

MATHEMATICS: FOUNDATIONS OF ADVANCED STUDIES, MA

This is a named option within the Mathematics MA. It is designed to strengthen the student's mathematics background and enhance the opportunities for applications to PhD programs and for employment as a mathematician in nonacademic environments.

ADMISSIONS

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Please consult the table below for key information about this degree program's admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program's website.

Graduate admissions is a two-step process between academic programs and the Graduate School. **Applicants must meet the minimum requirements (<https://grad.wisc.edu/apply/requirements/>) of the Graduate School as well as the program(s).** Once you have researched the graduate program(s) you are interested in, apply online (<https://grad.wisc.edu/apply/>).

| Requirements | Detail |
|------------------------------------|--|
| Fall Deadline | March 15 |
| Spring Deadline | November 1 |
| Summer Deadline | The program does not admit in the summer. |
| GRE (Graduate Record Examinations) | Not required but may be considered if available. |
| English Proficiency Test | Every applicant whose native language is not English, or whose undergraduate instruction was not exclusively in English, must provide an English proficiency test score earned within two years of the anticipated term of enrollment. Refer to the Graduate School: Minimum Requirements for Admission policy: https://policy.wisc.edu/library/UW-1241 (https://policy.wisc.edu/library/UW-1241/). |
| Other Test(s) (e.g., GMAT, MCAT) | The GRE subject test in Mathematics is not required but may be considered if available. |
| Letters of Recommendation Required | 3 |

Admission is competitive. For more information about application to the MA program, see the department's admission website (<https://math.wisc.edu/graduate/master-of-arts-foundation-of-studies/applying-for-ma-fas/>).

FUNDING

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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.

PROGRAM RESOURCES

The Department of Mathematics cannot provide financial support for the Master's–Foundations of Advanced Studies Degree program.

Students enrolled in this program are not eligible to receive tuition remission from graduate assistantship appointments at this institution.

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 | Yes |

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 Credit Requirement | 30 credits |

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| Minimum Residence Credit Requirement | 16 credits |
| Minimum Graduate Coursework Requirement | 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 Graduate GPA Requirement | 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 | None. |
| Assessments and Examinations | None. |
| Language Requirements | No language requirements. |

REQUIRED COURSES

| Code | Title | Credits |
|---|---|---------|
| Core | | |
| These courses must be taken by all students, except when it is determined by the director of the program that equivalent courses were taken prior to entering the program. | | |
| MATH 522 | Analysis II | 3 |
| MATH 542 | Modern Algebra | 3 |
| Basic Electives: | | |
| FOUR courses numbered 500 or above in Mathematics may be taken as basic elective courses, including up to three credits of MATH 698 or MATH 790. Excludes courses counted toward another requirement. Excludes MATH 521, 522, 541, 542, 607, 681, 682, 691, 692, 790. | | 12 |
| MATH/COMP SCI 513 | Numerical Linear Algebra | |
| MATH/COMP SCI 514 | Numerical Analysis | |
| MATH 519 | Ordinary Differential Equations | |
| MATH/COMP SCI/I SY E/STAT 525 | Linear Optimization | |
| MATH 531 | Probability Theory | |
| MATH 535 | Mathematical Methods in Data Science | |
| MATH 551 | Elementary Topology | |
| MATH 552 | Elementary Geometric and Algebraic Topology | |
| MATH 561 | Differential Geometry | |
| MATH 567 | Modern Number Theory | |
| MATH/PHILOS 571 | Mathematical Logic | |
| MATH 570 | Fundamentals of Set Theory | |
| MATH 605 | Stochastic Methods for Biology | |

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| MATH/B M I/ BIOCHEM/ BMOLCHEM 609 | Mathematical Methods for Systems Biology |
| MATH 616 | Data-Driven Dynamical Systems, Stochastic Modeling and Prediction |
| MATH 619 | Analysis of Partial Differential Equations |
| MATH 621 | Introduction to Manifolds |
| MATH 623 | Complex Analysis |
| MATH 627 | Introduction to Fourier Analysis |
| MATH 629 | Introduction to Measure and Integration |
| MATH/I SY E/ OTM/STAT 632 | Introduction to Stochastic Processes |
| MATH 635 | An Introduction to Brownian Motion and Stochastic Calculus |
| MATH/E C E 641 | Introduction to Error-Correcting Codes |
| MATH 698 | Directed Study |
| MATH 705 | Mathematical Fluid Dynamics |
| MATH/STAT 709 | Mathematical Statistics |
| MATH/STAT 710 | Mathematical Statistics |
| MATH 716 | Ordinary Differential Equations |
| MATH 718 | Randomized Linear Algebra and Applications |
| MATH/COMP SCI/I SY E/STAT 726 | Nonlinear Optimization I |
| MATH/COMP SCI/ I SY E 728 | Integer Optimization |
| MATH/COMP SCI/ I SY E 730 | Nonlinear Optimization II |
| MATH 735 | Stochastic Analysis |
| MATH 740 | Enumerative Combinatorics/ Symmetric Functions |
| MATH 746 | Topics in Ring Theory |
| MATH 747 | Lie Algebras |
| MATH 748 | Algebraic Number Theory |
| MATH 749 | Analytic Number Theory |
| MATH 750 | Homological Algebra |
| MATH 753 | Algebraic Topology I |
| MATH 754 | Algebraic Topology II |
| MATH 763 | Introduction to Algebraic Geometry |
| MATH 764 | Introduction to Algebraic Geometry |
| MATH 765 | Differential Geometry |
| MATH/CBE/ E C E 777 | Nonlinear Dynamics, Bifurcations and Chaos |
| MATH 790 | Masters Thesis |

Advanced Electives:

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| FOUR courses numbered 700 or above in Mathematics listed below may be taken as advanced elective courses. | | 12 |
| MATH 703 | Methods of Applied Mathematics 1 | |
| MATH 704 | Methods of Applied Mathematics-2 | |

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| MATH/ COMP SCI 714 | Methods of Computational Mathematics I |
| MATH/ COMP SCI 715 | Methods of Computational Mathematics II |
| MATH 719 | Partial Differential Equations |
| MATH 717 | Stochastic Computational Methods |
| MATH 720 | Partial Differential Equations |
| 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 |
| Total Credits | 30 |

Students in this program may not take courses outside the prescribed curriculum without faculty advisor and program director approval. Students in this program cannot enroll concurrently in other undergraduate or graduate degree programs.

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 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 may transfer 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.

ADVISOR / COMMITTEE

Students are recommended to meet with an advisor.

CREDITS PER TERM ALLOWED

15 credits

TIME LIMITS

Two years. Extensions have to be approved by the program.

Otherwise, 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>)
- 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

The Department of Mathematics cannot provide financial support for students in the master's degree in Mathematics–Foundations of Advanced Studies program.

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/>).