the completion of the degree. Please contact the SS&C Student Services Center for more information at (816)235-2399 or sse@umkc.edu.

Educational Objectives

The Bachelor of Information Technology degree is designed so that graduates will attain employment in an IT related field. Some graduates will achieve appropriate certifications and/or will pursue advanced study in business, IT or other fields. Graduates will be engaged in lifelong learning and thereby advance in their careers.

Career Implications

There remains a large and growing number of unfulfilled IT positions both nationwide and within the Kansas City area. B.I.T. graduates are typically employed as software developers, network specialists, web developers, information system operators, programmer analysts, digital media specialists and database administrators. The need of the future is for students with an analytic and problem solving mindset who are able to adapt quickly to an ever-changing environment.

Admission Requirements

High school students planning to apply to this degree program are strongly encouraged to take a college preparatory program that emphasizes mathematics, science and communication skills.

First-time college student applicants to the undergraduate program in information technology will be automatically admitted if they obtain:

1. An ACT mathematics score of at least 25 and
2. An ACT composite score of at least 24 and
3. A 3.0 core high school GPA.

First-time college student applicants who do not meet the above criteria but do meet UMKC general admission requirements will have their applications reviewed for admission. Applicants who are not admitted to this degree program but do meet UMKC general admission requirements may be admitted to University College.

Students without the prerequisite preparation must take the needed coursework before enrolling in courses required for the bachelor's degree. Students seeking re-admission must have been in good academic standing when last enrolled. Otherwise, re-admission requires a formal review by the undergraduate program committee.

Transfer applicants must have at least 24 credits of transferable college credit, an overall 2.0 GPA on a 4.0 scale in all coursework, which includes repeated coursework, attempted at previous institutions. Transfer applicants without a 2.0 or higher college GPA must submit a petition for admission.

Program Requirements

The requirements for the BIT degree are categorized into several areas totaling at least 120 hours of study.

UMKC Essentials

Code	Title	Credits
First Semester Experience Course (GEFSE)		3
Written Communication:		
ENGLISH 110	Introduction to Academic Prose	3
ENGLISH 225	English II: Intermediate Academic Prose	3
Oral Communication (choose one of the following):		3
COMM-ST 110	Fundamentals of Effective Speaking and Listening	
COMM-ST 140	Introduction to Communication	
COMM-ST 212	Argumentation And Debate	
COMM-ST 277	Interpersonal Communication	
Math Pathway (Satisfied in program requirements below)		
Critical Thinking in Arts & Humanities (GECRT-AH)		3
Critical Thinking in Natural & Physical Sciences (GECRT-SC; Satisfied in program requirements below)		
Critical Thinking in Social & Behavioral Sciences (GECRT-SS)		3
Culture & Diversity Course (GECDV)		3
Civic & Urban Engagement Course (GECUE; Satisfied in program requirements below)		
Total Credits		21

Constitution Course Requirement

Section 170.011.1 of the Missouri Revised Statutes, 2015, states that all candidates for a degree issued by a college or university in the state of Missouri must have "satisfactorily passed an examination on the provisions and principles of the Constitution of the United States and of the state of Missouri, and in American history and American institutions."

Courses at UMKC that satisfy this state requirement are:

Code	Title	Credits
Choose one of the following:		
CJC 364	The Supreme Court And The Criminal Process	3
HISTORY 101	U.S. History to 1877	
HISTORY 102	U.S. History Since 1877	
HONORS 230	Honors American Government	
POL-SCI 210	American Government	
Total Credits		3

There are a few other ways this requirement can be satisfied for students transferring to UMKC:

- Take an equivalent course from the list above at a regionally accredited institution.
- Earn credit for one of the above courses through AP, IB, or CLEP.
- Take a course that directly satisfies the Missouri Constitution Requirement at another Missouri institution.
- Have a previous bachelors degree (or higher) from a regionally accredited institution.
- Have an Associate of Arts degree from a regionally accredited institution.
- Complete the 42 Hour Core at a Missouri institution and have it listed on the official transcript.

Major Requirements

A minimum grade of C- is required in all courses offered in the School of Science & Engineering.

Code	Title	Credits
Mathematics (satisfies Math Pathway)		
MATH 120 (Precalculus; Typically not required due to ACT Admission Requirement)		
MATH 210	Calculus I ¹	4
STAT 235	Elementary Statistics ¹	3
or STAT 115	Statistical Reasoning	
or MOTRMATH 110	MOTR Statistical Reasoning	
Life and Physical Sciences		7
One Life Science		
One Physical Science		
To include at least one laboratory component		
General Education Synthesis		
COMP-SCI 449	Foundations of Software Engineering	3
COMP-SCI 451R	Software Engineering Capstone	3
Anatomy of Business		
ACCTNG 210	Introduction To Financial Accounting	3
ECON 202	Principles of Microeconomics	3
MKT 324	Principles of Marketing	3
DSOM 340	Supply Chain and Operations Management	3
or MGT 332	Principles of Organizational Behavior	
Select two of the following Business courses:		6
ACCTNG 211	Introduction To Managerial Accounting	
ENT 315	Entrepreneurial Mindset and Opportunity Recognition	
or ENT 215	Introduction to Entrepreneurship	
FIN 325	Financial Management	
MGT 332	Principles of Organizational Behavior (If not already completed above) ³	
Computer Science/Information Technology		
COMP-SCI 101 & 101L	Problem Solving and Programming I and Problem Solving & Programming I Lab	4
COMP-SCI 191	Discrete Structures I	3
COMP-SCI 201R & COMP-SCI 201L	Problem Solving and Programming II and Problem Solving and Programming II - Lab	4
COMP-SCI 281R	Introduction to Computer Architecture and Organization (satisfies GECRT-SC course requirement)	3

COMP-SCI 291	Discrete Structures II	3
COMP-SCI 303	Data Structures	3
COMP-SCI 304	Ethics and Professionalism (Satisfies GECUE Requirement)	3
COMP-SCI 320	Data Communications and Networking	3
COMP-SCI 431	Introduction to Operating Systems	3
COMP-SCI 456	Human Computer Interface	3
COMP-SCI 470	Introduction to Database Management Systems	3
INFO-TEC 222	Multimedia Production and Concepts	3
INFO-TEC 321	Introduction to Computing Resources Administration	3
Total Credits		79

¹ Math Placement Assessment may be required.

³ Course required if pursuing a business minor.

Cybersecurity Emphasis

Code	Title	Credits
Cybersecurity Emphasis Electives (Upper Level)		
COMP-SCI 361	Introduction to Cybersecurity	3
COMP-SCI 426	Network Security	3
COMP-SCI 436	Digital Forensics	3
COMP-SCI 483	Software Security	3
Internship Requirement ²		
Take 1 hour of the following:		1
INFO-TEC 491	Internship	
General Electives		4
Total Credits		17

² Students with appropriate CS/IT business experience may petition to replace the internship requirement with a 3 credit hour senior CS/IT course.

Minimum GPA: 2.0

Total Credit Hours: 120

Tools for Planning and Fulfilling Academic Requirements

UMKC's Major Maps are detailed, semester by semester plans that lead a student to complete all degree requirements within four years. Plans include benchmarks and critical courses by term that assist a student's evaluation of progress and major "fit". In order to ensure that the appropriate courses are taken, students are encouraged to consult with the undergraduate advisor for this major. Please see the tab above to view the major map for this program.

UMKC's Transfer Guides (<https://www.umkc.edu/transfer/transfer-credit/transfer-guides.html>) provide detailed guidance on recommended transfer coursework, plans of study, transfer timelines, and transfer contact information. To ensure a seamless transfer experience, students are encouraged to work with both their community college advisor and a UMKC advisor when planning their coursework.

UMKC's PlanMyDegree 'Audit' (<https://www.umkc.edu/registrar/academic-programs/plan-my-degree.html>) degree audit system provides an individual evaluation of all degree requirements (General Education, Degree Specific, Major Specific, etc.) for students' officially recorded (Office of the Registrar) and "what if" exploratory plans of study. This evaluation is used to certify all graduation requirements.

UMKC's PlanMyDegree 'Plans' (<https://www.umkc.edu/registrar/academic-programs/plan-my-degree.html>) degree planning tool enables students to develop a personalized semester by semester plan of study towards completion of degree requirements for student's officially recorded (Office of the Registrar) and "what if" exploratory plans of study. Update and edit your full plan to degree completion each term and confirm accuracy each semester with your Academic Advisor(s).

Major Map

First Year

Fall Semester	Credits	Spring Semester	Credits
MATH 210 ^{CC}		4 STAT 235	3
COMP-SCI 101 & 101L ^{CC}		4 COMP-SCI 191 ^{CC}	3
GEFSE 101		3 COMP-SCI 201R & COMP-SCI 201L	4
ENGLISH 110		3 ENGLISH 225	3
		GECRT-SS 101, 102, 104, 105, 106, 107, 108, or 111	3
		14	16

Second Year

Fall Semester	Credits	Spring Semester	Credits
COMP-SCI 291		3 COMP-SCI 281R (satisfies GECRT-SC course requirement)	3
COMP-SCI 303		3 INFO-TEC 222	3
ACCTNG 210		3 MKT 324	3
ECON 202		3 Life Science Elective (with Lab)	4
COMM-ST 110, 140, or 277		3 GECRT-AH 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 112, 113, or 114	3
		15	16

Third Year

Fall Semester	Credits	Spring Semester	Credits
COMP-SCI 304		3 COMP-SCI 470	3
COMP-SCI 320		3 COMP-SCI 361	3
COMP-SCI 431		3 DSOM 340 or MGT 332	3
INFO-TEC 321		3 Business Course	3
GECDV 201, 201, 202, 203, 204, 205, 206, 207, 208, 209, or 210		3 Physical Science Elective (with Lab if not yet completed)	3
		15	15

Fourth Year

Fall Semester	Credits	Spring Semester	Credits
COMP-SCI 426		3 COMP-SCI 451R	3
COMP-SCI 436		3 COMP-SCI 483	3
COMP-SCI 449		3 INFO-TEC 491	1
COMP-SCI 456		3 Business Course	3
HISTORY 101, 102, or POL-SCI 210		3 General Elective	4
		15	14

Total Credits: 120