

MATHEMATICS: FOUNDATIONS OF ADVANCED STUDIES, M.A.

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

ADMISSIONS

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 | February 15 |
| Spring Deadline | October 15 |
| 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 in English must provide an English proficiency test score and meet the Graduate School minimum requirements (https://grad.wisc.edu/apply/requirements/#english-proficiency). |
| Other Test(s) (e.g., GMAT, MCAT) | The GRE subject test in Mathematics or another science is recommended. |
| Letters of Recommendation Required | 3 |

Admission is competitive. Applicants to the Ph.D. program are automatically considered for financial support. For more information about application to the Ph.D. and M.A. programs, see the department's admission website (<https://www.math.wisc.edu/graduate/admissions/>).

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.

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 may not accept University appointments which grant waivers of tuition and/or academic fees, cf. the policy on campus employment.

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 are able to complete a program with minimal disruptions to careers and other commitments.

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

| Requirements | Detail |
|---|---|
| Minimum Credit Requirement | 30 credits |
| Minimum Residence Credit Requirement | 16 credits |
| Minimum Graduate Coursework Requirement | The coursework must consist of graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide (https://registrar.wisc.edu/course-guide (https://registrar.wisc.edu/course-guide/)). |
| Overall Graduate GPA Requirement | 3.00 GPA required. |
| Other Grade Requirements | None. |

Assessments None.
and
Examinations

Language No language requirements.
Requirements

REQUIRED COURSES

| Code | Title | Credits |
|------|-------|---------|
|------|-------|---------|

Required Courses:

These courses must be taken by all students, except when it is determined by the director of graduate studies that equivalent courses were taken prior to entering the program.

| | | |
|----------|----------------|---|
| MATH 522 | Analysis II | 3 |
| MATH 542 | Modern Algebra | 3 |

Basic Electives:

All other 500-level and all 600-level courses in Mathematics may be taken as elective courses. Currently the following courses are available. Select four of the following:

| | | |
|---|--|----|
| MATH/ COMP SCI 513 | Numerical Linear Algebra | 12 |
| 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 552 | Elementary Geometric and Algebraic Topology | |
| MATH 561 | Differential Geometry | |
| MATH 567 | Modern Number Theory | |
| MATH/ PHILOS 571 | Mathematical Logic | |
| MATH 605 | Stochastic Methods for Biology | |
| MATH 606 | | |
| MATH 608 | Mathematical Methods for Physical Modeling in Biology | |
| MATH/B M I/ BIOCHEM/ BMOLCHEM 609 | Mathematical Methods for Systems Biology | |
| MATH 619 | Analysis of Partial Differential Equations | |
| MATH 621 | Analysis III | |
| 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 | |

Advanced Electives:

All 700 level courses in Mathematics may be taken as elective courses. Students must pass at least four of the following core graduate courses with a Grade of B or higher. 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 761 | Differentiable Manifolds |
| MATH 770 | Foundations of Mathematics |
| MATH 771 | Set Theory |
| MATH 773 | Computability Theory |
| MATH 776 | Model Theory |

Total Credits **30**

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 Work from Other Institutions

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

UW–Madison Undergraduate

No more than 7 credits from a UW–Madison undergraduate degree are allowed to count toward the degree. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

UW–Madison University Special

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

PROBATION

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

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 CONSTRAINTS

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

Master's degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

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 the Master's–Foundations of Advanced Studies Degree program. Students enrolled in this program may not accept university appointments which grant waivers of tuition and/or academic fees.

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

Faculty: Professors Anderson, Angenent, Arinkin, Căldăraru, Craciun, Denisov, Ellenberg, Feldman, Gong, Kent, Lempp, Mari Beffa, Maxim, Miller, Paul, Poltoratski, Roch, Seeger, Seppäläinen (chair), Smith, Stechmann, Street, Terwilliger, Thiffeault, Valko, Waleffe, Yang; Associate Professors Andrews, Dymarz, Erman, Gorin, Gurevich, Ifrim, Kim, Li, Marshall, Soskova, Spagnolie, Stovall, Tran; Assistant Professors Chen, Cochran, Guo, Kemeny, Rodriguez, Shankar, Shcherbina, Shen, Waldron, Wang, Wu, Zepeda-Núñez, Zimmer; Affiliate Faculty Pimentel-Alarcón, Ron.