MATHEMATICS: FOUNDATIONS FOR RESEARCH, M.A.

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

<table>
<thead>
<tr>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
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</table>

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

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Minimum Credit Requirement</td>
<td>30 credits</td>
</tr>
<tr>
<td>Minimum Residence Credit Requirement</td>
<td>16 credits</td>
</tr>
<tr>
<td>Minimum Graduate Coursework Requirement</td>
<td>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 (<a href="https://registrar.wisc.edu/course-guide/">https://registrar.wisc.edu/course-guide/</a>).</td>
</tr>
<tr>
<td>Overall Graduate GPA Requirement</td>
<td>3.00 GPA required</td>
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</table>

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
--- | --- | ---
(i) Core Courses: | | 12
MATH 703 | Methods of Applied Mathematics 1 | 
MATH 704 | Methods of Applied Mathematics-2 | 
MATH/COMP SCI 714 | Mathematics I | 
MATH/COMP SCI 715 | 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 | 
(ii) Four Mathematics courses at 600 level or above passed with a grade of B or higher | | 12
(iii) Electives (500 level or above) | | 6
(iv) Advanced Computer Science Course: | | 
Students must complete an advanced computer science course which involves substantial programming. Other courses require prior approval of the director of graduate studies. This requirement is waived for Math Ph.D. 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 |
Mathematics: Foundations for Research, M.A.

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>COMP SCI/</td>
<td>Stochastic Programming</td>
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<tr>
<td>ISY E 719</td>
<td></td>
</tr>
<tr>
<td>COMP SCI/</td>
<td>Nonlinear Optimization II</td>
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<tr>
<td>ISY E 730</td>
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</table>

**Total Credits** 30

1. Students must pass with a grade of B or higher.
2. The graduate advisor may also approve to have courses at the 500 level counted for this requirement (but typically no introductory courses such as MATH 521 Analysis I, MATH 541 Modern Algebra or MATH 551 Elementary Topology).