COMPUTER SCIENCE 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.

Title

Code

General Education

General Educat		14
Foundational Re	equirements (LOPERs 1-4)	14
Including:		
LOPER 4: Math	ematics, Statistics, and Quantitative	
Reasoning	,	
MATH 115	Calculus I with Analytic Geometry ¹	
_	ge Requirements (LOPERs 5-8)	12
•	equirements (LOPERs 9-10) ²	6
Wellness (LOPE	R 11) Optional	0
Program Speci	fied Requirements	3
CYBR 101	Computer Science I: Python for Analytics	
Major Option		
Complete all re	quired courses	51
Unrestricted el	ectives	
Needed to read	ch 120 credit hour minimum	34
Total Credit Ho	urs	120
Major Option		
Code	Title	Credit
Code	Title	Credit Hours
	Title nce Comprehensive Core Requirements	
Computer Scie		
	nce Comprehensive Core Requirements	Hours
Computer Scie CYBR 105	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented	Hours 2
Computer Scie CYBR 105 CYBR 150	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming	Hours 2
Computer Scie CYBR 105 CYBR 150 CYBR 151	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux	Hours 2 3
Computer Scie CYBR 105 CYBR 150 CYBR 151 CYBR 158	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux Introduction to Information Security	Hours 2 3 1 3
Computer Scie CYBR 105 CYBR 150 CYBR 151 CYBR 158 CYBR 180	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux	Hours 2 3 1 3 3
Computer Scie CYBR 105 CYBR 150 CYBR 151 CYBR 158	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux Introduction to Information Security	Hours 2 3 3 1 1 3 3 3 3 3
Computer Scie CYBR 105 CYBR 150 CYBR 151 CYBR 158 CYBR 180	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux Introduction to Information Security Discrete Structures	Hours 2 3 3 3 3 3 3
Computer Scie CYBR 105 CYBR 150 CYBR 151 CYBR 158 CYBR 180 CYBR 301	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux Introduction to Information Security Discrete Structures Computer Organization	Hours 2 3 1 3 3 3 3 3
Computer Scie CYBR 105 CYBR 150 CYBR 151 CYBR 158 CYBR 180 CYBR 301 CYBR 300 CYBR 304	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux Introduction to Information Security Discrete Structures Computer Organization Operating Systems	Hours 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Computer Scie CYBR 105 CYBR 150 CYBR 151 CYBR 158 CYBR 180 CYBR 301 CYBR 300	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux Introduction to Information Security Discrete Structures Computer Organization Operating Systems Foundation of Computational Mathematics	Hours 2 3 1 3 3 3 3 3 3
Computer Scie CYBR 105 CYBR 150 CYBR 151 CYBR 158 CYBR 180 CYBR 301 CYBR 300 CYBR 304 CYBR 325	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux Introduction to Information Security Discrete Structures Computer Organization Operating Systems Foundation of Computational Mathematics Database Systems	Hours 2 3 1 3 3 3 3 3 3 3 3
Computer Scie CYBR 105 CYBR 150 CYBR 151 CYBR 158 CYBR 180 CYBR 301 CYBR 300 CYBR 304 CYBR 325 CYBR 330 CYBR 330 CYBR 335	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux Introduction to Information Security Discrete Structures Computer Organization Operating Systems Foundation of Computational Mathematics Database Systems Algorithms and Data Structures	Hours 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Computer Scie CYBR 105 CYBR 150 CYBR 151 CYBR 158 CYBR 180 CYBR 301 CYBR 300 CYBR 304 CYBR 325 CYBR 330	cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux Introduction to Information Security Discrete Structures Computer Organization Operating Systems Foundation of Computational Mathematics Database Systems Algorithms and Data Structures Fundamentals of Networking & Systems	Hours 2 3 1 3 3 3 3 3 3 3 3 3 3 3 3
Computer Scie CYBR 105 CYBR 150 CYBR 151 CYBR 158 CYBR 180 CYBR 301 CYBR 300 CYBR 304 CYBR 325 CYBR 330 CYBR 330 CYBR 335 CYBR 404	nce Comprehensive Core Requirements Cyber Systems Freshmen: Professional Practice Computer Science II: Object Oriented Programming Cyber Programming Environment: Linux Introduction to Information Security Discrete Structures Computer Organization Operating Systems Foundation of Computational Mathematics Database Systems Algorithms and Data Structures Fundamentals of Networking & Systems Systems and Software Engineering Principles of Programming Languages &	Hours 2

STAT 241	Elementary Statistics	3
or MGT 233	Business Statistics	
Computer Science	e Electives	
Select 6 credit ho	urs of the following:	6
CYBR 405	Interactive Web Application Development	
CYBR 422	Computer Graphics	
CYBR 435	Reverse Engineering: Thinking like an Adversary	
CYBR 486	Machine Learning	
CYBR 475	Internship in Cyber Systems ³	
MATH 202	Calculus II with Analytic Geometry	
MATH 260	Calculus III	
PHYS 275 & 275L	General Physics I (Calculus) and General Physics I (Calculus) Laboratory	
PHYS 276 & 276L	General Physics II (Calculus) and General Physics II (Calculus) Laboratory	
Total Credit Hour	s	51

1

Credit Hours

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

- MATH 102
- MATH 103

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.

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 115	Calculus I with Analytic Geometry (LOPER 4)	5
LOPER 1: First	-year Seminar	3
Total Credit Ho	ours	18

Code	Title	Credit Hours
Semester 2		
CYBR 150	Computer Science II: Object Oriented Programming	3
CYBR 158	Introduction to Information Security	3
CYBR 180	Discrete Structures	3
LOPER 2: Writing	Skills	3
Unrestricted Elec	tive	3
Total Credit Hour	s	15
Code	Title	Credit Hours
Semester 3		
CYBR 330	Algorithms and Data Structures	3
CYBR 335	Fundamentals of Networking & Systems	3
STAT 241	Elementary Statistics	3
or MGT 233	Business Statistics	
	mmunication Skills	3
Unrestricted Elec	tive	3
Total Credit Hour	s	15
Code	Title	Credit Hours
Semester 4		
CYBR 304	Foundation of Computational Mathematics	3
CYBR 300	Operating Systems	3
CYBR 325	Database Systems	3
	or Performing Arts	3
Unrestricted Elec	tive	3
Total Credit Hour	s	15
Code	Title	Credit Hours
Semester 5		
CYBR 441	Artificial Intelligence	3
CYBR 301	Computer Organization	3
LOPER 6: Human		3
Unrestricted Elec		3
Unrestricted Elec		3
Total Credit Hour	S	15
Code	Title	Credit Hours
Semester 6		
CYBR 404	Systems and Software Engineering	3
CYBR 408	Principles of Programming Languages & Automata	3
LOPER 7: Social S	Science	3
Unrestricted Elec		3
Unrestricted Elec	tive	3
Total Credit Hour	s	15

Code	Title	Credit Hours
Semester 7		riours
Major Elective		3
Major Elective		3
LOPER 8: Natura	al Science	3
Unrestricted Ele	ective	3
Unrestricted Ele	ective	3
Total Credit Hou	ırs	15
Code	Title	Credit Hours
Code Semester 8	Title	
	Title Cyber Systems Capstone	
Semester 8 CYBR 495		Hours
Semester 8 CYBR 495 LOPER 9: Civic (Cyber Systems Capstone	Hours 3
Semester 8 CYBR 495 LOPER 9: Civic (Cyber Systems Capstone Competency and Engagement Dect for Human Diversity	Hours 3 3

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	Occasional Colonia I. Disham for Amalistica	2
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-ye	ar Seminar	3
Total Credit Hours	s	16
Code	Title	Credit Hours
Semester 2		
CYBR 158	Introduction to Information Security	3
CYBR 150	Computer Science II: Object Oriented Programming	3
MATH 103	Plane Trigonometry	3
LOPER 2: Writing	Skills	3
Unrestricted Elec	tive	3
Total Credit Hour	s	15
Code	Title	Credit Hours
Semester 3		
CYBR 335	Fundamentals of Networking & Systems	3
STAT 241	Elementary Statistics	3
or MGT 233	Business Statistics	

MATH 115	Calculus I with Analytic Geometry (LOPER 4)	5
LOPER 3: Oral (Communication Skills	3
Total Credit Ho	urs	14
Code	Title	Credit Hours
Semester 4		
CYBR 325	Database Systems	3
CYBR 180	Discrete Structures	3
LOPER 5: Visua	al or Performing Arts	3
Unrestricted Ele	ective	3
Unrestricted Ele	ective	3
Total Credit Ho	urs	15
Code	Title	Credi
Compoter F		Hours
Semester 5	Algorithms and Data Chrustures	
CYBR 330	Algorithms and Data Structures	3
Major Elective		3
LOPER 6: Huma		3
00010104 2		3
Unrestricted Ele		3
Total Credit Ho	urs	15
Code	Title	Credit Hours
Semester 6		
CYBR 300	Operating Systems	3
CYBR 404	Systems and Software Engineering	3
CYBR 304	Foundation of Computational Mathematics	3
LOPER 7: Socia	al Science	3
Unrestricted Ele	ective	3
Total Credit Ho	urs	15
Code	Title	Credit Hours
Semester 7		Hours
CYBR 301	Computer Organization	
CYBR 441	Computer Organization Artificial Intelligence	3
Major Elective	Artificial intelligence	
LOPER 8: Natur	ral Saionaa	3
Unrestricted Ele		3
Total Credit Ho		15
Total Credit Ho	uis	15
Code	Title	Credit Hours
Semester 8		
CYBR 495	Cyber Systems Capstone	3
CYBR 408	Principles of Programming Languages & Automata	3
LOPER 9: Civic	Competency and Engagement	3
	pect for Human Diversity	3
LUPEN 10. Nes	pect for numan biversity	

Unrestricted Elective	3
Total Credit Hours	15