

COMPUTER INFORMATION SYSTEMS, CYBERSECURITY OPTION, BS

Bachelor of Science in Computer Information Systems, Cybersecurity (244305BS)

More on Computer Information Systems, Cybersecurity option (<https://www.uakron.edu/computer/cybersecurity/>)

Program Description

The Bachelor of Science in Computer Information Systems (CIS) - Cybersecurity degree option allows students to attain knowledge of computer network configuration, computer network and data security, network intrusion detection and prevention, computer network forensics, digital forensics, and cryptography. The degree option includes an in-depth study of modern cryptography as it relates to cybersecurity and computing.

The CIS program offers high level training by introducing students to basic computing concepts while allowing them to develop the applied skills required for the workforce. Courses are taught in cutting edge computer labs so students can learn and practice skills. Schedules offer a range of day and evening classes.

Admission Requirements

- Admission to The University of Akron.
- A cumulative GPA of 2.0 and a minimum of 15 earned credit hours for transfer students.
- Students must pass a placement test before taking any required Computer Information Systems (2440) core courses or take 2440:105 Introduction to Computers & Application Software (3 cr.), which does not count towards degree requirements.
- Students must attain a 'C' or better in each transferred course in the CIS (2440) major area.

Program-Specific Degree Requirements

- **Students must attain a "C" or better in each course in their major area (2440).**
- A cumulative GPA of 2.0 and a minimum of 15 earned credit hours for Inter- and Intra-College Transfer into all Associate and Bachelor degree programs in Computer Information Systems.
- Prior to enrolling in classes for the BS degree you must contact your academic advisor.

Career Information

Graduates of the bachelor's degree program in Computer Information Systems under the Cybersecurity option are expected to qualify for such positions as law enforcement professionals, computer forensic specialists, data security analysts, systems security administrators, and network security administrators in government, business, information technology, and other industries.

The following information has official approval of **The Department of Computer Science** and **The College of Engineering and Polymer**

Science, but is intended only as a supplemental guide. Official degree requirements are established at the time of transfer and admission to the degree-granting college. Students should refer to the Degree Progress Report (DPR) which is definitive for graduation requirements. *Completion of this degree within the identified time frame below is contingent upon many factors, including but not limited to: class availability, total number of required credits, work schedule, finances, family, course drops/withdrawals, successfully passing courses, prerequisites, among others.* The transfer process is completed through an appointment with your academic advisor. Transfer students should consult their Advisor to identify courses that are equivalent.

Requirements Summary

Code	Title	Hours
General Education Requirements (https://bulletin.uakron.edu/undergraduate/general-education/)		34
Cybersecurity Major Core		54
Emergency Management & Homeland Security Courses		18
Cryptology and Data Analysis Courses		11
Additional Credits for Graduation *		3
Total Hours		120

* Bachelor's degrees require a minimum of 120 credit hours for graduation.

Recommended General Education Courses

Code	Title	Hours
Students pursuing a bachelor's degree must complete the following General Education coursework. Diversity courses may also fulfill major or Breadth of Knowledge requirements. Integrated and Applied Learning courses may also fulfill requirements in the major.		

Students are not required to enroll in the specific courses listed below. However, to facilitate successful degree completion, the academic department strongly encourages completion of the following recommendations.

Academic Foundations		12
<i>Mathematics, Statistics and Logic: 3 credit hours</i>		
2030:152	Technical Mathematics II	
& 2030:153	and Technical Mathematics III	
3450:145	Algebra for Calculus	
<i>Speaking: 3 credit hours</i>		
<i>Writing: 6 credit hours</i>		
Breadth of Knowledge		22
<i>Arts/Humanities: 9 credit hours</i>		
<i>Natural Sciences: 7 credit hours</i>		
<i>Social Sciences: 6 credit hours</i>		
3250:100	Introduction to Economics	

Diversity	
Domestic Diversity	
Global Diversity	
Integrated and Applied Learning	
<i>Select one class from one of the following subcategories:</i>	
Complex Issues Facing Society	
Capstone	

Review the General Education Requirements page for detailed course listings.

Total Hours 34

Cybersecurity Major Core

Code	Title	Hours
2440:121	Introduction of Logic/Programming	3
2440:134	Cybersecurity Fundamentals	3
2440:145	Introduction to Unix/Linux	3
2440:201	Networking Basics ²	3
2440:202	Router and Routing Basics ¹	3
2440:204	WAN Technologies ²	3
2440:240	Computer Information Systems Internship ^{2,4}	3
or 2000:301	Cooperative Education	
2440:247	Hardware Support	3
2440:300	Network Authentication and Security ¹	3
2440:306	Ethics & Law in Information Technology ²	3
or 2235:383	Ethical Hacking	
2440:331	Programming for Cybersecurity ²	3
2440:388	Advanced UNIX/Linux ²	3
2440:431	UNIX-based Systems Security ¹	3
2235:440	Intrusion Detection ²	3
2235:441	Network Forensics I ¹	3
2235:442	Wireless Forensics ¹	3
2235:443	Network Forensics II ²	3
2440:491	CIS Senior Cybersecurity Project ²	3
Total Hours		54

Emergency Management & Homeland Security Courses

Code	Title	Hours
2235:100	Introduction to Digital Forensics	3
2235:280	Cybercrime ¹	3
2235:281	Computer Forensic Methods ²	3
2235:283	Cyber Warfare ¹	3
2235:381	Computer Forensic Methods II ¹	3
2235:382	File System Analysis ¹	3
Total Hours		18

Cryptology and Data Analysis Courses

Code	Title	Hours
2030:216	Applied Finite Mathematics ²	3
2030:345	Technical Data Analysis	2
2030:361	Applied Cryptography ¹	3
2030:461	Applied Cryptanalysis ²	3
Total Hours		11

¹ Traditionally Fall Only (See Program Contact).

² Traditionally Spring Only (See Program Contact).

³ All students pursuing a bachelor's degree at the University of Akron must complete the General Education requirements. For efficient completion of UA General Education requirements, it is recommended that students choose General Education classes that also satisfy the Global Diversity and Domestic Diversity areas as shown.

⁴ Students may choose between 2440:240 Computer Information Systems Internship or 2000:301 Cooperative Education. Either option should help to enhance students' knowledge and skills with relevant and practical work experience in the workforce. Students who opt for a Co-op (during 3rd year summer) will need to complete a 2 credit hour free elective to attain the minimum 120 total credit hours required for the program.

- Co-ops are typically paid full-time positions and may last anywhere from three to 12 months.
- Internships can be paid or unpaid but require fewer weekly hours.

Note:

- Students entering the Computer Information Systems associate's and bachelor's degree options must pass a *Computer Literacy Placement test* or complete the following bridge course prior to enrolling in the program.
- Bridge Course: 2440:105 Introduction to Computers and Application Software

Recommended Sequence

1st Year

Fall Semester	Hours
First Writing Course	3
2030:152 Technical Mathematics II & 2030:153 and Technical Mathematics III ⁶	4
2235:100 Introduction to Digital Forensics	3
2440:121 Introduction of Logic/Programming	3
2440:247 Hardware Support	3
Hours	16

Spring Semester

Second Writing Course	3
Natural Science Requirement	3
2440:134 Cybersecurity Fundamentals	3
2440:145 Introduction to Unix/Linux	3
2440:201 Networking Basics ²	3
Hours	15

2nd Year

Fall Semester	Hours
Speaking Requirement	3
Social Science/Domestic Diversity Requirement ³	3
2235:280 Cybercrime ¹	3
2235:283 Cyber Warfare ¹	3
2440:202 Router and Routing Basics ¹	3
Hours	15

Spring Semester

2030:216 Applied Finite Mathematics	3
2235:281 Computer Forensic Methods ²	3
2440:204 WAN Technologies ²	3

2440:240	Computer Information Systems Internship (OR) ^{2,4}	3
	Free Elective (2 cr. minimum) - if opting for a Co-op during 3rd year summer ⁴	
3250:100	Introduction to Economics ⁵	3
	Hours	15

3rd Year**Fall Semester**

	Humanities Requirement ³	3
2030:361	Applied Cryptography	3
2235:381	Computer Forensic Methods II ¹	3
2235:382	File System Analysis ¹	3
2235:441	Network Forensics I ¹	3
	Hours	15

Spring Semester

	Arts Requirement ³	3
2235:443	Network Forensics II ²	3
2440:306 or 2235:383	Ethics & Law in Information Technology ² or Ethical Hacking	3
2440:331	Programming for Cybersecurity ²	3
2440:388	Advanced UNIX/Linux ²	3
	Hours	15

Summer Semester

2000:301	Cooperative Education ⁴	0
	Hours	0

4th Year**Fall Semester**

	Natural Science with Lab Requirement	4
2030:345	Technical Data Analysis	2
2235:442	Wireless Forensics ¹	3
2440:300	Network Authentication and Security ¹	3
2440:431	UNIX-based Systems Security ¹	3
	Hours	15

Spring Semester

	Arts/Humanities/Global Diversity Requirement ³	3
	Complex Issues Requirement	3
2030:461	Applied Cryptanalysis ²	3
2235:440	Intrusion Detection ²	3
2440:491	CIS Senior Cybersecurity Project	3
	Hours	15
	Total Hours	121

Program Notes

¹ Traditionally Fall Only (See Program Contact).

² Traditionally Spring Only (See Program Contact).

³ All students pursuing a bachelor's degree at the University of Akron must complete the General Education requirements. For efficient completion of UA General Education requirements, it is recommended that students choose General Education classes that also carry the Tier III Critical Thinking, Global Diversity, and Domestic Diversity tags as shown.

⁴ Students may choose between 2440:240 Computer Information Systems Internship or 2000:301 Cooperative Education. Either option should help to enhance students' knowledge and skills with relevant and practical work experience in the workforce. Students who opt for a Co-op (during 3rd year summer) will need to complete a 2 credit hour free elective to attain the minimum 120 total credit hours required for the program.

- Co-ops are typically paid full-time positions and may last anywhere from three to 12 months.
- Internships can be paid or unpaid but require fewer weekly hours.

⁵ Fulfills the Social Science Requirement

⁶ 3450:145 Algebra for Calculus may be completed in place of 2030:152 and 2030:153.

Policy Alert: By the end of your first 48 credit hours attempted, you must have completed your required General Education Mathematics, Statistics, and Logic (2030:152/153), Writing First Course, and Speaking requirements.

Note:

- Students entering the Computer Information Systems associate's and bachelor's degree options must pass a *Computer Literacy Placement test* or complete the following bridge course prior to enrolling in the program.
 - Bridge Course: 2440:105 Introduction to Computers and Application Software