PURE MATHEMATICS CONCENTRATION

Mathematics, Bachelor of Arts with a Concentration in Pure Mathematics Requirements

Code	Title	Credits
GENERAL EDUCATION REQUIREMENTS - 46 Hours Required		
Minimum of "C-"required		
Fundamental Academic Skills		**15**
ENGL 1150	ENGLISH COMPOSITION I	
ENGL 1160	ENGLISH COMPOSITION II	
Writing in the Discipline Course		
CMST 1110	PUBLIC SPEAKING FUNDS	
or CMST 2120	ARGUMENTATION AND DEBATE	
MATH 1120	INTRODUCTION TO MATHEMATICAL AND COMPUTATIONAL THINKING	
or MATH 1100	DATA LITERACY AND VISUALIZATION	
or MATH 1130	QUANTITATIVE LITERACY	
or MATH 1140	QUANTITATIVE REASONING FOR HEALTHCARE PROFESSIONALS	
or MATH 1300	COLLEGE ALGEBRA WITH SUPPORT	
or STAT 1100	DATA LITERACY AND VISUALIZATION	
or STAT 1530	ELEMENTARY STATISTICS	
Distribution Requirements		**31**
Natural Science - From two disciplines and at least one lab - 7 hrs		
Social Science - From two disciplines - 9 hrs		
Humanities and Fine Arts - From two disciplines- 9 hrs		
Global Diversity - 3 hrs		
US Diversity - 3 hrs		
MAJOR REQUIREMENTS		
**Course will satisfy UNO's General Education requirement		
^Course requires pre-requisite(s)		
Mathematics Major with a Concentration in Pure - 46 Hours Required		
Required Coursework		**25**
MATH 1950	CALCULUS I (^)	
MATH 1960	CALCULUS II	
MATH 1970	CALCULUS III	
MATH 2050	APPLIED LINEAR ALGEBRA	
MATH 2230	INTRODUCTION TO ABSTRACT MATH	
MATH 2350	DIFFERENTIAL EQUATIONS	
MATH 3230	INTRODUCTION TO ANALYSIS	
Select one of the following		**3**
CIST 1400	INTRODUCTION TO COMPUTER SCIENCE I	
MATH 2200	MATHEMATICAL COMPUTING I	
MATH 3250	INTRODUCTION TO NUMERICAL METHODS (^)	
Select all of the following Pure Mathematics Concentration courses		**9**
MATH 4050	LINEAR ALGEBRA	
MATH 4110	ABSTRACT ALGEBRA I	
MATH 4230	MATHEMATICAL ANALYSIS I	
Select three of the following Pure Mathematics Concentration courses* [1]		**9**
MATH 3640	MODERN GEOMETRY	
MATH 4010	INTRODUCTION TO THE THEORY OF RECURSIVE FUNCTIONS	
MATH 4120	ABSTRACT ALGEBRA II	
MATH 4150	GRAPH THEORY & APPLICATIONS	
MATH 4240	MATHEMATICAL ANALYSIS II	
MATH 4270	COMPLEX ANALYSIS	
MATH 4330	INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS	
MATH 4350	ORDINARY DIFFERENTIAL EQUATIONS	
MATH/CSCI 4560	NUMBER THEORY & CRYPTOGRAPHY	
MATH 4610	INTRODUCTION TO TOPOLOGY	
MATH 4900	INDEPENDENT STUDIES	
College Breadth (choose one option)		**15-30+**
Option 1: Complete any UNO minor or undergraduate certificate - 15+ hours		
Option 2: Additional General Education Requirements - 30+ hours		
Additional quantitative literacy - 3 hours		
Additional Social Science Gen. Ed. from 3rd Discipline - 3 hours		
Additional Humanities Gen. Ed. from 3rd Discipline - 3 hours		
HIST 1000 and HIST 1010 - 6 hours		
Additional Nat. and Physical Science w/ Lab - 4-5 hours		
Option 3: CAS comprehensive major (50+ hours) OR any second UNO major (30+ hours)		
Bachelor of Arts Language Requirement		**16**
FREN, GERM, Or SPAN, 1110**, 1120, 2110, 2120		
ELECTIVES		
Elective hours as required to reach a total of 120 hours		

[1] *Students who plan to apply for a Ph.D. program in Mathematics should choose their three courses above from those with the numbered superscripts, with #1 signifying highest priority.

Mathematics, Bachelor of Arts with a Concentration in Pure Mathematics, Even Year Admit Four Year Plan

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: Requires placement.

**MATH 1950: Requires Math Placement Exam or ACT or SAT scores.

***Level 1110 foreign language courses count as a Humanity/Fine Arts course, Global Diversity, and toward the student's BA requirement. If student is fulfilling the BA requirement via alternative methods, then 16 additional credits including a HFA and Global Diversity will need to be factored in to this degree plan.

	Credits	**16**
Spring		
ENGL 1160	ENGLISH COMPOSITION II	3
MATH 1960	CALCULUS II	4
Foreign Language Course 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 Course 2110		3
Humanities/Fine Arts Course with US Diversity		3
*MATH 2050: Requires MATH 1960		
**MATH 2230: Requires MATH 1960		
	Credits	**16**
Spring		
MATH 2350	DIFFERENTIAL EQUATIONS (*)	3
MATH 3230	INTRODUCTION TO ANALYSIS (**)	3
MATH 4050	LINEAR ALGEBRA (***)	3
Foreign Language Course 2120		3
*MATH 2350: Requires MATH 1960. MATH 2050 Recommended but not required.		
**MATH 3230: Requires 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	**15**
Senior		
Fall		
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.		
	Credits	**15**
	Total Credits	**120**

Mathematics, Bachelor of Arts with a Concentration in Pure Mathematics Odd Year Admit Four Year Plan

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: Requires placement.		
**MATH 1950: Requires Math Placement Exam or ACT or SAT scores.		

***Level 1110 foreign language courses count as a Humanity/Fine Arts course, Global Diversity, and toward the student's BA requirement. If student is fulfilling the BA requirement via alternative methods, then 16 additional credits including a HFA and Global Diversity will need to be factored in to this degree plan.

	Credits	**16**
Spring		
ENGL 1160	ENGLISH COMPOSITION II	3
MATH 1960	CALCULUS II	4
Foreign Language Course 1120		5
Social Science		3
	Credits	**15**
Sophomore		
Fall		
MATH 1970	CALCULUS III	4
MATH 2230	INTRODUCTION TO ABSTRACT MATH (*)	3
Natural/Physical Science with Lab		4
Foreign Language Course 2110		3
*MATH 2230: Requires MATH 1960		
	Credits	**14**
Spring		
MATH 2050	APPLIED LINEAR ALGEBRA (*)	3
MATH 3230	INTRODUCTION TO ANALYSIS (**)	3
Social Science		3
Humanities/Fine Arts Course		3
Foreign Language Course 2120		3
*MATH 2050: Requires MATH 1960		
**MATH 3230: Requires MATH 2230		
	Credits	**15**
Junior		
Fall		
MATH 2350	DIFFERENTIAL EQUATIONS (*)	3
MATH 4230	MATHEMATICAL ANALYSIS I (**)	3
Coding Course***		3
Humanities/Fine Arts & 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***		3
*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**

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