

# MATHEMATICS COMPREHENSIVE, BACHELOR OF SCIENCE

Offered by Department of Mathematics and Statistics (<http://catalog.unk.edu/undergraduate/departments-programs/mathematics-statistics/>)

## Emphases offered in Actuarial Science, Applied Mathematics, Computer Science, and General Mathematics

Code	Title	Credit Hours
<b>General Education</b>		
<i>Foundational Requirements (LOPERs 1-4)</i>		14
LOPER 2: Writing Skills		
ENG 101	Introduction to Academic Writing	
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>		9
Take any one course in LOPER 5, LOPER 6, LOPER 7, or LOPER 8 that satisfies a Dispositional Requirement (LOPER 9 or LOPER 10) and a Broad Knowledge Requirement. The courses that meet these criteria are listed at <a href="https://catalog.unk.edu/undergraduate/general-studies/courses-satisfy-broad-knowledge-dispositional">https://catalog.unk.edu/undergraduate/general-studies/courses-satisfy-broad-knowledge-dispositional</a> ( <a href="https://catalog.unk.edu/undergraduate/general-studies/courses-satisfy-broad-knowledge-dispositional/">https://catalog.unk.edu/undergraduate/general-studies/courses-satisfy-broad-knowledge-dispositional/</a> ). See advisor for assistance.		
<i>Dispositional Requirements (LOPERs 9-10) <sup>2</sup></i>		6
<i>Wellness (LOPER 11) Optional</i>		0
<b>BS Science-related course requirements</b>		
Complete all required courses		5
PHYS 275 & 275L	General Physics I (Calculus) and General Physics I (Calculus) Laboratory	
<b>Program-Specific Requirements</b>		6
ENG 102	Special Topics in Academic Writing and Research	
CYBR 101 or CYBR 102	Computer Science I: Python for Analytics <sup>3</sup> or Computer Science I: C for Security	
<b>Major Option</b>		
Complete all required courses		52-59
<b>Unrestricted electives</b>		
Needed to reach 120 credit hour minimum		21-28
Total Credit Hours		120

Must be completed with no grade below a "C".

## Major Option

Code	Title	Credit Hours
<b>Math Comprehensive Core Requirements</b>		
MATH 150	School Math from an Advanced Standpoint <sup>1</sup>	3
MATH 202	Calculus II with Analytic Geometry	5
MATH 250	Foundations of Math	3
MATH 260	Calculus III	5
MATH 280	Linear Algebra	3
MATH 305	Differential Equations	3
MATH 350	Abstract Algebra	3
MATH 460	Advanced Calculus I	3
<b>MATH/STAT Elective Hours</b>		
Select 12 Credit hours from 300-499 MATH/STAT Courses <sup>4</sup>		12
<b>Emphasis area</b>		
Select one of the following:		12-19
Applied Mathematics Emphasis (p. 1)		
Computer Science Emphasis (p. 1)		
Actuarial Science Emphasis (p. 2)		
General Emphasis (p. 2)		
Total Credit Hours		52-59

## Applied Mathematics Emphasis

Code	Title	Credit Hours
Select at least 12 credit hours of the following:		
CYBR 150	Computer Science II: Object Oriented Programming	12
CYBR 180	Discrete Structures	
PHYS 276	General Physics II (Calculus)	
PHYS 276L	General Physics II (Calculus) Laboratory	
PHYS 410	Mathematical Techniques in Physics I	
PHYS 411	Mathematical Techniques in Physics II	
STAT 345	Applied Statistics I	
STAT 442	Mathematical Statistics	
Total Credit Hours		12

## Computer Science Emphasis

Code	Title	Credit Hours
CYBR 150	Computer Science II: Object Oriented Programming	3
CYBR 180	Discrete Structures	3
CYBR 300	Operating Systems	3
CYBR 301	Computer Organization	3
CYBR 330	Algorithms and Data Structures	3
CYBR 408	Principles of Programming Languages & Automata	3
Total Credit Hours		18

**Actuarial Science Emphasis**

Code	Title	Credit Hours
ACCT 250	Principles of Accounting I	3
ACCT 251	Principles of Accounting II	3
ECON 270	Principles of Economics, Macroeconomics	3
ECON 271	Principles of Economics, Microeconomics	3
FIN 308	Principles of Finance	3
BSAD 295	Business Communications	3
MATH 445	Actuarial Science Seminar	1
Total Credit Hours		19

**General Emphasis**

Code	Title	Credit Hours
Select a combination of 12 credit hours of CYBR, MATH, PHYS, STAT		12
Total Credit Hours		12

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 wishing to complete the Applied Mathematics or Computer Science Emphasis should take CYBR 101 for this option as it is a prerequisite for CYBR 150 and CYBR 180 which are required for these Emphases.

4

For these elective hours, students may take any 300+ level MATH or STAT course except MATH 330, MATH 430, MATH 465, MATH 470, or MATH 471

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>		
MATH 115	Calculus I with Analytic Geometry	5
LOPER 1: First-year Seminar		3
ENG 101	Introduction to Academic Writing	3

LOPER 3: Oral Communication Skills	3
Total Credit Hours	14

Code	Title	Credit Hours
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**Semester 2**

MATH 202	Calculus II with Analytic Geometry	5
MATH 150	School Math from an Advanced Standpoint	3
LOPER 5: Visual or Performing Arts <sup>1</sup>		3
ENG 102	Special Topics in Academic Writing and Research	3
Total Credit Hours		14

Code	Title	Credit Hours
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**Semester 3**

MATH 260	Calculus III	5
MATH 250	Foundations of Math	3
CYBR 101	Computer Science I: Python for Analytics	3
or CYBR 102	Computer Science I: C for Security	
LOPER 6: Humanities <sup>1</sup>		3
Total Credit Hours		14

Code	Title	Credit Hours
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**Semester 4**

MATH 305	Differential Equations	3
MATH 280	Linear Algebra	3
LOPER 9: Civic Competency and Engagement <sup>1</sup>		3
PHYS 275	General Physics I (Calculus)	5
& 275L	and General Physics I (Calculus) Laboratory (LOPER 8)	
Emphasis Area		3
Total Credit Hours		17

Code	Title	Credit Hours
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**Semester 5**

Major Elective		3
LOPER 7: Social Science <sup>1</sup>		
Emphasis Area		3
Emphasis Area		3
Unrestricted Elective		3
Unrestricted Elective		3
Unrestricted Elective		1
Total Credit Hours		16

Code	Title	Credit Hours
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**Semester 6**

MATH 350	Abstract Algebra	3
Emphasis Area		3
Emphasis Area		3
Unrestricted Elective		3

Unrestricted Elective	3
<b>Total Credit Hours</b>	<b>15</b>

<b>Code</b>	<b>Title</b>	<b>Credit Hours</b>
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**Semester 7**

MATH 460	Advanced Calculus I	3
Emphasis Area		3
Unrestricted Elective		3
Unrestricted Elective		3
Unrestricted Elective		3
<b>Total Credit Hours</b>		<b>15</b>

<b>Code</b>	<b>Title</b>	<b>Credit Hours</b>
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**Semester 8**

Major Elective		3
Major Elective		3
Major Elective		3
Unrestricted Elective		3
LOPER 10: Respect for Human Diversity <sup>1</sup>		2
Unrestricted Elective		1
<b>Total Credit Hours</b>		<b>15</b>

1

Choose a course that satisfies two LOPER requirements: LOPER 5, 6, or 7 AND LOPER 9 or LOPER 10