

CYBER SECURITY OPERATIONS COMPREHENSIVE, BACHELOR OF SCIENCE

Offered by Department of Cyber Systems (<http://catalog.unk.edu/undergraduate/departments-programs/cyber-systems/>)

All College of Business and Technology Graduation Requirements (<http://catalog.unk.edu/undergraduate/departments-programs/management/>) must be fulfilled.

Code	Title	Credit Hours
General Education		
<i>Foundational Requirements (LOPERs 1-4)</i>		14
Including:		
LOPER 4: Mathematics, Statistics and Quantitative Reasoning		
MATH 115	Calculus I with Analytic Geometry ¹	
<i>Broad Knowledge Requirements (LOPERs 5-8)</i>		12
LOPER 7: Social Science		
CJUS 101	Introduction to Criminal Justice	
<i>Dispositional Requirements (LOPERs 9-10) ²</i>		6
<i>Wellness (LOPER 11) Optional</i>		0
BS Science-related course requirements		0
Program-Specified Requirements		3
CYBR 101	Computer Science I: Python for Analytics	
Major Option		
Complete all required courses		54
Unrestricted electives		
Needed to reach 120 credit hour minimum		31
Total Credit Hours		120

Major Option

Code	Title	Credit Hours
Cyber Security Major Comprehensive Core Requirements		
Take all of the following:		
CYBR 105	Cyber Systems Freshmen: Professional Practice	2
CYBR 150	Computer Science II: Object Oriented Programming	3
CYBR 151	Cyber Programming Environment: Linux	1
CYBR 158	Introduction to Information Security	3
CYBR 180	Discrete Structures	3
CYBR 301	Computer Organization	3
CYBR 330	Algorithms and Data Structures	3
CYBR 335	Fundamentals of Networking & Systems	3
CYBR 345	Intricacies of Advanced Networks & Systems	3
CYBR 300	Operating Systems	3

CYBR 412	Fundamentals and Security of Mobile Networks	3
CYBR 430	Defending & Protecting Cyber Systems	3
CYBR 435	Reverse Engineering: Thinking like an Adversary	3
CYBR 490	Information Networking Law and Public Policy	3
CYBR 495	Cyber Systems Capstone	3
Program Electives		12
ITEC 220	Electricity/Electronics	
CYBR 325	Database Systems	
CYBR 340	Information Networking Preceptorial	
CYBR 348	Systems Administration I	
CYBR 404	Systems and Software Engineering	
CYBR 405	Interactive Web Application Development	
CYBR 408	Principles of Programming Languages & Automata	
CYBR 441	Artificial Intelligence	
CYBR 448	System Administration II	
CYBR 460	Cloud Computing and Virtualization	
CYBR 475	Internship in Cyber Systems ³	
CYBR 479	Cyber Risk and Threat Modeling	
CYBR 493	Social Dynamics of Cybercrime	
CYBR 300-CYBR 499 ⁴		
Total Credit Hours		54

1

Students without sufficient preparation will also need to take the following courses, increasing the total credit hours needed:

- MATH 102 (<http://catalog.unk.edu/search/?P=MATH%20102>)
- MATH 103 (<http://catalog.unk.edu/search/?P=MATH%20103>)

2

Designated courses with the appropriate content may be approved to satisfy one of the Broad Knowledge requirements plus LOPER 9 or Broad Knowledge plus LOPER 10. Courses may be approved to satisfy LOPER 9 or LOPER 10 alone. (Courses satisfying LOPER 9 or LOPER 10 alone must be 3 credit hours.) Students applying this option will need to take additional hours in other categories to meet the required General Education hours.

3

Students are encouraged to take CYBR 475.

4

Advisor approval required.

This document represents a sample 4-year plan for degree completion with this major. Actual course selection and sequence may vary and should be discussed individually with your academic advisor. Advisors can also help you plan other experiences to enrich your undergraduate education such as internships, education abroad, undergraduate research, learning communities, and service learning and community-based learning.

Code	Title	Credit Hours
Semester 1		
CYBR 101	Computer Science I: Python for Analytics	3

MATH 101	Intermediate Algebra (or higher)	4
CYBR 151	Cyber Programming Environment: Linux	1
CYBR 105	Cyber Systems Freshmen: Professional Practice	2
MATH 115	Calculus I with Analytic Geometry (LOPER 4)	5
LOPER 1: First-year Seminar		3
Total Credit Hours		18

Code	Title	Credit Hours
Semester 2		
CYBR 150	Computer Science II: Object Oriented Programming (C- or better)	3
CYBR 158	Introduction to Information Security	3
CYBR 180	Discrete Structures	3
LOPER 2: Writing Skills		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 3		
CYBR 330	Algorithms and Data Structures	3
CYBR 335	Fundamentals of Networking & Systems	3
LOPER 3: Oral Communication Skills		3
LOPER 9: Civic Competency and Engagement		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 4		
CYBR 345	Intricacies of Advanced Networks & Systems	3
CYBR 300	Operating Systems	3
Major Elective		3
LOPER 5: Visual or Performing Arts		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 5		
CYBR 430	Defending & Protecting Cyber Systems	3
CYBR 301	Computer Organization	3
Unrestricted Elective		3
LOPER 6: Humanities		3
Major Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 6		
Program Elective		3

CYBR 435	Reverse Engineering: Thinking like an Adversary	3
CYBR 412	Fundamentals and Security of Mobile Networks	3
CJUS 101	Introduction to Criminal Justice (LOPER 7)	3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 7		
CYBR 490	Information Networking Law and Public Policy	3
Major Elective		3
Major Elective		3
LOPER 8: Natural Science		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 8		
CYBR 495	Cyber Systems Capstone	3
LOPER 10: Respect for Human Diversity		3
Unrestricted Elective		3
Unrestricted Elective		3
Total Credit Hours		12

This document represents a sample 4-year plan for degree completion with this major. Actual course selection and sequence may vary and should be discussed individually with your academic advisor. Advisors can also help you plan other experiences to enrich your undergraduate education such as internships, education abroad, undergraduate research, learning communities, and service learning and community-based learning.

Code	Title	Credit Hours
Semester 1		
CYBR 101	Computer Science I: Python for Analytics	3
MATH 101	Intermediate Algebra (or higher)	4
CYBR 105	Cyber Systems Freshmen: Professional Practice	2
CYBR 151	Cyber Programming Environment: Linux	1
MATH 102	College Algebra	3
LOPER 1: First-year Seminar		3
Total Credit Hours		16

Code	Title	Credit Hours
Semester 2		
CYBR 150	Computer Science II: Object Oriented Programming (C- or Higher)	3
CYBR 158	Introduction to Information Security	3
MATH 103	Plane Trigonometry	3
LOPER 2: Writing Skills		3

Unrestricted Elective	3
Total Credit Hours	15

Code	Title	Credit Hours
------	-------	--------------

Semester 3

CYBR 335	Fundamentals of Networking & Systems	3
MATH 115	Calculus I with Analytic Geometry (LOPER 4)	5
LOPER 3: Oral Communication Skills		3
LOPER 9: Civic Competency and Engagement		3
Total Credit Hours		14

Code	Title	Credit Hours
------	-------	--------------

Semester 4

CYBR 180	Discrete Structures	3
CYBR 345	Intricacies of Advanced Networks & Systems	3
LOPER 5: Visual or Performing Arts		3
Major Elective		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
------	-------	--------------

Semester 5

CYBR 330	Algorithms and Data Structures	3
CYBR 430	Defending & Protecting Cyber Systems	3
Major Elective		3
LOPER 6: Humanities		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
------	-------	--------------

Semester 6

CYBR 300	Operating Systems	3
CYBR 435	Reverse Engineering: Thinking like an Adversary	3
CJUS 101	Introduction to Criminal Justice (LOPER 7)	3
CYBR 412	Fundamentals and Security of Mobile Networks	3
Major Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
------	-------	--------------

Semester 7

CYBR 301	Computer Organization	3
CYBR 490	Information Networking Law and Public Policy	3
LOPER 8: Natural Science		3
Major Elective		3

Major Elective	3
Total Credit Hours	15

Code	Title	Credit Hours
------	-------	--------------

Semester 8

CYBR 495	Cyber Systems Capstone	3
LOPER 10: Respect for Human Diversity		3
Unrestricted Elective		3
Unrestricted Elective		3
Unrestricted Elective		3
Total Credit Hours		15