

# 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.

Code	Title	Credit Hours
<b>General Education</b>		
<i>Foundational Requirements (LOPERs 1-4)</i>		14
Including:		
LOPER 4: Mathematics, Statistics, and Quantitative Reasoning		
MATH 115	Calculus I with Analytic Geometry <sup>1</sup>	
<i>Broad Knowledge Requirements (LOPERs 5-8)</i>		12
<i>Dispositional Requirements (LOPERs 9-10)</i> <sup>2</sup>		6
<i>Wellness (LOPER 11) Optional</i>		0
<b>Program Specified Requirements</b>		3
CYBR 101	Computer Science I: Python for Analytics	
<b>Major Option</b>		
Complete all required courses		51
<b>Unrestricted electives</b>		
Needed to reach 120 credit hour minimum		34
<b>Total Credit Hours</b>		120

## Major Option

Code	Title	Credit Hours
<b>Computer Science Comprehensive Core Requirements</b>		
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 300	Operating Systems	3
CYBR 304	Foundation of Computational Mathematics	3
CYBR 325	Database Systems	3
CYBR 330	Algorithms and Data Structures	3
CYBR 335	Fundamentals of Networking & Systems	3
CYBR 404	Systems and Software Engineering	3
CYBR 408	Principles of Programming Languages & Automata	3
CYBR 441	Artificial Intelligence	3
CYBR 495	Cyber Systems Capstone	3

STAT 241	Elementary Statistics	3
or MGT 233	Business Statistics	
<b>Computer Science Electives</b>		
Select 6 credit hours 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 <sup>3</sup>	
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	
<b>Total Credit Hours</b>		51

1

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
<b>Semester 1</b>		
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
<b>Total Credit Hours</b>		18

Code	Title	Credit Hours
<b>Semester 2</b>		
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 Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
<b>Semester 3</b>		
CYBR 330	Algorithms and Data Structures	3
CYBR 335	Fundamentals of Networking & Systems	3
STAT 241 or MGT 233	Elementary Statistics Business Statistics	3
LOPER 3: Oral Communication Skills		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
<b>Semester 4</b>		
CYBR 304	Foundation of Computational Mathematics	3
CYBR 300	Operating Systems	3
CYBR 325	Database Systems	3
LOPER 5: Visual or Performing Arts		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
<b>Semester 5</b>		
CYBR 441	Artificial Intelligence	3
CYBR 301	Computer Organization	3
LOPER 6: Humanities		3
Unrestricted Elective		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
<b>Semester 6</b>		
CYBR 404	Systems and Software Engineering	3
CYBR 408	Principles of Programming Languages & Automata	3
LOPER 7: Social Science		3
Unrestricted Elective		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
<b>Semester 7</b>		
Major Elective		3
Major Elective		3
LOPER 8: Natural Science		3
Unrestricted Elective		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
<b>Semester 8</b>		
CYBR 495	Cyber Systems Capstone	3
LOPER 9: Civic Competency and Engagement		3
LOPER 10: Respect for Human Diversity		3
Unrestricted Elective		3
Total Credit Hours		12

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Code	Title	Credit Hours
<b>Semester 1</b>		
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
<b>Semester 2</b>		
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 Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
<b>Semester 3</b>		
CYBR 335	Fundamentals of Networking & Systems	3
STAT 241 or MGT 233	Elementary Statistics Business Statistics	3

MATH 115	Calculus I with Analytic Geometry (LOPER 4)	5
	LOPER 3: Oral Communication Skills	3
Total Credit Hours		14

Unrestricted Elective	3
Total Credit Hours	15

Code	Title	Credit Hours
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**Semester 4**

CYBR 325	Database Systems	3
CYBR 180	Discrete Structures	3
	LOPER 5: Visual or Performing Arts	3
	Unrestricted Elective	3
	Unrestricted Elective	3
Total Credit Hours		15

Code	Title	Credit Hours
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**Semester 5**

CYBR 330	Algorithms and Data Structures	3
	Major Elective	3
	LOPER 6: Humanities	3
	Unrestricted Elective	3
	Unrestricted Elective	3
Total Credit Hours		15

Code	Title	Credit Hours
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**Semester 6**

CYBR 300	Operating Systems	3
CYBR 404	Systems and Software Engineering	3
CYBR 304	Foundation of Computational Mathematics	3
	LOPER 7: Social Science	3
	Unrestricted Elective	3
Total Credit Hours		15

Code	Title	Credit Hours
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**Semester 7**

CYBR 301	Computer Organization	3
CYBR 441	Artificial Intelligence	3
	Major Elective	3
	LOPER 8: Natural Science	3
	Unrestricted Elective	3
Total Credit Hours		15

Code	Title	Credit Hours
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**Semester 8**

CYBR 495	Cyber Systems Capstone	3
CYBR 408	Principles of Programming Languages & Automata	3
	LOPER 9: Civic Competency and Engagement	3
	LOPER 10: Respect for Human Diversity	3