MATHEMATICS, **BACHELOR OF ARTS**

To obtain a B.A. with a major in Mathematics, a student must fulfill university, college, and departmental requirements. Minimum hour requirements follow:

- 46 hours of University General Education courses (Testing out of academic skills requirements and enrolling in General Education courses that meet both distribution and diversity requirements are likely to reduce the total number of General Education hours to 40 or fewer.)
- 16 hours foreign language requirement
- 12 hours college breadth requirement
- 46 hours of major courses
- · Elective hours as required to total 120 hours

TOTAL HOURS: 120

Requirements

Code	Title	Credits
Courses Required	(Core Curriculum)	
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II	4
MATH 1970	CALCULUS III	4
MATH 2050	APPLIED LINEAR ALGEBRA	3
MATH 2230	INTRODUCTION TO ABSTRACT MATH	3
MATH 2350	DIFFERENTIAL EQUATIONS	3
MATH 3230	INTRODUCTION TO ANALYSIS	3
Select one of the foll	owing courses:	3
CIST 1400	INTRODUCTION TO COMPUTER SCIENCE I	
MATH 2200	MATHEMATICAL COMPUTING I ¹	
MATH 3250	INTRODUCTION TO NUMERICAL METHODS	
Additional Course Concentration Op	work: Concentration or No tion	
	dits of approved upper-level MATH/STAT include at least 9 credits at the 4000 level	18
Optional Concent	ations Include:	
Applied Mathema	tics	
Pre-Actuarial Mat	hematics	
Computational M	athematics	
Data Science		
Mathematics Education		
Operations Resea		
Pure Mathematic	5	
Statistics		
B.A. Degree Additi	onal Requirements	
Foreign language th	rough the intermediate level.	
Total Credits		46

1 Recommended for students in the Education, Statistics, and Pre-Actuarial Mathematics concentrations.

2 **Recommended for students in the Computational Mathematics** concentration

Applied Mathematics Concentration

This concentration is recommended for students interested in inherently interdisciplinary subjects which apply to many problems that arise in the physical, biological, economic, social, and network sciences as well as in engineering. Applied Mathematics provides a set of qualitative and quantitative skills and knowledge for use in these fields.

Applied Mathematics has a profound impact on our daily lives. Whether it is weather forecasts, genetic or neural networks, search engines, climate research, evolution of species, stock market and finance, ground or air transportation, architecture, or movie recommendations, none of these would work the way they do without algorithms and tools from the mathematical sciences. The concentration in Applied Mathematics allows students to investigate the mathematics of problems arising in the physical, biological, economic, social, and network sciences as well as in engineering.

Applied Mathematics appeals to people with a variety of different interests, ranging from those with a desire to obtain a good quantitative background for use in some future career, to those who are interested in the basic techniques and approaches in themselves.

Code	Title	Credits
The 18 credits of up	per-level courses must include:	
MATH 3100	APPLIED COMBINATORICS	3
MATH 4330	INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS	3
MATH 4760	TOPICS IN APPLIED MATHEMATICS	3
MATH 4970	SEMINAR IN APPLIED MATHEMATICS	3
Along with two 3 cr	edit electives from the following:	6
MATH 3400	THEORY OF INTEREST	
MATH 4050	LINEAR ALGEBRA	
MATH 4150	GRAPH THEORY & APPLICATIONS	
MATH/CSCI 4200	NUMERICAL METHODS	
MATH 4300	DETERMINISTIC OPERATIONS RESEARCH MODELS	
MATH 4310	PROBABILISTIC OPERATIONS RESEARCH MODELS	
MATH 4320	COMPUTATIONAL OPERATIONS RESEARCH	
MATH 4350	ORDINARY DIFFERENTIAL EQUATIONS	
MATH 4400	THE FINITE ELEMENT METHOD	
MATH 4560	NUMBER THEORY & CRYPTOGRAPHY	
MATH 4740	INTRODUCTION TO PROBABILITY AND STATISTICS I	
MATH 4750	INTRODUCTION TO PROBABILITY AND STATISTICS II	
MATH 4760	TOPICS IN APPLIED MATHEMATICS	
MATH 4900	INDEPENDENT STUDIES	
MATH 4970	SEMINAR IN APPLIED MATHEMATICS	
Total Credits		18

Data Science Concentration

This concentration is recommended for students interested in a career as a data science professional or pursuing graduate study in disciplines with a strong data analysis component. Data science is the art and science of transforming raw data into deliverable data products in order to help businesses or government agencies make more informed decisions.

Code	Title	Credits
Upper Level Cou	rses	
The 18 credits of u	pper-level courses must include:	
MATH 3200	MATHEMATICAL COMPUTING II	3
or CSCI 1620	INTRODUCTION TO COMPUTER SCIENCE II	

Total Credits		18
STAT 4440	TIME SERIES ANALYSIS	
STAT 4430	LINEAR MODELS	
MATH 4900	INDEPENDENT STUDIES	
MATH/STAT 4450	INTRODUCTION TO MACHINE LEARNING AND DATA MINING	
MATH/CSCI 4310	PROBABILISTIC OPERATIONS RESEARCH MODELS	
MATH/CSCI 4300	DETERMINISTIC OPERATIONS RESEARCH MODELS	
Select two of the follo	wing elective courses:	3
STAT 4420	EXPLORATORY DATA VISUALIZATION AND QUANTIFICATION	3
STAT 4410	INTRODUCTION TO DATA SCIENCE	3
MATH 4750	INTRODUCTION TO PROBABILITY AND STATISTICS II	3
MATH 4740	INTRODUCTION TO PROBABILITY AND STATISTICS I	3

Mathematics Education Concentration

This concentration is recommended for students interested in pursuing a career in Secondary Education. In some cases it is possible to simultaneously earn a B.S. or a B.A. in Math and a B.S. in Secondary Education.

Code	Title	Credits
The 18 credits of up	oper-level courses must include:	
MATH 3640	MODERN GEOMETRY	3
MATH 3850	HISTORY OF MATHEMATICS	3
MATH 4030	MODERN ALGEBRA	3
MATH 4740	INTRODUCTION TO PROBABILITY AND STATISTICS I	3
Select two of the fo	llowing elective courses:	6
MATH 3100	APPLIED COMBINATORICS	
MATH 3200	MATHEMATICAL COMPUTING II	
MATH 4050	LINEAR ALGEBRA	
MATH 4560	NUMBER THEORY & CRYPTOGRAPHY	
MATH 4610	INTRODUCTION TO TOPOLOGY	
Total Credits		18

Additional Requirement

Students must include the following Educator Preparation Program **Requirements:**

Code	Title	Credits
TED 2100	EDUCATIONAL FOUNDATIONS	3
TED 2200	HUMAN RELATIONS FOR BIAS-FREE CLASSROOMS	3
TED 2380	DEVELOPMENT AND LEARNING IN ADOLESCENCE	3
TED 2400	PLANNING FOR EFFECTIVE TEACHING	6
TED 3550	SECONDARY CLASSROOM MANAGEMENT	3
TED 3690	LITERACY AND LEARNING	3
TED 4000	SPECIAL METHODS IN THE CONTENT AREA	3
SPED 3800	DIFFERENTIATION AND INCLUSIVE PRACTICES	3
Total Credits		27

Code	Title	Credits
For those who Certificate:	want a Nebraska Math 6-12 Teaching	
TED 4600	CLINICAL PRACTICE AND SEMINAR: ELEMENTARY OR SECONDARY LEVEL ¹	12
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¹ These requirements also fulfill the College of Arts & Sciences breadth requirement.

Pre-Actuarial Mathematics Concentration

This concentration is recommended for students interested in a career as an Actuary and who plan on taking the actuarial exams.

An actuary evaluates the financial impact of risk by evaluating the likelihood of future events, designing creative ways to reduce the likelihood of undesirable events, and decreasing the impact of undesirable events that do occur.

Actuaries work for insurance companies, government, and consulting firms. In the actuarial profession, you can earn while you learn. Many students receive on-the-job training while enrolled in the examination process. Employers are generally supportive and may give students study time during working hours, pay exam fees, and award raises for each exam passed. However, most employers prefer to hire people who have started the series of examinations on their own and have already passed at least two or three.

Code	Title	Credits
The 18 credits of upp	er-level courses must include:	
MATH 3200	MATHEMATICAL COMPUTING II	3
MATH 3400	THEORY OF INTEREST	3
MATH/CSCI 4310	PROBABILISTIC OPERATIONS RESEARCH MODELS	3
or STAT 4430	LINEAR MODELS	
MATH 4740	INTRODUCTION TO PROBABILITY AND STATISTICS I	3
MATH 4750	INTRODUCTION TO PROBABILITY AND STATISTICS II	3
STAT 4440	TIME SERIES ANALYSIS	3
Total Credits		18

Operations Research Concentration

This concentration is recommended for students interested in a career as an operations research analyst or in pursuing a graduate degree in operations research or a related field.

The broad real-world applicability of operations research makes it an attractive choice for math majors. In operations research courses, students get a solid background in mathematical modeling of decision-making problems, algorithms for solving different types of these problems, as well as experience using appropriate software tools.

Operations research is the application of advanced analytical methods to enable better decision making. A plethora of problems may be solved using operations research; among these are (1) determining the route a delivery truck should take in order to make all deliveries while traveling the fewest number of miles; (2) determining the best location for a new facility such as a fire station; (3) scheduling airline flights and crew; and (4) determining the optimal distribution of bicycles in a bike sharing system. Operations research includes problem-solving methods such as deterministic and stochastic optimization, machine learning, and simulation.

Code	Title	Credits
The 18 hours of u	upper-level courses must include:	
MATH 3200	MATHEMATICAL COMPUTING II	3

Total Credits		18
STAT 4440	TIME SERIES ANALYSIS	
STAT 4430	LINEAR MODELS	
STAT 4420	EXPLORATORY DATA VISUALIZATION AND QUANTIFICATION	
STAT 4410	INTRODUCTION TO DATA SCIENCE	
MATH 4900	INDEPENDENT STUDIES	
MATH 4750	INTRODUCTION TO PROBABILITY AND STATISTICS II	
MATH/STAT 4450	INTRODUCTION TO MACHINE LEARNING AND DATA MINING	
,	GRAPH THEORY & APPLICATIONS	
Select one of the follo	wing:	3
or STAT 3800	APPLIED ENGINEERING PROBABILITY AND STATISTICS	
MATH 4740	INTRODUCTION TO PROBABILITY AND STATISTICS I	3
MATH 4320	COMPUTATIONAL OPERATIONS RESEARCH	3
MATH/CSCI 4310	PROBABILISTIC OPERATIONS RESEARCH MODELS	3
MATH/CSCI 4300	DETERMINISTIC OPERATIONS RESEARCH MODELS	3

Statistics Concentration

This concentration is recommended for students interested in the theoretical and practical aspects of statistics, particularly those students who are interested in pursuing graduate study in statistics or biostatistics.

Statistics, the study of data, is of growing importance. Students who have the skills to properly collect, analyze, interpret, and present data are in high demand around the country.

The objectives of this concentration are: (1) to gain an understanding of the mathematical underpinnings of statistics; (2) to use appropriate statistical modeling to solve practical problems; (3) to develop an understanding of how to use statistical software; (4) to communicate statistical results to non-statisticians.

Statistics is used in many fields, including biology, sociology, psychology, medicine, economics, quality control, and sports. This diversity, along with the growing need for people with statistical knowledge, makes it an attractive choice for mathematics students.

Code	Title	Credits
The 18 credits of uppe	r-level courses must include:	
MATH 3200	MATHEMATICAL COMPUTING II	3
MATH 4740	INTRODUCTION TO PROBABILITY AND STATISTICS I	3
MATH 4750	INTRODUCTION TO PROBABILITY AND STATISTICS II	3
Select three of the foll	owing, with at least two from group A:	9
Group A:		
STAT 4420	EXPLORATORY DATA VISUALIZATION AND QUANTIFICATION	
STAT 4430	LINEAR MODELS	
STAT 4440	TIME SERIES ANALYSIS	
Group B:		
MATH/CSCI 3100	APPLIED COMBINATORICS	
MATH/CSCI 4310	PROBABILISTIC OPERATIONS RESEARCH MODELS	

Tota	l Credits		18
ST	AT 4410	INTRODUCTION TO DATA SCIENCE	
Μ	ATH 4900	INDEPENDENT STUDIES	
		LEARNING AND DATA MINING	
Μ	ATH/STAT 4450	INTRODUCTION TO MACHINE	

Total Credits

Computational Mathematics Concentration

This concentration is recommended for students interested in computational science, particularly those students who are interested in pursuing graduate study in applied and computational mathematics at the graduate level.

A concentration in computational mathematics may be useful in a wide range of areas including science, engineering, government, healthcare, business, and information technology. The specialization in computational mathematics is designed for students with a strong interest in Mathematics and in mathematical applications to areas of science and engineering. By choosing elective courses carefully, students completing this specialization will be prepared for a career in a variety of computing and/or engineering areas. Students will also be prepared to continue on to a graduate program in applied mathematics.

Computational mathematics involves the use of math and computers to solve problems and predict outcomes. The concentration in computational mathematics is intended for any student who is interested in applications to solving practical and physical problems in engineering, science, and business. This concentration is also recommended for students who wish to work in the research and development area of industry. The concentration is especially intended for students seeking a career as quantitative analysts, computational scientists, and applied mathematicians, and for those thinking of continuing the study of applied and computational mathematics at the graduate level.

Code	Title	Credits
The 18 credits of uppe	er-level courses must include:	
MATH/CSCI 4200	NUMERICAL METHODS	3
MATH 4330	INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS	3
MATH 4350	ORDINARY DIFFERENTIAL EQUATIONS	3
MATH 4400	THE FINITE ELEMENT METHOD	3
Select two of the follow	wing:	6
MATH 4050	LINEAR ALGEBRA	
MATH 4230	MATHEMATICAL ANALYSIS I	
MATH 4240	MATHEMATICAL ANALYSIS II	
MATH 4320	COMPUTATIONAL OPERATIONS RESEARCH	
MATH 4740	INTRODUCTION TO PROBABILITY AND STATISTICS I	
MATH 4750	INTRODUCTION TO PROBABILITY AND STATISTICS II	
MATH 4900	INDEPENDENT STUDIES	
MATH 4970	SEMINAR IN APPLIED MATHEMATICS	

Total Credits

Pure Mathematics Concentration

What do UNO Alumni Chief Operating Officer Matt Culek of Citadel Securities, Senior Industrial Logician Andrew Gacek of Rockwell Collins, Microsoft Data Scientist Daniel Miller and University of Toronto Postdoc Melissa Emory have in common? They sought out the strongest foundation in mathematics available here at UNO, taking the courses required for the Pure Mathematics Concentration.

This concentration is strongly recommended for students interested in a pursuing a graduate degree in mathematics, but as indicated above, is

highly recommended for any student interested in getting the most out of their mathematics major.

Students pursuing a graduate degree are expected to have a strong foundation based in analysis, topology, and abstract algebra. This is what this concentration provides.

Challenging yourself has other advantages. Matt Culek credits his ability to trouble-shoot proposals brought to him by quantitative analysts at Citadel Securities to the habits of thought developed in his undergraduate course in number theory here at UNO.

Code	Title	Credits
	level courses in this concentration	9
must include the fo	llowing 3 courses:	
MATH 4050	LINEAR ALGEBRA (3 credits)	
MATH 4110	ABSTRACT ALGEBRA I (3 credits)	
MATH 4230	MATHEMATICAL ANALYSIS I (3 credits)	
Choose 3 of the foll	owing courses:	9
	o plan to apply for a Ph.D. program in d choose their elective courses from	
those with the num	bered superscripts, with #1 signifying	
highest priority.		
MATH 3640	MODERN GEOMETRY	
MATH 4010	INTRODUCTION TO THE THEORY OF RECURSIVE FUNCTIONS	
MATH 4120	ABSTRACT ALGEBRA II (3 credits) ²	
MATH 4150	GRAPH THEORY & APPLICATIONS	
MATH 4240	MATHEMATICAL ANALYSIS II (3 credits) ³	
MATH 4270	COMPLEX ANALYSIS (3 credits) ⁴	
MATH 4330	INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS ⁵	
MATH 4350	ORDINARY DIFFERENTIAL EQUATIONS	
MATH/CSCI 4560	NUMBER THEORY & CRYPTOGRAPHY (3 credits)	
MATH 4610	INTRODUCTION TO TOPOLOGY (3 credits) ¹	
MATH 4900	INDEPENDENT STUDIES	
Total Credits		18
Applied Mather	natics Concentration	
Freshman		
Fall		Credits
CMST 1110	PUBLIC SPEAKING FUNDS	Greans 3
or CMST 2120	or ARGUMENTATION AND DEBATE	3
ENGL 1150	ENGLISH COMPOSITION I (*)	3
MATH 1950	CALCULUS I (**)	5
Foreign Language Co	()	5
*ENGL 1150 Requi		Ū
**MATH 1950 Requ	uired Math Placement Exam or ACT or SAT	
scores		
Humanity/Fine Art the student's BA re requirement via alt	gn language courses count as a s course, Global Diversity, and toward quirement. If student is fulfilling the BA ternative methods, then 16 additional HFA and Global Diversity will need to be degree plan.	
Spring	Credits	16
ENGL 1160	ENGLISH COMPOSITION II	3
MATH 1960	CALCULUS II	4
		4

Foreign Language Course 1120

Humanities/Fine A	rts Course	3
	Credits	15
Sophomore Fall		
MATH 1970	CALCULUS III	4
MATH 2050	APPLIED LINEAR ALGEBRA (*)	3
Natural/Physical S	cience with Lab	4
Foreign Language		3
	equires MATH 1960	
	Credits	14
Spring		••
MATH 2230	INTRODUCTION TO ABSTRACT MATH	3
MATH 2350	DIFFERENTIAL EQUATIONS (*)	3
		3
Social Science with	•	
Humanity/Fine Art		3
Foreign Language		3
*MAIH 2350 It but not required	is recommended you take MATH 2050 first, 1	
· · ·	Credits	15
Junior		
Fall		
HIST 1010	WORLD HISTORY SINCE 1500 (or	3
	Minor/2nd Major Course *)	3
MATH 3230	INTRODUCTION TO ANALYSIS (**)	3
Social Science		3
MATH 4330	INTRODUCTION TO PARTIAL	3
MATH 4550	DIFFERENTIAL EQUATIONS	3
Coding Course [^]		3
-	equirement Options	Ű
-	lequires MATH 2230	
	Requires MATH 1970 and MATH 2230.	
	Catalog for list of Coding Course Options.	
	Credits	15
Spring	Creatts	15
HIST 1000	WORLD HISTORY TO 1500 (or Course for	2
HIST 1000	Minor/2nd Major*)	3
MATH 3100	APPLIED COMBINATORICS (**)	3
Applied Math Elec	tive 2***	3
Advanced Writing	Requirement^	3
Social Science#		3
*A&S College R	equirement Options	
**MATH 3100 R	equires MATH 2230	
***See Academi	c Catalog for list of Applied Math Electives.	
Composition for ENGL 3980 Tecl	ting Requirement can be CIST 3000 Advanced r IS&T, ENGL 3050 Writing for the Workplace, hnical Writing Across the Discipline, or psophy Writng Seminar	
#SS Must be in (a 2nd discipline	
	Credits	15
Senior		
Fall	***	~
Applied Math Elect	tive	3
Elective		3
Natural/Physical S		3
Additional Social S Major***	cience for A&S or Course towards Minor/2nd	3
Additional Human Minor/2nd Major^	ities and Fine Arts for A&S or Course towards	3

	Total Credits	120
	Credits	15
upper level credit least 18 credits o major/concentrat	at least 120 credits and a minimum of 27 s throughout the entire degree, with at f upper level coursework taken within the tion. May need to select 3000/4000 level each the 27 credit minimum.	
	quires MATH 3100	
*MATH 4760: Rec	uires MATH 3100	
Elective at 3000-4000 Level or Minor/2nd Major Course***		3
Elective at 3000-4000 Level or Minor/2nd Major Course***		3
Elective or Minor/Double Major Course***		3
MATH 4970	SEMINAR IN APPLIED MATHEMATICS (**)	3
MATH 4760	TOPICS IN APPLIED MATHEMATICS (*)	3
Spring	or curto	13
must be in 3rd dis		15
· ·	uirement Options. Additional HFA for A&S	
***A&S College R discipline	equirement Options. SS Must be in a 3rd	
**N&PS Course m	nust be in a 2nd discipline	
*See Applied Cate	alog for list of Applied Math Electives.	

This plan is not a contract and curriculum is subject to change

Additional Information About this Plan:

University Degree Requirements: The minimum number of hours for a UNO undergraduate degree is 120 credit hours. Please review the requirements for your specific program to determine all requirements for the program. In order to graduate on-time (four years for an undergraduate degree), you need to take 30 hours each year.

Placement Exams: For Math, English, Foreign Language, a placement exam may be required. More information on these exams can be found at https://www.unomaha.edu/enrollment-management/testing-center/ placement-exams/information.php

**Transfer credit or placement exam scores may change suggested plan of study

Data Science Concentration

Freshman		
Fall		Credits
CMST 1110 or CMST 2120	PUBLIC SPEAKING FUNDS or ARGUMENTATION AND DEBATE	3
ENGL 1150	ENGLISH COMPOSITION I (*)	3
MATH 1950	CALCULUS I (*)	5
Foreign Language (Course 1110***	5
*ENGL 1150: Red	quires EPPE.	
**MATH 1950: R scores.	equires Math Placement Exam or ACT or SAT	
Humanity/Fine A the student's BA requirement via	reign language courses count as a Arts course, Global Diversity, and toward requirement. If student is fulfilling the BA alternative methods, then 16 additional a HFA and Global Diversity will need to be is degree plan.	
	Credits	16

Spring		
ENGL 1160	ENGLISH COMPOSITION II	3
MATH 1960	CALCULUS II	4
Foreign Language C	Course 1120	5
Humanities/Fine Art	ts Course	3
	Credits	15
Sophomore		
Fall		
MATH 1970 MATH 2050		4
Natural/Physical Sc	APPLIED LINEAR ALGEBRA (*)	4
Foreign Language C		4
	quires MATH 1960.	5
	Credits	14
Spring		
MATH 2230	INTRODUCTION TO ABSTRACT MATH	3
MATH 2350	DIFFERENTIAL EQUATIONS	3
Social Science with	U.S. Diversity	3
Humanity/Fine Arts	Course	3
Foreign Language C		3
	s recommended you take MATH 2050 first,	
but not required.		
I	Credits	15
Junior Fall		
	/2nd Major Course*	3
MATH 3230	INTRODUCTION TO ANALYSIS (**)	3
MATH 3230	INTRODUCTION TO PROBABILITY AND	3
	STATISTICS I (***)	Ū
Coding Course [^]		3
Social Science		3
*A&S College Red	quirement Options	
	equires MATH 2230	
	Requires MATH 1970 and MATH 2230	
^See Academic C	Catalog for list of Coding Course Options.	
	Credits	15
Spring	6 NA: 70 INA : *	2
MATH 4750	e for Minor/2nd Major* INTRODUCTION TO PROBABILITY AND	3
MAIH 4750	STATISTICS II (**)	3
MATH 3200	MATHEMATICAL COMPUTING II (***)	3
or CSCI 1620	or INTRODUCTION TO COMPUTER	
	SCIENCE II	
Advanced Writing R	equirement^	3
Social Science#		3
-	quirement Options equires MATH 4740	
	Requires MATH 2740 Requires MATH 2200. CSCI 1620: Requires	
CIST 1400.		
	ng Requirement can be: CIST 3000 Advanced IS&T, ENGL 3050 Writing for the Workplace,	
	nical Writing Across the Discipline, or	
	ophy Writing Seminar	
#SS Must be in a	2nd discipline	
	Credits	15
Senior Fall		
STAT 4410	INTRODUCTION TO DATA SCIENCE (*)	3
		3

Data Science Elective/Elective**	3		
Natural/Physical Science***	3		
Additional Social Science for A&S or Course towards Minor/2nd Major^			
Additional Humanities and Fine Arts for A&S or Course towards Minor/2nd Major#	3		
*STAT 4410: Requires MATH 4740			
**Students only need one Data Science Elective. Some are offered only in Fall, others only in Spring. Fall: MATH/ CSCI 4300 Deterministic Operations Research Models (prereq: MATH 2050), or STAT 4430 Linear Models (prereq: MATH 4750)			
***N&PS Course must be in a 2nd discipline			
^A&S College Requirement Options. SS Must be in a 3rd discipline			
#A&S College Requirement Options. Additional HFA for A&S must be in 3rd discipline.			
Credits	15		
Spring			
STAT 4420 EXPLORATORY DATA VISUALIZATION AND QUANTIFICATION (*)	3		
Data Science Elective/Elective**	3		
Elective or Minor/Double Major Course***	3		
Elective at 3000-4000 Level or Minor/2nd Major Course***	3		
Elective at 3000-4000 Level or Minor/2nd Major Course***	3		
*STAT 4420: Requires MATH 4750, and CSCI 1620 or MATH 3200			
**Students only need one Data Science Elective. Some are offered only in Fall, others only in Spring. Spring: MATH/ CSCI 4310 Probabilistic Operations Research Models (prereq: MATH 2050 and MATH 4740), STAT 4440 Time Series Analysis (prereq: MATH 4750 and CSCI 1620 or MATH 3200), or MATH/STAT 4450 Intro to Machine Learning & Data Mining (prereq: MATH 4740)			
***Students need at least 120 credits and a minimum of 27 upper level credits throughout the entire degree, with at least 18 credits of upper level coursework taken within the major/concentration. May need to select 3000/4000 level free electives to reach the 27 credit minimum.			
Credits	15		
Total Credits	120		

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Additional Information About this Plan:

University Degree Requirements: The minimum number of hours for a UNO undergraduate degree is 120 credit hours. Please review the requirements for your specific program to determine all requirements for the program. In order to graduate on-time (four years for an undergraduate degree), you need to take 30 hours each year.

Placement Exams: For Math, English, Foreign Language, a placement exam may be required. More information on these exams can be found at https://www.unomaha.edu/enrollment-management/testing-center/ placement-exams/information.php

**Transfer credit or placement exam scores may change suggested plan of study

Mathematics Education Concentration

Freshman 		
Fall		Credits
CMST 1110 or CMST 2120	PUBLIC SPEAKING FUNDS or ARGUMENTATION AND DEBATE	3
ENGL 1150	ENGLISH COMPOSITION I (*)	3
MATH 1950	CALCULUS I (**)	5
Foreign Language Co		5
	ires placement via EPPE, AP, or ACT.	
**MATH 1950: Red scores.	quires placement exam or ACT or SAT	
	ign language courses count as a	
Humanity/Fine Ar the student's BA re	ts course, Global Diversity, and toward equirement. If student is fulfilling the BA Iternative methods, then 16 additional	
	I HFA and Global Diversity will need to be	
factored in to this	-	
	Credits	16
Spring		
ENGL 1160	ENGLISH COMPOSITION II	3
MATH 1960	CALCULUS II	4
MATH 2050	APPLIED LINEAR ALGEBRA (*)	3
Foreign Language Co	ourse 1120	5
Recommended: Be Skills.	egin studying for Praxis CORE Academic	
*MATH 2050: Req	uires MATH 1950.	
	Credits	15
Summer		
MATH 1970	CALCULUS III	4
	Credits	4
	Creuits	
Sophomore	CIEUI(5	-
Sophomore Fall	Greates	-
	MATHEMATICAL COMPUTING I (*)	3
Fall		
Fall MATH 2200	MATHEMATICAL COMPUTING I (*)	3
Fall MATH 2200 MATH 2230	MATHEMATICAL COMPUTING I (*) INTRODUCTION TO ABSTRACT MATH (**)	3
Fall MATH 2200 MATH 2230 TED 2100	MATHEMATICAL COMPUTING I (*) INTRODUCTION TO ABSTRACT MATH (**) EDUCATIONAL FOUNDATIONS (***) HUMAN RELATIONS FOR BIAS-FREE CLASSROOMS (^)	3 3 3
Fall MATH 2200 MATH 2230 TED 2100 TED 2200	MATHEMATICAL COMPUTING I (*) INTRODUCTION TO ABSTRACT MATH (**) EDUCATIONAL FOUNDATIONS (***) HUMAN RELATIONS FOR BIAS-FREE CLASSROOMS (^) Durse 2110	3 3 3 3
Fall MATH 2200 MATH 2230 TED 2100 TED 2200 Foreign Language Co *MATH 2200: Req	MATHEMATICAL COMPUTING I (*) INTRODUCTION TO ABSTRACT MATH (**) EDUCATIONAL FOUNDATIONS (***) HUMAN RELATIONS FOR BIAS-FREE CLASSROOMS (^) Durse 2110	3 3 3 3
Fall MATH 2200 MATH 2230 TED 2100 TED 2200 Foreign Language Ca *MATH 2200: Req **MATH 2230: Req	MATHEMATICAL COMPUTING I (*) INTRODUCTION TO ABSTRACT MATH (**) EDUCATIONAL FOUNDATIONS (***) HUMAN RELATIONS FOR BIAS-FREE CLASSROOMS (^) purse 2110 uires MATH 1950.	3 3 3 3
Fall MATH 2200 MATH 2230 TED 2100 TED 2200 Foreign Language Ca *MATH 2200: Req ***MATH 2230: Req Requirement.	MATHEMATICAL COMPUTING I (*) INTRODUCTION TO ABSTRACT MATH (**) EDUCATIONAL FOUNDATIONS (***) HUMAN RELATIONS FOR BIAS-FREE CLASSROOMS (^) burse 2110 uires MATH 1950. quires MATH 1960. uires 2.50 GPA. Fulfills Advanced Writing	3 3 3 3
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Summer			Spring		
MATH 2350	DIFFERENTIAL EQUATIONS (*)	3	TED 4600	CLINICAL PRACTICE AND SEMINAR:	12
	Arts Course + U.S. Diversity	3		ELEMENTARY OR SECONDARY LEVEL	
	quires MATH 1960. MATH 2050			Credits	12
recommended bu				Total Credits	132
	Credits	6			
Junior			This roadmap is a	suggested plan of study and does not replace n	neeting
		2		lease note that students may need to adjust the	
MATH 3640	MODERN GEOMETRY (*)	3		ses based on course availability. Please consult a	ın advisor
TED 2380	DEVELOPMENT AND LEARNING IN ADOLESCENCE (**)	3		gram for further guidance. contract and curriculum is subject to change	
TED 2400	PLANNING FOR EFFECTIVE TEACHING (**)	6		contract and curricular is subject to change	
Social Science		3		mation About this Plan:	
	quires MATH 2230	5		ee Requirements: The minimum number of hou	
	2380 must be taken back-to-back, in either a			praduate degree is 120 credit hours. Please revie your specific program to determine all requireme	
Morning or After				rder to graduate on-time (four years for an unde	
g e. /	Credits	15		to take 30 hours each year.	0
Spring	el cuito		Discourse of France		
MATH 3100 or MATH 4560	APPLIED COMBINATORICS (*) or NUMBER THEORY &	3	exam may be requ	ns: For Math, English, Foreign Language, a place uired. More information on these exams can be f nomaha.edu/enrollment-management/testing-ce	ound
	CRYPTOGRAPHY		placement-exams		,
MATH 3850	HISTORY OF MATHEMATICS (**)	3			
TED 3550	SECONDARY CLASSROOM MANAGEMENT (***)	3	**Transfer credit o study	or placement exam scores may change suggeste	d plan of
TED 3690	LITERACY AND LEARNING (***)	3	GPA Requireme	nts: TED 2100 and TED 2200 require a 2.50 GPA	. TED
Social Science		3		00 as well as Admission into the Teacher Prep Pr	
*MATH 3100 or M	MATH 4560: Requires MATH 2230.		require a 2.75 GP	Α.	
MATH 4050 Line	ar Algebra can also satisfy this requirement. irres MATH 2050 and MATH 2230.		Graduation Req	uirements: 2.75 GPA.	
**MATH 3850: Re	equires MATH 2230.		Pre-Actuaria	l Mathematics Concentration	
***TED 3550 and	TED 3690 must be taken back-to-back, in		Freshman		
either a Morning	or Afternoon block.		Fall		Credits
	Credits	15	CMST 1110	PUBLIC SPEAKING FUNDS	3
Summer			or CMST 2120	or ARGUMENTATION AND DEBATE	
Natural/Physical Sc	ience Course, with lab*	4	MATH 1950	CALCULUS I (*)	5
Natural/Physical Sc	ience Course	3	ENGL 1150	ENGLISH COMPOSITION I (**)	3
*Natural/Physico	Il Science Courses must be in 2 different		Foreign Language		5
disciplines			*MATH 1950: I	Requires placement exam	
	Credits	7		Requires placement exam	
Senior				foreign language courses count as a	
Fall				Arts course, Global Diversity, and toward	
MATH 4740	INTRODUCTION TO PROBABILITY AND STATISTICS I (*)	3	the student's B	A requirement. If student is fulfilling the BA a alternative methods, then 16 additional	
SPED 3800	DIFFERENTIATION AND INCLUSIVE PRACTICES (**)	3		ng a HFA and Global Diversity will need to be this degree plan.	
TED 4000	SPECIAL METHODS IN THE CONTENT AREA	3	Spring	Credits	16
Social Science***		3	MATH 1960	CALCULUS II	4
*MATH 4740: Re	quires MATH 1970 and MATH 2230		ENGL 1160	ENGLISH COMPOSITION II	3
	ust be taken concurrently with TED 4000 or		Foreign Language	e Course 1120	5
TED 3550			Social Science		3
***Social Science	s course must be in a 2nd discipline			Credits	15
Recommended b	ut not required: Pass Praxis II.		Sophomore		
	Credits	12	Fall		
			MATH 1970	CALCULUS III	4

MATH 2230

Humanities & Fine Arts Course/U.S. Diversity

Foreign Language Course 2110

INTRODUCTION TO ABSTRACT MATH

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Spring Creatis MATH MATH 2050 APPLIED LINEAR ALGEBRA IMATH 3230 MATH 3230 INTRODUCTION TO ANALYSIS (*) IMATH 3230 Social Science IMATH 3230, do your best to keep them in back-to-back semesters. Image: Student Should consider taking the Exam FM through the Society of Actuaries the summer following this semester. Image: Student Should consider taking the Exam FM through the Society of Actuaries the summer following this semester. Image: Student Should consider taking the Exam FM through the Society of Actuaries the summer following this semester. Image: Student Should consider taking the Exam FM through the Society of Actuaries the summer following this semester. Image: Student Should consider taking the Exam FM through the Society of Actuaries the Summer following this semester. Image: Student Should consider taking the Exam FM through the Society of Actuaries the Summer following this semester. Image: Student Should consider taking the Exam FM through the Society of Actuaries MATH 1970 MATH 3400 THEONY OF INTEREST (*) Image: Student Should consider taking the Exam FM through the Society Credits Image: Student Should consider taking the Exam FM through the Society Credits Image: Student Should consider taking the Exam FM through the Society of Actuaries the MATH 4740 INTRODUCTION TO PROBABILISTIC OPERATIONS RESEARCH Image: Student Should consider taking the Student Should consider taking Exam P through the Socie		Credits	1
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Spring MATH 2050 APPLIED LINEAR ALGEBRA			
Spring			
Crodite	. .	Credits	1
Optional VEE Elective	Optional VEE Elective		

	Total Credits	123
	Credits	12
free electives	to reach the 27 credit minimum.	
	ntration. May need to select 3000/4000 level	
	el credits throughout the entire degree, with at its of upper level coursework taken within the	
	nts need at least 120 credits and a minimum of	
Composition ENGL 3980 T PHIL 3000 Ph	/riting Requirement can be: CIST 3000 Advanced for IS&T, ENGL 3050 Writing for the Workplace, echnical Writing Across the Discipline, or hilosophy Writing Seminar.	
	rse must be in a 3rd discipline	
***A&S Colleg	ge Requirement Options. Additional Social	
**STAT 4440:	Requires MATH 4750	
*A&S College	Requirement Options.	
dvanced Writin	ng Requirement^	3
Additional Socia Ainor/2nd Majo	Il Science Course for A&S or Course for pr***	3
STAT 4440	TIME SERIES ANALYSIS (**)	3
1151 1000 01 00	ourse for Minor/2nd Major*	3

This plan is not a contract and curriculum is subject to change

Additional Information About this Plan:

University Degree Requirements: The minimum number of hours for a UNO undergraduate degree is 120 credit hours. Please review the requirements for your specific program to determine all requirements for the program. In order to graduate on-time (four years for an undergraduate degree), you need to take 30 hours each year.

Placement Exams: For Math, English, Foreign Language, a placement exam may be required. More information on these exams can be found at https://www.unomaha.edu/enrollment-management/testing-center/ placement-exams/information.php

**Transfer credit or placement exam scores may change suggested plan of study

Operation Research Concentration

Freshman		
Fall		Credits
CMST 1110	PUBLIC SPEAKING FUNDS	3
ENGL 1150	ENGLISH COMPOSITION I (*)	3
MATH 1950	CALCULUS I (**)	5
Foreign Language C	Course 1110***	5
*ENGL 1150: Rec	quires placement exam.	
**MATH 1950: Re	equires Math Placement Exam or ACT or SAT	
scores.		
Humanity/Fine A the student's BA requirement via o	reign language courses count as a rts course, Global Diversity, and toward requirement. If student is fulfilling the BA alternative methods, then 16 additional a HFA and Global Diversity will need to be s degree plan.	
	Credits	16
Spring		
ENGL 1160	ENGLISH COMPOSITION II	3

MATH 1960	CALCULUS II	4
Foreign Language Co	urse 1120	5
Social Science		3
	Credits	15
Sophomore		
Fall		
MATH 1970	CALCULUS III	4
MATH 2230	INTRODUCTION TO ABSTRACT MATH (*)	3
Natural/Physical Scie	nce with Lab	4
Foreign Language Co	urse 2110	3
*MATH 2230: Requ	uires MATH 1960	
· · · ·	Credits	14
Spring		
MATH 2050	APPLIED LINEAR ALGEBRA (*)	3
MATH 3230	INTRODUCTION TO ANALYSIS (**)	3
Social Science		3
Foreign Language Co	ourse 2110	3
	Course with US Diversity	3
*MATH 2050: Requ	-	Ū
**MATH 3230: Red		
WATT 5250. Rec	Credits	15
Junior	Greaks	13
Fall		
MATH 4300	DETERMINISTIC OPERATIONS	3
or CSCI 4300	RESEARCH MODELS (*)	3
01 0301 4300	or DETERMINISTIC OPERATIONS	
	RESEARCH MODELS	
MATH 4740	INTRODUCTION TO PROBABILITY AND	3
	STATISTICS I (**)	
Humanities and Fine	Arts	3
Coding Course***		3
Social Science [^]		3
*MATH/CSCI 4300): Requires MATH 2050	
**MATH 4740: Rec	uires MATH 2230	
	Catalog for list of Coding Course Options.	
	ust be from 2nd discipline	
	Credits	15
Spring		
HIST 1000 or Minor/2	and Major Course*	
		3
MATH 3200	-	3
MATH 3200 or CSCI 1620	MATHEMATICAL COMPUTING II (**)	3 3
	-	
	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER	
or CSCI 1620	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II	3
or CSCI 1620 MATH 4310	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS	3
or CSCI 1620 MATH 4310 or CSCI 4310	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS RESEARCH MODELS	3
or CSCI 1620 MATH 4310 or CSCI 4310 Natural/Physical Scie	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS RESEARCH MODELS	3 3 3
or CSCI 1620 MATH 4310 or CSCI 4310 Natural/Physical Scie Social Science#	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS RESEARCH MODELS ence^	3
or CSCI 1620 MATH 4310 or CSCI 4310 Natural/Physical Scie Social Science# *A&S College Requ	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS RESEARCH MODELS ence^	3 3 3
or CSCI 1620 MATH 4310 or CSCI 4310 Natural/Physical Scie Social Science# *A&S College Requ	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS RESEARCH MODELS ence^	3 3 3
or CSCI 1620 MATH 4310 or CSCI 4310 Natural/Physical Scie Social Science# *A&S College Requ **MATH 3200: Rec CIST 1400.	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS RESEARCH MODELS ence^	3 3 3
or CSCI 1620 MATH 4310 or CSCI 4310 Natural/Physical Scie Social Science# *A&S College Requ **MATH 3200: Rec CIST 1400.	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS RESEARCH MODELS ence^ uirement Options quires MATH 2200. CSCI 1620: Requires 10: Requires MATH 2050 and MATH 4740	3 3 3
or CSCI 1620 MATH 4310 or CSCI 4310 Natural/Physical Scien Social Science# *A&S College Requ **MATH 3200: Rec CIST 1400. ***MATH/CSCI 43	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS RESEARCH MODELS ence^ uirement Options quires MATH 2200. CSCI 1620: Requires 10: Requires MATH 2050 and MATH 4740 2nd discipline	3 3 3
or CSCI 1620 MATH 4310 or CSCI 4310 Natural/Physical Scien Social Science# *A&S College Requ **MATH 3200: Rec CIST 1400. ***MATH/CSCI 433 ^NPS Must be in a	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS RESEARCH MODELS ence^ uirement Options quires MATH 2200. CSCI 1620: Requires 10: Requires MATH 2050 and MATH 4740 2nd discipline	3 3 3
or CSCI 1620 MATH 4310 or CSCI 4310 Natural/Physical Scien Social Science# *A&S College Requ **MATH 3200: Rec CIST 1400. ***MATH/CSCI 433 ^NPS Must be in a	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS RESEARCH MODELS ence^ uirement Options guires MATH 2200. CSCI 1620: Requires 10: Requires MATH 2050 and MATH 4740 2nd discipline nd discipline	3 3 3 3
or CSCI 1620 MATH 4310 or CSCI 4310 Natural/Physical Scie Social Science# *A&S College Requ **MATH 3200: Rec CIST 1400. ***MATH/CSCI 43 ^NPS Must be in a #SS Must be in a 2	MATHEMATICAL COMPUTING II (**) or INTRODUCTION TO COMPUTER SCIENCE II PROBABILISTIC OPERATIONS RESEARCH MODELS (***) or PROBABILISTIC OPERATIONS RESEARCH MODELS ence^ uirement Options guires MATH 2200. CSCI 1620: Requires 10: Requires MATH 2050 and MATH 4740 2nd discipline nd discipline	3 3 3 3

	-
Operations Research Elective or Elective at 3000-4000 Level**	3
Additional Humanities & Fine Arts Course for A&S or Minor/2nd Major Course***	3
Additional Social Science Course for A&S or Minor/2nd Major Course^	3
Elective	3
*MATH 2350: Requires MATH 1960. MATH 2050 Recommended but not required.	-
**Must take one Operations Research Elective. Fall options: MATH 4750 Probability & Statistics II, MATH 4900 Independent Studies, STAT 4410 Intro to Data Science, STAT 4430 Linear Models	
***A&S College Requirement Options. Additional HFA must be in a 3rd discipline.	
^A&S College Requirement Options. Additional SS must be in a 3rd discipline	
Credits	15
Spring	
HIST 1010 or Minor/2nd Major Course*	3
MATH 4320 COMPUTATIONAL OPERATIONS RESEARCH (**)	3
Advanced Writing Requirement***	3
Operations Research Elective or Elective at 3000-4000 Level^	3
Elective at 3000-4000 Level#	3
*A&S College Requirement Options	
**MATH 4320: Requires MATH 3200 (or instructor	
permission) and MATH 4300.	
***Advanced Writing Requirement can be: CIST 3000 Advanced Composition for IS&T, ENGL 3050 Writing for the Workplace, ENGL 3980 Technical Writing Across the Discipline, or PHIL 3000 Philosophy Writing Seminar.	
[^] Must take one Operations Research Elective. Fall options: MATH 4750 Probability & Statistics II, MATH 4900 Independent Studies, STAT 4420 Data Visualization, STAT 4440 Time Series Analysis, STAT 4450 Machine Learning & Data Mining.	
#Students need at least 120 credits and a minimum of 27 upper level credits throughout the entire degree, with at least 18 credits of upper level coursework taken within the major/concentration. May need to select 3000/4000 level free electives to reach the 27 credit minimum.	
Credits	15
Total Credits	120
This roadmap is a suggested plan of study and does not replace mee with an advisor. Please note that students may need to adjust the act sequence of courses based on course availability. Please consult an o in your major program for further guidance.	ual
This plan is not a contract and curriculum is subject to change	
Additional Information About this Plan: University Degree Requirements: The minimum number of hours for a UNO undergraduate degree is 120 credit hours. Please review t	he

for a UNO undergraduate degree is 120 credit hours. Please review the requirements for your specific program to determine all requirements for the program. In order to graduate on-time (four years for an undergraduate degree), you need to take 30 hours each year.

Placement Exams: For Math, English, Foreign Language, a placement exam may be required. More information on these exams can be found at https://www.unomaha.edu/enrollment-management/testing-center/ placement-exams/information.php **Transfer credit or placement exam scores may change suggested plan of study

Statistics Concentration

Statistics Conc	entration	
Freshman		
Fall		Credits
CMST 1110	PUBLIC SPEAKING FUNDS	3
or CMST 2120	or ARGUMENTATION AND DEBATE	
ENGL 1150	ENGLISH COMPOSITION I (*)	3
MATH 1950	CALCULUS I (**)	5
Foreign Language Co		5
*ENGL 1150: Requ	ires placement.	
	uires Math Placement Exam or ACT or SAT	
scores.		
	ign language courses count as a s course, Global Diversity, and toward	
	quirement. If student is fulfilling the BA	
	ternative methods, then 16 additional	
factored in to this	HFA and Global Diversity will need to be	
	Credits	16
Carrie a	Credits	10
Spring ENGL 1160		2
		3
MATH 1960	CALCULUS II	4
Social Science	4400	3
Foreign Language Co		5
	Credits	15
Sophomore		
Fall		
MATH 1970	CALCULUS III	4
MATH 2050	APPLIED LINEAR ALGEBRA (*)	3
Natural/Physical Scie	nce with Lab	4
Foreign Language Co	urse 2110	3
*MATH 2050: Requ	uires MATH 1960	
	Credits	14
Spring		
MATH 2230	INTRODUCTION TO ABSTRACT MATH (*)	3
MATH 2350	DIFFERENTIAL EQUATIONS (**)	3
Social Science		3
Humanities/Fine Arts	Course	3
Foreign Language Co	urse 2120	3
*MATH 2230: Requ	uires MATH 1960	
**MATH 2350: Req	uires MATH 1960. MATH 2050	
Recommended but	not required.	
	Credits	15
Junior		
Fall		
MATH 2200	MATHEMATICAL COMPUTING I	3
MATH 3230	INTRODUCTION TO ANALYSIS (*)	3
MATH 4740	INTRODUCTION TO PROBABILITY AND STATISTICS I (**)	3
Natural/Physical Scie	nce***	3
Social Science [^]		3
*MATH 3230: Requ	uires MATH 2230	
**MATH 4740: Req	uires MATH 2230	
***N&PS Course m	ust be in a 2nd discipline	
^Social Science mu	ıst be in a 2nd discipline	
	Credits	15

Spring

Spring		
HIST 1000 or Minor/2	nd Major Course*	3
MATH 3200	MATHEMATICAL COMPUTING II	3
MATH 4750	INTRODUCTION TO PROBABILITY AND STATISTICS II (**)	3
Advanced Writing Rea	quirement***	3
Humanities/Fine Arts Course with US Diversity		3
*A&S College Requ	irement Options	
**MATH 4750: Req	uires MATH 4740	
Advanced Compos the Workplace, EN	ng Requirement can be: CIST 3000 ition for IS&T, ENGL 3050 Writing for GL 3980 Technical Writing Across the 3000 Philosophy Writng Seminar	
	Credits	15
Senior		
Fall		
HIST 1010 or Minor/2	•	3
•	ective at 3000-4000 Level**	3
•	ective at 3000-4000 Level***	3
Additional Humanities Major Course [^]	s/Fine Arts Course for A&S or Minor/2nd	3
Additional Social Scie	nce for A&S or Minor/2nd Major Course#	3
*A&S College Requ	irement Options	
	Electives with at least 2 from Group roup A options: STAT 4430 (F) requires	
A. This semester G	t Electives with at least 2 from Group roup B options: STAT 4410 (F) requires I/CSCI 3100 (F, S) requires MATH 2230; endent Study.	
^A&S College Requ in a 3rd discipline.	irement Options. Additional HFA must be	
#A&S College Requ a 3rd discipline.	irement Options. Additional SS Must be in	
	Credits	15
Spring		
•	ective at 3000-4000 Level*	3
•	ective at 3000-4000 Level**	3
Elective/Minor/2nd M	•	3
Elective/Minor/2nd M	•	3
Elective/Minor/2nd M	-	3
This semester Grou MATH 4750 & CSC	Electives with at least 2 from Group A. Ip A options: STAT 4420 (S) requires I 1620 or MATH 3200; STAT 4440 (S) 50 & CSCI 1620 or MATH 3200.	
This semester Grou requires MATH 223	Electives with at least 2 from Group A. p B options: MATH/CSCI 3100 (F, S) 30; MATH/CSCI 4310 (S) requires MATH ATH/STAT 4450 (S) requires MATH 4740; endent Study.	
upper level credits least 18 credits of major/concentratio	t least 120 credits and a minimum of 27 throughout the entire degree, with at upper level coursework taken within the on. May need to select 3000/4000 level ach the 27 credit minimum.	
	Credits	15
	Total Credits	120

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual

sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

This plan is not a contract and curriculum is subject to change

Additional Information About this Plan:

University Degree Requirements: The minimum number of hours for a UNO undergraduate degree is 120 credit hours. Please review the requirements for your specific program to determine all requirements for the program. In order to graduate on-time (four years for an undergraduate degree), you need to take 30 hours each year.

Placement Exams: For Math, English, Foreign Language, a placement exam may be required. More information on these exams can be found at https://www.unomaha.edu/enrollment-management/testing-center/ placement-exams/information.php

**Transfer credit or placement exam scores may change suggested plan of study

Computational Mathematics Concentration

Freshman Fall Credits PUBLIC SPEAKING FUNDS **CMST 1110** 3 or CMST 2120 or ARGUMENTATION AND DEBATE ENGL 1150 **ENGLISH COMPOSITION I (*)** 3 **MATH 1950** CALCULUS I (**) 5 Foreign Language Course 1110 5 *ENGL 1150 - Requires appropriate placement **MATH 1950 - Requires appropriate placement Credits 16 Sprina ENGL 1160 **ENGLISH COMPOSITION II** 3 **HIST 1000** WORLD HISTORY TO 1500 3 MATH 1960 CALCULUS II 4 5 Foreign Language Course 1120 Credits 15 Sophomore Fall WORLD HISTORY SINCE 1500 3 HIST 1010 MATH 1970 CALCULUS III 4 **MATH 2050** APPLIED LINEAR ALGEBRA 3 MATH 3250 INTRODUCTION TO NUMERICAL 3 **METHODS** (*) Foreign Language Course 2110 3 *MATH 3250 requires MATH 1960 Credits 16 Spring **MATH 2230 INTRODUCTION TO ABSTRACT MATH (*)** 3 MATH 2350 **DIFFERENTIAL EQUATIONS (**)** 3 Advanced Writing Requirement*** 3 Natural/Physical Science 3 Foreign Language Course 2120 3 *MATH 2230 requires MATH 1960 **MATH 2350 requires MATH 1960. Recommended but not required: MATH 2050 ***Advanced Writing Requirement can be: CIST 3000 Advanced Composition for IS&T, ENGL 3050 Writing for the Workplace, ENGL 3980 Technical Writing Across the Discipline, or PHIL 3000 Philosophy Writing Seminar

Junior Fall		
MATH 3230	INTRODUCTION TO ANALYSIS (*)	3
MATH 4330	INTRODUCTION TO PARTIAL	3
107411 4550	DIFFERENTIAL EQUATIONS (or Elective**)	5
MATH 4400	THE FINITE ELEMENT METHOD (***)	3
Social Science	- ()	3
Humanities and Fin	e Arts with US Diversity^	3
	uires MATH 2230	
	equires: MATH 1970 and 2350. + Offered d-numbered years.	
	equires MATH 1970, MATH 2050, and I either MATH 3250 or MATH 4200	
^HFA must be in	something other than History	
	Credits	15
Spring		
MATH/CSCI 4200	NUMERICAL METHODS (*)	3
Humanities and Fin	e Arts or course towards Minor/2nd Major**	3
Elective		3
Elective at 3000-40	00 Level	3
Social Science		3
*MATH/CSCI 420 MATH 2350	00 requires MATH 1970, MATH 2050,	
**HFA must be ir	n a 3rd discipline	
	Credits	15
Senior		
Fall		
MATH 4330	INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS (or Elective*)	3
MATH 4400	THE FINITE ELEMENT METHOD (or Computational Math Elective **,***)	3
MATH 4900	INDEPENDENT STUDIES (^)	3
Humanities/Fine Ar	ts or Course towards Minor/2nd Major	3
	ts or Course towards Minor/2nd Major	3
*MATH 4330: Re in Fall of odd-nur	quires MATH 1970 and 2350. + Offered only mbered years.	
MATH 2350, and	quires MATH 1970, MATH 2050, and I either MATH 3250 or MATH 4200, Offered d-numbered years.	
	Computational Math Elective. Fall offerings: -numbered years, MATH 4350, MATH 4900	
[^] Independent St Mathematics	udies must be related to Computational	
	Credits	15
Spring		
Elective		3
Social Science*		3
Social Science		3
Natural/Physical Sc	ience with Lab	4
*SS must be in a	3rd discipline	
	Credits	13
	Total Credits	120

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance. This plan is not a contract and curriculum is subject to change

Additional Information About this Plan:

University Degree Requirements: The minimum number of hours for a UNO undergraduate degree is 120 credit hours. Please review the requirements for your specific program to determine all requirements for the program. In order to graduate on-time (four years for an undergraduate degree), you need to take 30 hours each year.

Placement Exams: For Math, English, Foreign Language, a placement exam may be required. More information on these exams can be found at https://www.unomaha.edu/enrollment-management/testing-center/ placement-exams/information.php

**Transfer credit or placement exam scores may change suggested plan of study

Pure Mathematics Concentration

Pure Mathematics Concentration, Even Year Admit

Freshman

Freshman		
Fall		Credits
CMST 1110	PUBLIC SPEAKING FUNDS	3
or CMST 2120	or ARGUMENTATION AND DEBATE	
ENGL 1150	ENGLISH COMPOSITION I (*)	3
MATH 1950	CALCULUS I (**)	5
Foreign Language C	ourse 1110***	5
*ENGL 1150: Req	uires placement.	
**MATH 1950: Re scores.	quires Math Placement Exam or ACT or SAT	
	eign language courses count as a	
	ts course, Global Diversity, and toward	
	equirement. If student is fulfilling the BA Iternative methods, then 16 additional	
	a HFA and Global Diversity will need to be	
factored in to this		
-	Credits	16
Spring		
ENGL 1160	ENGLISH COMPOSITION II	3
MATH 1960	CALCULUS II	4
Foreign Language C	ourse 1120	5
Social Science		3
	Credits	15
Sophomore		
Fall		
MATH 1970	CALCULUS III	4
MATH 2050	APPLIED LINEAR ALGEBRA (*)	3
MATH 2230	INTRODUCTION TO ABSTRACT MATH (**)	3
Foreign Language C	ourse 2110	3
Humanities/Fine Art	s Course with US Diversity	3
*MATH 2050: Req	uires MATH 1960	
**MATH 2230: Re	quires MATH 1960	
	Credits	16
Spring		
MATH 2350	DIFFERENTIAL EQUATIONS (*)	3
MATH 3230	INTRODUCTION TO ANALYSIS (**)	3
MATH 4050	LINEAR ALGEBRA (***)	3
Foreign Language C		3
*MATH 2350: Req Recommended bu	uires MATH 1960. MATH 2050 ıt not required.	
**MATH 3230: Re	quires MATH 2230	

***MATH 4050: Requires MATH 2050 and MATH 2230. Offered only Spring of even-numbered years.	
Credits	12
Junior	
Fall	
MATH 4110 ABSTRACT ALGEBRA I (*)	3
Pure Mathematics Elective**	3
Coding Course***	3
Natural/Physical Science	3
Social Science	3
*MATH 4110: Requires MATH 4050. Offered only in fall of even-numbered years.	
**See Academic Catalog for list of Pure Mathematics Electives.	
***See Academic Catalog for list of Coding Course Options.	
Credits	15
Spring	
HIST 1000 or Minor/2nd Major Course*	3
Elective**	3
Pure Mathematics Elective**	3
Social Science***	3
Humanities/Fine Arts Course	3
*A&S College Requirement Options	
**See Academic Catalog for list of Pure Mathematics Electives.	
***SS Must be in a 2nd discipline	
Credits Senior Fall	15
HIST 1010 or Minor/2nd Major Course*	3
MATH 4230 MATHEMATICAL ANALYSIS I (**)	3
Natural/Physical Science with Lab***	4
Additional Humanities/Fine Arts for A&S or Minor/2nd Major Course^	3
Additional Social Science for A&S or Minor/2nd Major Course#	3
*A&S College Requirement Options **MATH 4230: Requires MATH 3230. Offered only in fall of odd-numbered years.	
***N&PS Course must be in a 2nd discipline	
[^] A&S College Requirement Options. Additional HFA must be in a 3rd discipline	
#A&S College Requirement Options. Additional SS must be in a 3rd discipline	
Credits	16
Spring	
Pure Mathematics Elective*	3
Advanced Writing Requirement**	3
Elective or Minor/Double Major Course***	3
Elective or Minor/Double Major Course***	3
Elective or Minor/Double Major Course***	3
*See Academic Catalog for list of Pure Mathematics Electives.	
**Advanced Writing Requirement can be: CIST 3000 Advanced Composition for IS&T, ENGL 3050 Writing for the Workplace, or ENGL 3980 Technical Writing Across the Discipline.	

***Students need at least 120 credits and a minimum of 27 upper level credits throughout the entire degree, with at least 18 credits of upper level coursework taken within the major/concentration. May need to select 3000/4000 level free electives to reach the 27 credit minimum.

Credits15Total Credits120

Pure Mathematics Concentration, Odd Year Admit

Freshman		
Fall		Credits
CMST 1110	PUBLIC SPEAKING FUNDS	3
or CMST 2120	or ARGUMENTATION AND DEBATE	
ENGL 1150	ENGLISH COMPOSITION I (*)	3
MATH 1950	CALCULUS I (**)	5
Foreign Language C	ourse 1110***	5
*ENGL 1150: Req	uires placement.	
**MATH 1950: Re scores.	quires Math Placement Exam or ACT or SAT	
Humanity/Fine Ar the student's BAr requirement via a	eign language courses count as a rts course, Global Diversity, and toward requirement. If student is fulfilling the BA Ilternative methods, then 16 additional a HFA and Global Diversity will need to be s degree plan.	
	Credits	16
Spring		
ENGL 1160	ENGLISH COMPOSITION II	3
MATH 1960	CALCULUS II	4
Foreign Language C	ourse 1120	5
Social Science		3
	Credits	15
Sophomore		
Fall		
MATH 1970	CALCULUS III	4
MATH 2230	INTRODUCTION TO ABSTRACT MATH (*)	3
Natural/Physical Sci	ence with Lab	4
Foreign Language C	ourse 2110	3
*MATH 2230: Rec	uires MATH 1960	
Spring	Credits	14
MATH 2050	APPLIED LINEAR ALGEBRA (*)	3
MATH 3230	INTRODUCTION TO ANALYSIS (**)	3
Social Science		3
Humanities/Fine Art	s Course	3
Foreign Language C	ourse 2120	3
*MATH 2050: Rec	uires MATH 1960	
**MATH 3230: Re	quires MATH 2230	
	Credits	15
Junior Fall		
MATH 2350	DIFFERENTIAL EQUATIONS (*)	3
MATH 4230	MATHEMATICAL ANALYSIS I (**)	3
Coding Course***		3
Humanities/Fine Art	s & US Diversity Course [^]	3
Social Science#		3

*MATH 2350: Requires MATH 1960. MATH 2050 Recommended but not required.		
**MATH 4230: Requires MATH 3230. Offered only in fall of odd-numbered years.		
***See Academic Catalog for list of Coding Course Options.		
^HFA Course should be in a 2nd discipline.		
#Social Science must be in a 2nd discipline.		
Credits	15	
Spring		
MATH 4050 LINEAR ALGEBRA (*)	3	
Elective**	3	
Pure Mathematics Elective**	3	
Advanced Writing Requirement***	3	
Additional Humanities/Fine Arts Course for A&S or Minor/2nd Major Course#	3	
*MATH 4050: Requires MATH 2050 and MATH 2230. Offered only Spring of even-numbered years.		
**See Academic Catalog for list of Pure Mathematics Electives.		
***Advanced Writing Requirement can be: CIST 3000 Advanced Composition for IS&T, ENGL 3050 Writing for the Workplace, ENGL 3980 Technical Writing Across the Discipline, or PHIL 3000 Philosophy Writing Seminar		
#A&S College Requirement Options. Additional HFA must be in a 3rd discipline		
Credits	15	
Senior Fall		
HIST 1000 or Minor/2nd Major Course*	3	
MATH 4110 ABSTRACT ALGEBRA I (**)	3	
Pure Mathematics Elective***	3	
Additional Social Science for A&S or Minor/2nd Major Course^	3	
Natural/Physical Science#	3	
*A&S College Requirement Options **MATH 4110: Requires MATH 4050. Offered only in fall of even-numbered years.		
***See Academic Catalog for list of Pure Mathematics Electives.		
[^] A&S College Requirement Options. Additional SS must be in a 3rd discipline.		
#N&PS Course must be in a 2nd discipline		
Credits	15	
Spring		
HIST 1010 or Minor/2nd Major Course*	3	
Pure Mathematics Elective**	3	
Elective or Minor/Double Major Course***	3	
Elective or Minor/Double Major Course***	3	
Elective or Minor/Double Major Course***		
*A&S College Requirement Options		
**See Academic Catalog for list of Pure Mathematics Electives.		
***Students need at least 120 credits and a minimum of 27 upper level credits throughout the entire degree, with at least 18 credits of upper level coursework taken within the major/concentration. May need to select 3000/4000 level		
free electives to reach the 27 credit minimum.		
Credits	15	
Total Credits	120	

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