

# MATHEMATICS: FOUNDATIONS FOR RESEARCH, MA

This is a named option within the Mathematics MA (<http://guide.wisc.edu/graduate/mathematics/mathematics-ma/>), which is offered for work leading to the PhD.

Information about the requirements and policies for this program can be found in this Guide.

## ADMISSIONS

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The MA (named option Foundations for Research) is offered for work leading to the PhD. Students may not apply directly for this master's, and should instead see the admissions information for the PhD (<http://guide.wisc.edu/graduate/mathematics/mathematics-phd/>).

Students may also apply to the MA Named Option in Foundations of Advanced Studies (<http://guide.wisc.edu/graduate/mathematics/mathematics-ma/mathematics-foundations-advanced-studies-ma/>).

## FUNDING

### FUNDING

#### GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (<https://grad.wisc.edu/funding/>) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

## REQUIREMENTS

### MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (<http://guide.wisc.edu/graduate/#policiesandrequirements>), in addition to the program requirements listed below.

### NAMED OPTION REQUIREMENTS MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
Yes	No	No	No	No

### Mode of Instruction Definitions

**Accelerated:** Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

**Evening/Weekend:** Courses meet on the UW-Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

**Face-to-Face:** Courses typically meet during weekdays on the UW-Madison Campus.

**Hybrid:** These programs combine face-to-face and online learning formats. Contact the program for more specific information.

**Online:** These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

### CURRICULAR REQUIREMENTS

#### Requirement Detail

Minimum 30 credits  
Credit Requirement

Minimum 16 credits  
Residence Credit Requirement

Minimum 30 credits must be graduate-level coursework. Refer to the Graduate School: Minimum Graduate Coursework (50%) Requirement policy: <https://policy.wisc.edu/library/UW-1244> (<https://policy.wisc.edu/library/UW-1244/>).

Overall 3.00 GPA required. Refer to the Graduate School: Grade Point Average (GPA) Requirement policy: <https://policy.wisc.edu/library/UW-1203> (<https://policy.wisc.edu/library/UW-1203/>).

Other Grade Requirements At least 12 credits from a specified list of 700 courses are required to be passed with grade B or higher.

Assessments and Examinations None.

Language Requirements No language requirements.

### REQUIRED COURSES

Code	Title	Credits
<b>(i) Core Courses:</b>		<b>12</b>
Select four of the following:		
MATH 703	Methods of Applied Mathematics 1	
MATH 704	Methods of Applied Mathematics-2	
MATH/ COMP SCI 714	Methods of Computational Mathematics I	
MATH/ COMP SCI 715	Methods of Computational Mathematics II	
MATH 721	A First Course in Real Analysis	
MATH 722	Complex Analysis	
MATH 725	A Second Course in Real Analysis	
MATH/STAT 733	Theory of Probability I	

MATH/STAT 734	Theory of Probability II	
MATH 741	Abstract Algebra	
MATH 742	Abstract Algebra	
MATH 751	Introductory Topology I	
MATH 752	Introductory Topology II	
MATH 758	Introduction to Ergodic Theory and Dynamics	
MATH 761	Differentiable Manifolds	
MATH 770	Foundations of Mathematics	
MATH 771	Set Theory	
MATH 773	Computability Theory	
MATH 776	Model Theory	
<b>(ii) Four Mathematics courses numbered 600 or above passed with a grade of B or higher <sup>1</sup></b>		<b>12</b>
<b>(iii) Electives (numbered 500 or above)</b>		<b>6</b>
<i>Advanced Computer Science Course</i>		
Students must complete an advanced computer science course which involves substantial programming. The advanced computer science requirement can be counted as an elective. Below is a list of advanced computer science courses. Other courses require prior approval of the director of graduate studies. This requirement is waived for Math PhD students, provided two qualifying exams have been passed.		
COMP SCI 400	Programming III	
COMP SCI 536	Introduction to Programming Languages and Compilers	
COMP SCI 537	Introduction to Operating Systems	
COMP SCI 564	Database Management Systems: Design and Implementation	
COMP SCI 704	Principles of Programming Languages	
COMP SCI/ MATH 714	Methods of Computational Mathematics I	
COMP SCI/ MATH 715	Methods of Computational Mathematics II	
COMP SCI/ I SY E 719	Stochastic Programming	
COMP SCI/I SY E/ MATH 730	Nonlinear Optimization II	
<b>Total Credits</b>		<b>30</b>

<sup>1</sup> The graduate advisor may also approve to have courses numbered 500-599 count for this requirement (but typically no introductory courses such as MATH 521 Analysis I, MATH 541 Modern Algebra or MATH 551 Elementary Topology).

program faculty. Policies set by the academic degree program can be found below.

## NAMED OPTION-SPECIFIC POLICIES

### PRIOR COURSEWORK

#### Graduate Credits Earned at Other Institutions

Students in the MA program are allowed to count no more than 14 credits of graduate coursework from other institutions. Coursework earned ten or more years prior to admission to a master's degree is not allowed to satisfy requirements.

#### Undergraduate Credits Earned at Other Institutions or UW-Madison

Refer to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

#### Credits Earned as a Professional Student at UW-Madison (Law, Medicine, Pharmacy, and Veterinary careers)

Refer to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

#### Credits Earned as a University Special student at UW-Madison

Refer to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

### PROBATION

Refer to the Graduate School: Probation (<https://policy.wisc.edu/library/UW-1217/>) policy.

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

Students are recommended to meet with an advisor.

### CREDITS PER TERM ALLOWED

15 credits

### TIME LIMITS

Students have two years to complete the degree. Extensions have to be approved by the program.

Refer to the Graduate School: Time Limits (<https://policy.wisc.edu/library/UW-1221/>) policy.

### GRIEVANCES AND APPEALS

These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (<https://doso.students.wisc.edu/bias-or-hate-reporting/>)
- Graduate Assistantship Policies and Procedures (<https://hr.wisc.edu/policies/gapp/#grievance-procedure>)

## POLICIES

### GRADUATE SCHOOL POLICIES

The Graduate School's Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy/>) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree

- Hostile and Intimidating Behavior Policies and Procedures (<https://hr.wisc.edu/hib/>)
  - Office of the Provost for Faculty and Staff Affairs (<https://facstaff.provost.wisc.edu/>)
- Dean of Students Office (<https://doso.students.wisc.edu/>) (for all students to seek grievance assistance and support)
- Employee Assistance (<http://www.eao.wisc.edu/>) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (<https://employee disabilities.wisc.edu/>) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (<https://grad.wisc.edu/>) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (<https://compliance.wisc.edu/>) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office of Student Conduct and Community Standards (<https://conduct.students.wisc.edu/>) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (<http://www.ombuds.wisc.edu/>) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (<https://compliance.wisc.edu/titleix/>) (for concerns about discrimination)

Students should contact the department chair or program director with questions about grievances. They may also contact the L&S Academic Divisional Associate Deans, the L&S Associate Dean for Teaching and Learning Administration, or the L&S Director of Human Resources.

## OTHER

n/a

## PROFESSIONAL DEVELOPMENT

### PROFESSIONAL DEVELOPMENT GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School's professional development resources (<https://grad.wisc.edu/pd/>) to build skills, thrive academically, and launch your career.

## PEOPLE

### PEOPLE

Please visit the Math Department website (<https://math.wisc.edu>) for a complete list of faculty (<https://math.wisc.edu/math-faculty/>) and instructional academic staff (<https://math.wisc.edu/academic-staff/>).