

Master of Science with Major in Mathematics

Admission Requirements

The applicant must meet the School of Graduate Studies' current minimum general admission requirements as published in the graduate catalog.

1. The equivalent of a bachelor's degree with a major in mathematics.
2. Students without the required degree, or equivalent, may be admitted but will be required to satisfactorily complete undergraduate courses to make up their deficiency before advancement to Approved status.
3. A cumulative grade point average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A=4.0).
4. Students who have not completed the equivalent of MATH 431 Introduction to Real Analysis will be required to do so as part of their graduate program.
5. Students must satisfy the School of Graduate Studies' English Language Proficiency requirements as published in the graduate catalog.

Accelerated Bachelor's/Master's (ABM) 4+1 Degree Option

The Accelerated Bachelor's/Master's 4+1 degree in Mathematics program allows exceptional undergraduate students at UND an opportunity to complete the requirements for both the B.S. in Mathematics and the M.S. in Mathematics degrees at an accelerated pace. Students admitted to the program may double count up to 12 graduate-level credits taken as undergraduates for both degrees. Students must complete their bachelor's degree prior to entering the master's program. Upon successful completion of the graduate year, students will receive a M.S degree in Mathematics under either the thesis or non-thesis options. Admission is contingent on meeting eligibility requirements for the graduate program.

High-achieving high school students with a GPA of at least 3.5/4.0 and an ACT score of 25 or higher may be considered for the ABM 4+1 program in Mathematics. Such identified students become eligible for formal admission to the ABM 4+1 program when they meet the same criteria as undergraduates.

Eligibility Requirements for the ABM 4+1 Mathematics Option

Undergraduate mathematics students may apply to the ABM 4+1 program in Mathematics when the following requirements are met:

1. Students must meet the School of Graduate Studies admissions eligibility requirements. Students will not be required to demonstrate English Language Proficiency a second time.
2. Students must have completed a minimum of 60 credits, including credits earned from advanced placement and dual credit. Students must apply prior to completion of the B.S in Mathematics.
3. Transfer students must have a minimum of 60 credits, whether from the transfer institution alone or in combination with UND credits, and a minimum cumulative GPA of 3.0/4.0.
4. Students must have a minimum cumulative GPA of 3.0/4.0 at UND at the time of admission to the graduate year of the ABM 4+1 program.

Application to the ABM 4+1 Program in Mathematics

Potential applicants to the program should consult with their undergraduate advisor, a potential graduate advisor, and the department chair or graduate program director to develop a plan of work for the bachelor's and master's degrees. To apply to the ABM 4+1 Program in Mathematics, the following must be provided:

1. ABM 4+1 Mathematics program applicants must submit, while still an undergraduate, the standard application to the School of Graduate Studies.

2. Additionally, ABM 4+1 Mathematics applicants must submit a Program of Study that indicates:

- The graduate courses - (a maximum of 12 credits) - that will be double counted for both the bachelor's and master's degrees. These courses must be taken prior to completing the B.S. in Mathematics. Upon entry to the graduate program, these credits will be transferred into the M.S. program.
- The graduate courses that will be taken while in the M.S. in Mathematics program.
- The graduation date for the M.S. in Mathematics degree, which must be within 12 months of completion of the B.S. in Mathematics degree.

After review of the application materials by the department chair and director of graduate studies, a letter of acceptance to the graduate program, contingent upon meeting the ABM 4+1 Mathematics requirements, will be issued. Applicants accepted for admission to the Graduate Program will not be matriculated until completion of the bachelor's degree.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the School of Graduate Studies as well as particular requirements set forth by the Mathematics Department.

Thesis Option

1. A minimum of thirty-one (31) credits, including the credits for Math 998, the thesis and the research leading up to it.
2. A minimum of 20 credits, including thesis credits, must be in the major field of mathematics.
3. A minor field of study may be obtained by completing 9 semester credits from another department that offers a graduate program. A graduate faculty member from that department must serve on the thesis committee of the student.
4. A cognate may be obtained by completing 9 semester credits from more than one department outside of mathematics, or from a single department that does not offer a graduate program.
5. At least one-half of the credits must be at or above the 500-level.
6. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
7. Completion of a research project, submission of a thesis report, and a thesis defense.
8. Successful completion of a comprehensive final examination on two general areas approved by the candidate's faculty advisor.
9. Required Courses:

Code	Title	Credits
Select two of the following sequences:		12
MATH 512 & MATH 513	Modern Analysis I and Modern Analysis II	
MATH 515 & MATH 516	Applied Mathematics and Applied Mathematics	
MATH 518 & MATH 519	Algebra I and Algebra II	
MATH 520 & MATH 521	Topology I and Topology II	
STAT 541 & STAT 542	Linear Statistical Models and Advanced Topics in Statistics and Probability *	
	or STAT 543 Design of Experiments	
	or STAT 545 Multivariate Statistics	
	or STAT 547 Time Series	
	or STAT 551 Statistical Graphics	
	or STAT 553 Modern Nonparametric Statistics	
	or STAT 555 Applied Bayesian Statistics	
At least one additional graduate level MATH course		3
MATH 998	Thesis	4
Electives/Cognates**		11

*All 500 level STAT courses require STAT 500 Computing for Statistics or Consent of Instructor

**If the STAT sequence is chosen as a sequence, at most one additional graduate level STAT course may be counted as an elective.

Total Credits **30**

continuation of work done for the B.S. in mathematics for the mathematics capstone course.

- The graduation date for the M.S. in mathematics degree must be within 12 months of completion of the B.S. in mathematics degree.

Non-Thesis Option

- A minimum of thirty-two (32) credits including at least two credits of MATH 997 Independent Study.
- A minimum of 20 credits, including thesis credits, must be in the major field of mathematics.
- A minor field of study may be obtained by completing 9 semester credits from another department that offers a graduate program. A graduate faculty member from that department must serve on the thesis committee of the student.
- A cognate may be obtained by completing 9 semester credits from more than one department outside of mathematics, or from a single department that does not offer a graduate program.
- At least one-half of the credits must be at or above the 500-level.
- A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
- Preparation of a written independent study approved by the faculty advisor.
- Successful completion of a comprehensive final examination on two general areas approved by the candidate's faculty advisor.
- Required Courses:

Code	Title	Credits
Select two of the following sequences:		12
MATH 512 & MATH 513	Modern Analysis I and Modern Analysis II	
MATH 515 & MATH 516	Applied Mathematics and Applied Mathematics	
MATH 518 & MATH 519	Algebra I and Algebra II	
MATH 520 & MATH 521	Topology I and Topology II	
STAT 541 & STAT 542	Linear Statistical Models and Advanced Topics in Statistics and Probability *	
	or STAT 543 Design of Experiments	
	or STAT 545 Multivariate Statistics	
	or STAT 547 Time Series	
	or STAT 551 Statistical Graphics	
	or STAT 553 Modern Nonparametric Statistics	
	or STAT 555 Applied Bayesian Statistics	
At least one additional graduate level MATH course		3
MATH 997	Independent Study	2
Electives/Cognates **		15
*All graduate level STAT classes require STAT 500 Computing for Statistics or Consent of Instructor		
**If the STAT sequence is chosen as a sequence, at most one additional graduate level STAT course may be counted as an elective.		
Total Credits		32

Accelerated Bachelor's/Master's 4+1 option

- Students must complete the B.S. in Mathematics degree requirements prior to entering the M.S. in Mathematics program. Students in the ABM 4+1 program may not elect to bypass the bachelor's degree.
- Students must maintain a cumulative GPA of 3.0/4.0 at UND to remain eligible for the ABM 4+1 Mathematics degree program.
- Students must maintain a cumulative GPA of 3.0/4.0, or better, in the double counted graduate level courses.
- Students must meet the requirements for the thesis option, or the non-thesis option. The graduate thesis or independent study may be a