MATHEMATICS: MATHEMATICS FOR SECONDARY EDUCATION

REQUIREMENTS

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The Mathematics Major for Secondary Education named option requires at least 8 distinct courses for at least 24 credits as described below. While a single courses may be used to fulfill more than one requirement, it will only contribute once to the total course/credit count. Finally, at most one course from each of the following groupings may be used to fulfill the minimum course and credit requirement (i.e.: minimum of 8 courses and at least 24 credits): Intro Linear Algebra (MATH 320, MATH 340, MATH 341, MATH 375), Intro Differential Equations (MATH 319, MATH 320 or MATH 376), and Intro Probability (MATH/STAT 309 or MATH/STAT 431).

Code	Title	Credits
Requirements (minimum of eight distinct courses for at least 24 credits) [1]		
Linear Algebra		*3-5*
MATH 341	Linear Algebra	
or MATH 320	Linear Algebra and Differential Equations	
or MATH 340	Elementary Matrix and Linear Algebra	
or MATH 375	Topics in Multi–Variable Calculus and Linear Algebra	
Intermediate Mathematics Requirement (complete at least one)		*0-3*
MATH 341	Linear Algebra	
or MATH 375	Topics in Multi–Variable Calculus and Linear Algebra	
MATH 421	The Theory of Single Variable Calculus	
MATH 467	Introduction to Number Theory	
Analysis (complete at least one)		*0-3*
MATH 421	The Theory of Single Variable Calculus	
MATH 521	Analysis I	
Modern Algebra (complete at least one)		*3*
MATH 540	Linear Algebra II	
MATH 541	Modern Algebra	
Probability or Combinatorics (complete at least one)		*3*
MATH/STAT 431	Introduction to the Theory of Probability	
or MATH/ STAT 309	Introduction to Probability and Mathematical Statistics I	
MATH 444	Graphs and Networks in Data Science	
MATH/ COMP SCI/ STAT 475	Introduction to Combinatorics	
MATH 531	Probability Theory	
Statistics		*3*
MATH/STAT 310	Introduction to Probability and Mathematical Statistics II	
or STAT 301	Introduction to Statistical Methods	
or STAT 312	Introduction to Theory and Methods of Mathematical Statistics II	
or STAT 324	Introductory Applied Statistics for Engineers	
or ECON 310	Statistics: Measurement in Economics	
History of Mathematics		*3*
MATH/ HIST SCI 473	History of Mathematics	
Geometry		*3*
MATH 461	College Geometry I	
Capstone course		*3*
MATH/ CURRIC 471	Mathematics for Secondary School Teachers	
Advanced mathematics		*0-6*
Additional advanced course if needed to reach at least two math courses above 500		
MATH/ COMP SCI 513	Numerical Linear Algebra	
MATH/ COMP SCI 514	Numerical Analysis	
MATH 519	Ordinary Differential Equations	
MATH 521	Analysis I	
MATH 531	Probability Theory	
MATH 535	Mathematical Methods in Data Science	
MATH 540	Linear Algebra II	
MATH 541	Modern Algebra	
MATH 542	Modern Algebra	
MATH 551	Elementary Topology	
MATH 561	Differential Geometry	
MATH 567	Modern Number Theory	
MATH 570	Fundamentals of Set Theory	
MATH/ PHILOS 571	Mathematical Logic	
MATH 619	Analysis of Partial Differential Equations	
MATH 627	Introduction to Fourier Analysis	
MATH 629	Introduction to Measure and Integration	
MATH/I SY E/ OTM/STAT 632	Introduction to Stochastic Processes	
Total Credits		**24**

RESIDENCE AND QUALITY OF WORK

- 2.000 GPA on all MATH courses and courses eligible for the major.[2]
- 2.000 GPA on at least 15 credits of upper level credit in the major.[3]
- 15 credits in MATH in the major taken on the UW-Madison campus.[4]

FOOTNOTES

[1] Course options below may have prerequisites outside of those listed for this program.

[2] This includes any course with a MATH prefix (including those cross-listed with MATH) regardless of its appearance in the tables above as well as only those specific non-MATH courses listed in the tables above.

[3] This includes all MATH courses (including those crosslisted with MATH) which are numbered 307 and above, regardless of appearing in the course lists above, as well as only those non-MATH courses which appear in the lists above and carry the advanced LAS designation.

[4] This includes only those courses with a MATH prefix (or cross-listed with MATH) numbered 307 and above.

FOUR-YEAR PLAN

SAMPLE FOUR-YEAR PLAN

This Sample Four-Year Plan is a tool to assist students and their advisor(s). Students should use it—along with their DARS report, the Degree Planner, and Course Search & Enroll tools—to make their own four-year plan based on their placement scores, credit for transferred courses and approved examinations, and individual interests. As students become involved in athletics, honors, research, student organizations, study abroad, volunteer experiences, and/or work, they might adjust the order of their courses to accommodate these experiences. Students will likely revise their own four-year plan several times during college.

In general, your four year plan in mathematics should be organized along the following sequence:

1. Calculus
2. Linear Algebra
3. Required Intermediate level courses
4. Additional intermediate level courses as needed
5. Required advanced level course
6. Additional advanced level courses

Freshman

Fall	Credits	Spring	Credits
MATH 221	5	MATH 222	4
Literature Breadth	3	L&S Breadth - Literature	3
Communication A	3	Ethnic Studies	3
Foreign Language (if required)	4	Foreign Language (if required)	4
	15		**14**

Sophomore

Fall	Credits	Spring	Credits
MATH 234[1]	4	MATH Required Linear Algebra	3
Humanities Breadth	3	MATH Required Probability or Combinatorics	3
Communication B	3	Humanities Breadth	3
Physical Science Breadth	3	Physical Science Breadth	3
Elective	3	Elective	3
	16		**15**

Junior

Fall	Credits	Spring	Credits
MATH Required Analysis	3	MATH 461	3
MATH Required Statistics	3	Elective	3
Social Sciences Breadth	3	Social Science Breadth	3
Biological Sciences Breadth	3	Biological Sciences Breadth	3
Elective	3	Elective	3
	15		**15**

Senior

Fall	Credits	Spring	Credits
MATH/HIST SCI 473	3	MATH Required Advance course or Elective	3
MATH Required Algebra	3	MATH/CURRIC 471[2]	3
Social Science Breadth	3	Social Science Breadth	3
Elective	3	Elective	3
Elective	3	Elective	3
	15		**15**

Total Credits 120

FOOTNOTES

[1] Students should declare their major upon the successful completion of this course

[2] Taught only in odd-numbered springs. Take spring of junior year if graduating in an even-numbered spring.