

MATHEMATICS B.A.

Program Requirements

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Minimum Requirements for Mathematics B.A.: 120 credits

CONCENTRATIONS: MATHEMATICS (P. 1), STATISTICS (P. 2)

Students must earn a C- grade or better in each course.

Code	Title	Credits
Pre-major Requirement		
Students must be ready to matriculate into MATH F251X before they will be allowed to declare mathematics as their major.		
General University Requirements		
Complete the general university requirements. (https://catalog.uaf.edu/bachelors/#gurbachelorsdegreestext)		
General Education Requirements		
Complete the general education requirements. (https://catalog.uaf.edu/bachelors/#generaleducationrequirementstext)		36-40
As part of the general education requirements, complete the following:		
MATH F251X	Calculus I	
B.A. Degree Requirements		
Complete the B.A. degree requirements. (https://catalog.uaf.edu/bachelors/#bachelorofartstext)		37
Mathematics Program Requirements		
Complete the following:		
MATH F252X	Calculus II	4
MATH F253X	Calculus III	4
MATH F265	Introduction to Mathematical Proofs	3
MATH F314	Linear Algebra	3
Concentration		
Complete one of the following:		29-30
Mathematics		
Statistics		
Electives		
General Electives		0-4
Total Credits		120-121

Note: All mathematics majors – including double majors – must have an advisor from the Department of Mathematics and Statistics.

Note: At least 12 approved mathematics credits at the F300 level or above must be taken while in residence on the Troth Yeddha' (Fairbanks) campus.

Concentrations

MATHEMATICS

Code	Title	Credits
Mathematics Concentration Requirements		
Complete the following:		
MATH F401	Introduction to Real Analysis	3
MATH F405	Abstract Algebra	3
MATH F490	Senior Seminar ¹	3
Complete at least 21 additional credits of electives. ²		21
Total Credits		30

¹ Fulfills the baccalaureate capstone requirement.

² Acceptable elective courses include any MATH or STAT course at the F300 level or above and CS F201. At least 15 credits must be MATH courses. In some cases, courses with strong mathematical content from other disciplines may be used as electives. Such an elective must be approved by an advisor in the Department of Mathematics and Statistics. The requirement that at least 15 credits be MATH courses still applies.

Suggested Elective Packages for Mathematics Concentration Pure Mathematics Suggested Electives

Code	Title	Credits
Complete the following:		
MATH F305	Geometry	3
MATH F320	Topics in Combinatorics	3
or MATH F321	Number Theory	
MATH F404	Introduction to Topology	3
MATH F410	Introduction to Complex Analysis	3
Additional 9 elective credits		9
Total Credits		21

Applied Mathematics Suggested Electives

Code	Title	Credits
Complete the following:		
MATH F302	Differential Equations	3
MATH F410	Introduction to Complex Analysis	3
MATH F432	Introduction to Partial Differential Equations	3
MATH F460	Mathematical Modeling	3
Complete two of the following:		6
MATH F307	Discrete Mathematics	
MATH F426	Numerical Analysis	
STAT F300	Statistics	
Additional 3 elective credits		3
Total Credits		21

Mathematics Teachers (Grades 7-12) Suggested Electives ³

Code	Title	Credits
Complete the following:		
CS F201	Computer Science I	3
MATH F305	Geometry	3
MATH F316	Introduction to the History of Mathematics	3

STAT F300	Statistics	3
or MATH F371	Probability	
or MATH F408	Mathematical Statistics	
Complete one of the following:		3
MATH F307	Discrete Mathematics	
MATH F320	Topics in Combinatorics	
MATH F321	Number Theory	
Complete two of the following:		6
MATH F302	Differential Equations	
MATH F410	Introduction to Complex Analysis	
MATH F426	Numerical Analysis	
MATH F432	Introduction to Partial Differential Equations	
MATH F460	Mathematical Modeling	
Total Credits		21

³ We strongly recommend that prospective secondary science teachers seek advising from the UAF School of Education early in their undergraduate degree program, so that they can be appropriately advised of the State of Alaska requirements for teacher licensure. Students may choose to pursue a double major with education or complete a postbaccalaureate teacher certification program.

STATISTICS

Code	Title	Credits
Statistics Concentration Requirements		
Complete the following:		
CS F201	Computer Science I	3
or NRM F338	Introduction to Geographic Information Systems	
ENGL F314	Technical Writing	3
or ENGL F414	Research Writing	
MATH F371	Probability	3
MATH F401	Introduction to Real Analysis	3
or MATH F405	Abstract Algebra	
MATH F408	Mathematical Statistics	3
STAT F300	Statistics	3
STAT F401	Regression and Analysis of Variance	4
STAT F402	Scientific Sampling	3
STAT F454	Statistical Consulting Seminar ⁴	1
Additional 3 elective STAT/MATH credits at the F300 level or above ⁵		3
Total Credits		29

⁴ Fulfills the baccalaureate capstone requirement.

⁵ Acceptable elective courses include any MATH or STAT course at the F300 level or above. In some cases, courses with strong mathematical content from other disciplines may be used as electives. Such an elective must be approved by an advisor in the Department of Mathematics and Statistics.

Road Maps

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Road Maps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Some courses and milestones must be completed in the semester listed to ensure timely graduation. Transfer credit may change the road map.

This road map should be used in conjunction with regular academic advising appointments. All students are encouraged to meet with their advisor or mentor each semester. Requirements, course availability and sequencing are subject to change.

MATHEMATICS B.A. WITH MATHEMATICS CONCENTRATION

Course	Title	Credits
First Year		
Fall		
MATH F251X	Calculus I	4
GER (Art)		3
GER (Lab Science I)		4
GER (WRTG)		3
Credits		14
Spring		
LS F101X	Library Information and Research	1
MATH F252X	Calculus II	4
MATH F265	Introduction to Mathematical Proofs	3
GER (Social Science I)		3
GER (WRTG)		3
Credits		14
Second Year		
Fall		
MATH F253X	Calculus III	4
MATH F314	Linear Algebra	3
GER (Humanities)		3
BA (Humanities I)		3
BA (Humanities II)		3
Credits		16
Spring		
Math Elective		3
Math Elective		3
GER (COM)		3
BA (Social Science I)		3
BA (Social Science II)		3
Credits		15
Third Year		
Fall		
MATH F401	Introduction to Real Analysis	3
Math Elective		3
GER (Social Science II)		3
ANT Course		3
Minor Course		3
Credits		15
Spring		
MATH F405	Abstract Algebra	3
Math Elective		3

GER (Art/Social Science/Humanities)	3
Ethics Course	3
Minor Course	3
Credits	15

Fourth Year

Fall	
Math Elective	3
Math Elective	3
GER (Lab Science II)	4
BA (Humanities or Social Science)	3
Minor Course	3
Credits	16

Spring

MATH F490	Senior Seminar	3
Math Elective		3
BA (Humanities or Social Science)		3
Minor Course		3
Minor Course		3
Credits		15
Total Credits		120

MATHEMATICS B.A. WITH MATHEMATICS CONCENTRATION - SECONDARY EDUCATION MINOR - ODD YEAR START

Course	Title	Credits
First Year		
Fall		
LS F101X	Library Information and Research	1
MATH F251X	Calculus I	4
GER (Art)		3
GER (Lab Science I)		4
GER (WRTG)		3
Credits		15

Spring

EDSC F110	Becoming a Middle/High School Teacher	1
MATH F252X	Calculus II	4
MATH F265	Introduction to Mathematical Proofs	3
GER (Social Science I)		3
GER (WRTG)		3
Credits		14

Second Year

Fall		
CS F103	Introduction to Computer Programming	3
MATH F253X	Calculus III	4
MATH F314	Linear Algebra	3
PSY F245	Child Development	3
GER (Humanities)		3
Credits		16

Spring

CS F201	Computer Science I	3
EDSC F205	Introduction to Secondary Education	3

STAT F300	Statistics	3
GER (COM)		3
BA (Humanities or Social Science)		3
Credits		15

Third Year

Fall		
EDSC F458	Classroom Organization and Management	3
MATH F320	Topics in Combinatorics	3
MATH F401	Introduction to Real Analysis	3
GER (Social Science II)		3
ANT Course		3
Credits		15

Spring

MATH F305	Geometry	3
MATH F405	Abstract Algebra	3
GER (Art/Social Science/Humanities)		3
BA (Humanities or Social Science)		3
Ethics Course		3
Credits		15

Fourth Year

Fall		
EDSC F407	Developing Literacy in the Content Areas	3
MATH F302	Differential Equations	3
MATH F426	Numerical Analysis	3
GER (Lab Science II)		4
BA (Humanities or Social Science)		3
Credits		16

Spring

EDSE F422	Curriculum, Management and Strategies II: High Incidence	3
MATH F316	Introduction to the History of Mathematics	3
MATH F490	Senior Seminar	3
STAT F401	Regression and Analysis of Variance	4
BA (Humanities or Social Science)		3
Credits		16
Total Credits		122

MATHEMATICS B.A. WITH MATHEMATICS CONCENTRATION - SECONDARY EDUCATION MINOR - EVEN YEAR START

Course	Title	Credits
First Year		
Fall		
LS F101X	Library Information and Research	1
MATH F251X	Calculus I	4
GER (Art)		3
GER (Lab Science I)		4
GER (WRTG)		3
Credits		15

Spring			MATH F307	Discrete Mathematics	3
EDSC F110	Becoming a Middle/High School Teacher	1	MATH F490	Senior Seminar	3
MATH F252X	Calculus II	4	STAT F401	Regression and Analysis of Variance	4
MATH F265	Introduction to Mathematical Proofs	3	BA (Humanities or Social Science)		3
GER (Social Science I)		3	Credits		16
GER (WRTG)		3	Total Credits		125
Credits		14			
Second Year					
Fall					
CS F103	Introduction to Computer Programming	3			
MATH F253X	Calculus III	4			
MATH F314	Linear Algebra	3			
PSY F245	Child Development	3			
GER (Humanities)		3			
Credits		16			
Spring					
EDSC F205	Introduction to Secondary Education	3			
MATH F305	Geometry	3			
STAT F300	Statistics	3			
GER (COM)		3			
BA (Social Science)		3			
Credits		15			
Third Year					
Fall					
CS F201	Computer Science I	3			
EDSC F458	Classroom Organization and Management	3			
MATH F320	Topics in Combinatorics	3			
MATH F401	Introduction to Real Analysis	3			
GER (Social Science II)		3			
ANT Course		3			
Credits		18			
Spring					
MATH F305	Geometry	3			
MATH F316	Introduction to the History of Mathematics	3			
GER (Art/Social Science/Humanities)		3			
BA (Humanities)		3			
Ethics Course		3			
Credits		15			
Fourth Year					
Fall					
EDSC F407	Developing Literacy in the Content Areas	3			
MATH F426	Numerical Analysis	3			
MATH F460	Mathematical Modeling	3			
GER (Lab Science II)		4			
BA (Humanities)		3			
Credits		16			
Spring					
EDSE F422	Curriculum, Management and Strategies II: High Incidence	3			