

COMPUTER INFORMATION SYSTEMS, CYBERSECURITY, BS

Bachelor of Science in Computer Information Systems, Cybersecurity

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

- Students entering the Computer Information Systems associate and bachelor's degree programs must pass a Computer Literacy Placement test or complete the bridge course CISS 105 Introduction to Computers and Application Software with a grade of C- or better prior to enrolling in the technical courses for this program. This class does not count towards program requirements.
- Students must attain a C- or better in each transferred course in the CIS area.

Program-Specific Degree Requirements

- **Students must attain a C or better in each course in their major area.**
- 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 (Stellic) 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/)		34-33
Cybersecurity Major Core		48
Digital Forensics Courses		15
Mathematics and Statistics Courses Beyond General Education		11
CIS - Cybersecurity Technical Specialization		12-13
Internship or Cooperative Education		0
Total Hours		120

General Education Requirements

Code	Title	Hours
Students pursuing a bachelor's degree must complete the following General Education coursework		
Breadth of Perspectives courses may also fulfill major or Breadth of Knowledge requirements. Integrated and Applied Learning courses may also fulfill requirements in the major.		
Academic Foundations		12
<i>Mathematics, Statistics and Logic: 3 credit hours</i>		
<i>Speaking: 3 credit hours</i>		
<i>Writing: 6 credit hours</i>		
Breadth of Knowledge		19
<i>Arts: 3 credit hours</i>		
<i>Humanities: 3 credit hours</i>		
<i>Natural Sciences: 7 credit hours</i>		
<i>Social Sciences: 6 credit hours</i>		
Breadth of Perspectives		
U.S. Perspectives		
Global Perspectives		
Civic Literacy		
Integrated and Applied Learning		1-3
<i>Select one class from one of the following subcategories:</i>		
Complex Issues Facing Society		
Capstone		
General Education Elective ¹		4-2
<i>Review the General Education Requirements page for detailed course listings.</i>		
Total Hours		36

¹ Credits may be selected from any approved General Education course not already accounted for.

Computer Literacy Placement

Students entering the Computer Information Systems associate and bachelor's degree programs must pass a Computer Literacy Placement test or complete the bridge course CISS 105 Introduction to Computers and Application Software with a grade of C- or better prior to enrolling in the technical courses for this program. This class does not count towards program requirements.

Program-Specific General Education

These classes specifically required for the program also meet General Education requirements.

Code	Title	Hours
MATH 144	Technical Algebra and Trigonometry 1 ⁴	4
or MATH 143	Technical Algebra and Trigonometry 1 - Expanded	

Cybersecurity Major Core

Code	Title	Hours
CISS 121	Introduction of Logic/Programming	3
CISS 134	Cybersecurity Fundamentals	3
CISS 145	Introduction to Unix/Linux	3
CISS 180	Introduction to Database Management	3
CISS 201	Networking Basics ²	3
CISS 202	Router and Routing Basics ¹	3
CISS 204	Enterprise Networking ²	3
CISS 247	Hardware Support	3
CISS 300	Network Authentication and Security ¹	3
CISS 306	Ethics & Law in Information Technology ²	3
CISS 331	Programming for Cybersecurity ²	3
CISS 340	Virtualization and Cloud Computing	3
CISS 388	Advanced UNIX/Linux ²	3
CISS 431	UNIX-based Systems Security ¹	3
CISS 440	Security Management and Incident Response	3
CISS 491	CIS Senior Cybersecurity Project ²	3
Total Hours		48

Digital Forensics Courses

Code	Title	Hours
DGFR 100	Introduction to Cyber Forensics	3
DGFR 280	Cybercrime ¹	3
DGFR 383	Ethical Hacking	3
DGFR 441	Network Forensics I	3
DGFR 442	Wireless Forensics	3
Total Hours		15

Mathematics and Statistics Courses Beyond General Education

Code	Title	Hours
MATH 208	Introduction to Discrete Mathematics	4
MATH 362	Applied Cryptology	3
STAT 261	Introductory Statistics I ⁵	2

STAT 262	Introductory Statistics II ⁵	2
Total Hours		11

CIS - Cybersecurity Technical Specialization

Students must complete **one** of the specialization sequences below. Do not mix and match courses from different specializations.

Code	Title	Hours
Networking and Infrastructure Security Specialization		
<i>Complete the 13 credits below:</i>		
CISS 432	Internet of Things	
DGFR 440	Intrusion Detection	
DGFR 443	Network Forensics II	
EEET 237	Digital Circuits	
Software Security Specialization		
<i>Complete the 12 credits below:</i>		
CISS 140	Introduction to Web Development	
CISS 210	Client/Server Programming	
CISS 350	Python Programming	
CISS 410	Software Security	
Total Hours		12-13

CIS - Cybersecurity BS GPA Requirement

Students must have a combined GPA of 2.0 in all CISS courses to meet graduation requirements for this degree.

Internship or Cooperative Education

Code	Title	Hours
GNEP 200	CEPS Internship	0
or GNEP 300	Cooperative Education Work Period	
or GNEP 301	Cooperative Education Work Period I	

Note on Transfer Credit

Transfer credit for CISS courses is accepted only when the transfer grade is C- or better.

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 (or, if Honors students, the Honors Distribution requirements). For efficient completion of UA General Education requirements, it is recommended that students choose Art, Humanities, and Social Science classes that also satisfy Global Perspectives, US Perspectives, and Civic Literacy requirements.

⁴ Meets Mathematics, Statistics, and Logic Requirement. Students who place higher in mathematics may meet this requirement using the mathematics class they place in.

⁵ STAT 270 Introductory Statistics may be used in place of STAT 261 and STAT 262

Bachelor of Science in Computer Information Systems - Cybersecurity students must choose a Specialization before the end of the 1st Year. All Recommended Plans of Study below are identical for the 1st Year; after

that, some courses vary by Specialization. You must complete one of the Specializations.

Networking and Infrastructure Security Specialization

1st Year

Fall Semester		Hours
	Writing I Requirement	3
	Speaking Requirement	3
CISS 121	Introduction of Logic/Programming	3
CISS 247	Hardware Support	3
MATH 144 or MATH 143	Technical Algebra and Trigonometry 1 or Technical Algebra and Trigonometry 1 - Expanded	4
Hours		16

Spring Semester

	Writing II Requirement	3
	Social Science Requirement ³	3
CISS 145	Introduction to Unix/Linux	3
CISS 201	Networking Basics ²	3
MATH 208	Introduction to Discrete Mathematics	4
Hours		16

2nd Year

Fall Semester

	Natural Science Requirement	3
CISS 202	Router and Routing Basics ¹	3
DGFR 100	Introduction to Cyber Forensics	3
STAT 261	Introductory Statistics I ⁴	2
STAT 262	Introductory Statistics II ⁴	2
EEET 237	Digital Circuits	4
Hours		17

Spring Semester

	Social Science Requirement ³	3
CISS 134	Cybersecurity Fundamentals	3
CISS 180	Introduction to Database Management	3
CISS 204	Enterprise Networking ²	3
DGFR 280	Cybercrime	3
Hours		15

3rd Year

Fall Semester

	Arts Requirement ³	3
CISS 300	Network Authentication and Security	3
CISS 340	Virtualization and Cloud Computing	3
DGFR 441	Network Forensics I ¹	3
MATH 362	Applied Cryptology	3
Hours		15

Spring Semester

	Humanities Requirement ³	3
CISS 331	Programming for Cybersecurity ²	3
CISS 388	Advanced UNIX/Linux ²	3
DGFR 383	Ethical Hacking	3

DGFR 443	Network Forensics II	3
Hours		15

Summer Semester

GNER 200 or GNER 300 or GNER 301	CEPS Internship or Cooperative Education Work Period or Cooperative Education Work Period I	0
Hours		0

4th Year

Fall Semester

	Natural Science with lab Requirement	4
DGFR 442	Wireless Forensics ¹	3
CISS 431	UNIX-based Systems Security ¹	3
CISS 432	Internet of Things	3
Hours		13

Spring Semester

	Civic Literacy Requirement	3
CISS 306	Ethics & Law in Information Technology	3
DGFR 440	Intrusion Detection	3
CISS 440	Security Management and Incident Response	3
CISS 491	CIS Senior Cybersecurity Project	3
Hours		15

Total Hours 122

¹ Typically Fall Only.

² Typically Spring Only.

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⁴ STAT 270 Introductory Statistics may replace STAT 261 and STAT 262

Software Security Specialization

1st Year

Fall Semester		Hours
	Writing I Requirement	3
	Speaking Requirement	3
CISS 121	Introduction of Logic/Programming	3
CISS 247	Hardware Support	3
MATH 144 or MATH 143	Technical Algebra and Trigonometry 1 or Technical Algebra and Trigonometry 1 - Expanded	4
Hours		16

Spring Semester

	Writing II Requirement	3
	Social Science Requirement ³	3
CISS 145	Introduction to Unix/Linux	3
CISS 201	Networking Basics ²	3
MATH 208	Introduction to Discrete Mathematics	4
Hours		16

2nd Year**Fall Semester**

	Natural Science Requirement	3
CISS 140	Introduction to Web Development	3
CISS 202	Router and Routing Basics ¹	3
DGFR 100	Introduction to Cyber Forensics	3
STAT 261	Introductory Statistics I ⁴	2
STAT 262	Introductory Statistics II ⁴	2
	Hours	16

Spring Semester

	Social Science Requirement ³	3
CISS 134	Cybersecurity Fundamentals	3
CISS 180	Introduction to Database Management	3
CISS 204	Enterprise Networking ²	3
DGFR 280	Cybercrime	3
	Hours	15

3rd Year**Fall Semester**

	Arts Requirement ³	3
CISS 300	Network Authentication and Security	3
CISS 340	Virtualization and Cloud Computing	3
DGFR 441	Network Forensics I ¹	3
MATH 362	Applied Cryptology	3
	Hours	15

Spring Semester

	Humanities Requirement ³	3
CISS 331	Programming for Cybersecurity ²	3
CISS 388	Advanced UNIX/Linux ²	3
DGFR 383	Ethical Hacking	3
CISS 350	Python Programming	3
	Hours	15

Summer Semester

GGEN 200 or GGEN 300 or GGEN 301	CEPS Internship or Cooperative Education Work Period or Cooperative Education Work Period I	0
	Hours	0

4th Year**Fall Semester**

	Natural Science with lab Requirement	4
DGFR 442	Wireless Forensics ¹	3
CISS 431	UNIX-based Systems Security ¹	3
CISS 210	Client/Server Programming	3
	Hours	13

Spring Semester

	Civic Literacy Requirement	3
CISS 306	Ethics & Law in Information Technology	3
CISS 410	Software Security	3
CISS 440	Security Management and Incident Response	3
CISS 491	CIS Senior Cybersecurity Project	3
	Hours	15

Total Hours **121**

¹ Typically Fall Only.² Typically Spring Only.³ All students pursuing a bachelor's degree at the University of Akron must complete the General Education requirements (or, if Honors students, the Honors Distribution requirements). For efficient completion of UA General Education requirements, it is recommended that students choose Art, Humanities, and Social Science classes that also satisfy Global Perspectives, US Perspectives, and Civic Literacy requirements.⁴ STAT 270 Introductory Statistics may be used in place of STAT 261 and STAT 262.