### APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCE, PHD

Advanced mathematics is continually finding new applications in natural science, biology, engineering, medicine, and social sciences, and these fields are providing new directions for the development of mathematics itself. The graduate group in Applied Mathematics and Computational Science takes a very broad view of mathematics and its applications in our mission to train mathematical scientists for careers in academia, research and industry.

In addition to providing a rigorous conceptual foundation for the application of mathematics, our diverse faculty gives AMCS students the opportunity to work in a “wet lab” environment where mathematics is actually being applied to real world problems. The AMCS graduate groups offer a full program of study in mathematics and its applications, offering both doctoral (Ph.D.) and masters (A.M.) degrees.

For more information: http://www.amcs.upenn.edu/

View the University's Academic Requirements for PhD Degrees (http://catalog.upenn.edu/pennbook/academic-rules-phd/).

### Curriculum

The total course units required for graduation is 20.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>Coursework</td>
<td></td>
</tr>
<tr>
<td>AMCS 602 &amp; AMCS 603</td>
<td>Algebraic Techniques for Applied Mathematics and Computational Science, I. and Algebraic Techniques for Applied Mathematics and Computational Science, II.</td>
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<tr>
<td>AMCS 608 &amp; AMCS 609</td>
<td>Analysis and Analysis</td>
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<tr>
<td>MATH 648 &amp; MATH 649</td>
<td>Probability Theory and Stochastic Processes</td>
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<td>Select one elective</td>
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<tr>
<td>Year 2</td>
<td>Advanced Coursework to Prepare for PhD Thesis Proposal/Oral Exam</td>
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<tr>
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<td>Teaching Assistantships</td>
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<tr>
<td>Year 3</td>
<td>PhD Thesis Proposal/Oral Exam</td>
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<td></td>
<td>PhD Thesis Research</td>
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<td>Year 4</td>
<td>PhD Thesis Research</td>
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</tr>
<tr>
<td>Year 5</td>
<td>PhD Thesis Research and Defense</td>
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The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2021 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.