Mathematics

The mathematics major consists of a wide variety of mathematics course that prepare students for opportunities in the workforce as well as the potential for continued graduate study in mathematics, economics, and operations research.

Major Requirements

Major: Mathematics

Degree Type: B.A. or B.S.
Required Degree Credits to Graduate: 122

General Education Requirements

First Year Experience (F):

UNIV 189	Skills For Academic Success (Students transferring in 24 or more credits do not need to take UNIV 189.)	1
Communication (C):		
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
One Course in Upper Level Writing: Select from current general education list		3
COMM 110	Fundamentals of Public Speaking	3
Quantitative Reasoning (R):		
MATH 165	Calculus I	4
Science & Technology (S):		
A one-credit lab must be taken as a co-requisite with a general education science/technology course unless the course includes an embedded lab experience equivalent to a one-credit course. Select from current general education list		10
Humanities & Fine Arts (A): Select from current general education list		6
Social & Behavioral Sciences (B): Select from current general education list		6
Wellness (W): Select from current general education list		2
Cultural Diversity (D): Select from current general education list		
Global Perspectives (G): Select from current general education list		
Total Credits		**41**

College Requirements

Bachelor of Science (BS) Degree – An additional 6 credits in Humanities or Social Sciences[*]

Bachelor of Arts (BA) Degree – An additional 12 credits Humanities and Social Sciences[*] and proficiency at the second year level in a modern foreign language.

[*]   Humanities and Social Sciences may be fulfilled by any course having the following prefix: ADHM, ANTH, ARCH, ART, CJ, CLAS, COMM, ECON, ENGL, FREN, GEOG, GERM, HDFS, HIST, LA, LANG, MUSC, PHIL, POLS, PSYC, RELS, SOC, SPAN, THEA, WGS, or any course from the approved list of general education courses in humanities and social sciences (general education categories A and B). These credits must come from outside the department of the student's major.

Major Requirements

A grade of 'C' or better is required in all MATH prefix courses.

General Education Requirements		40
Mathematics Major Requirements		
MATH 165	Calculus I (includes)	4
MATH 166	Calculus II	4
MATH 265	Calculus III	4
MATH 266	Introduction to Differential Equations	3
MATH 270	Introduction to Abstract Mathematics	3
MATH 420	Abstract Algebra I	3
MATH 421	Abstract Algebra II	3
or MATH 451	Real Analysis II	

MATH 429	Linear Algebra	3
MATH 450	Real Analysis I	3
MATH 491	Seminar	2
Electives		10
Must choose one course from List A & one course from List B and must include one of the pairs of courses listed here: MATH 430/MATH 436; MATH 445/MATH 446; MATH 480/MATH 483; MATH 452/MATH 481; MATH 488/MATH 489; and (MATH 420/MATH 421 or MATH 450/ MATH 451: whichever you didn't choose above)		
List A		
MATH 374	Special Problems In Mathematics	
MATH 430	Graph Theory	
MATH 436	Combinatorics	
MATH 440	Axiomatic Geometry	
MATH 445	Differential Geometry	
MATH 446	Introduction to Topology	
MATH 452	Complex Analysis	
MATH 472	Number Theory	
List B		
MATH 473	Cryptology	
MATH 480	Applied Differential Equations	
MATH 481	Fourier Analysis	
MATH 483	Partial Differential Equations	
MATH 488	Numerical Analysis I	
MATH 489	Numerical Analysis II	
STAT 467	Probability and Mathematical Statistics I	
CSCI 453	Linear Programming and Network Flows	
Related Required Courses		
CSCI 160	Computer Science I	4
Lab Science Sequence: Choose one science lecture/lab sequence (A-F) OR the CSCI 161 & 2 CSCI electives (sequence G).		8-10
Sequence A:		
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	
BIOL 151 & 151L	General Biology II and General Biology II Laboratory	
Sequence B:		
BIOL 220 & 220L	Human Anatomy and Physiology I and Human Anatomy and Physiology I Laboratory [*]	
BIOL 221 & 221L	Human Anatomy and Physiology II and Human Anatomy and Physiology II Laboratory	
Sequence C:		
CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory [*]	
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory [*]	
Sequence D:		
CHEM 150 & CHEM 160	Principles of Chemistry I and Principles of Chemistry Laboratory I [*]	
CHEM 151 & CHEM 161	Principles of Chemistry II and Principles of Chemistry Laboratory II [*]	
Sequence E:		
MICR 350 & 350L	General Microbiology and General Microbiology Lab	
MICR 352 & 352L	General Microbiology II and General Microbiology Lab II	
Sequence F:		

PHYS 251 & 251L	University Physics I and University Physics I Laboratory [*]	
PHYS 252 & 252L	University Physics II and University Physics II Laboratory [*]	
or Sequence G:		
CSCI 161	Computer Science II	
Select 2 of the following:		
CSCI 345	Topics on Personal Computers	
CSCI 372	Comparative Programming Languages	
CSCI 458	Microcomputer Graphics	
Degree Requirements: Potential of a minimum of 27 credits to reach 122		27
Total Credits		**122-124**

[*]   Science and Technology General Education

Program Notes

- Except for courses offered only as pass/fail grading, no course may be taken Pass/Fail.

Minor Requirements

Mathematics Minor

Minor Requirements

Required Credits: 21

Required Courses		
MATH 165	Calculus I	4
MATH 166	Calculus II	4
MATH 265	Calculus III	4
Electives		
Approved electives for the mathematics minor include: MATH 266, MATH 270 & all 300-400 level MATH courses except for MATH 376.		9
Total Credits		**21**

Minor Requirements and Notes

- A minimum of 8 credits must be taken at NDSU.
- A grade of 'C' or better is required in all courses used toward this minor.