The concentration in Applied Mathematics allows students to investigate the mathematics of problems arising in the physical, life and social sciences as well as in engineering. The basic mathematical skills of Applied Mathematics come from a variety of sources, which depend on the problems of interest: the theory of ordinary and partial differential equations, matrix theory, statistical sciences, probability and decision theory, risk and insurance analysis, among others. Applied Mathematics appeals to people with a variety of different interests, ranging from those with a desire to obtain a good quantitative background for use in some future career, to those who are interested in the basic techniques and approaches in themselves.

Both the A.B. and Sc.B. concentrations in Applied Mathematics require certain basic courses to be taken, but beyond this there is a great deal of flexibility as to which areas of application are pursued. Students are encouraged to take courses in applied mathematics, mathematics and one or more of the application areas in the natural sciences, social sciences or engineering. Whichever areas are chosen should be studied in some depth.

### Standard program for the A.B. degree.

**Prerequisites**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 0090 &amp; MATH 0100</td>
<td>Introductory Calculus, Part I and Introductory Calculus, Part II</td>
</tr>
</tbody>
</table>

Or their equivalent

**Program**

Ten additional semester courses approved by the Division of Applied Mathematics. These classes must include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 0180</td>
<td>Intermediate Calculus</td>
</tr>
<tr>
<td>MATH 0520</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>APMA 0350 &amp; APMA 0360</td>
<td>Applied Ordinary Differential Equations and Applied Partial Differential Equations</td>
</tr>
</tbody>
</table>

Select one course on programming from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>APMA 0090</td>
<td>Introduction to Mathematical Modeling</td>
</tr>
<tr>
<td>APMA 0160</td>
<td>Introduction to Scientific Computing</td>
</tr>
<tr>
<td>CSCI 0040</td>
<td>Introduction to Scientific Computing and Problem Solving</td>
</tr>
<tr>
<td>CSCI 0150</td>
<td>Introduction to Object-Oriented Programming and Computer Science</td>
</tr>
<tr>
<td>CSCI 0170</td>
<td>Computer Science: An Integrated Introduction</td>
</tr>
</tbody>
</table>

Five additional courses, of which four should be chosen from the 1000-level or higher level courses taught by the Division of Applied Mathematics. APMA 1910 cannot be used as an elective.

**Total Credits**

18

1 Substitution of alternate courses for the specific requirements is subject to approval by the division.

2 Concentrators are urged to consider MATH 0540 as an alternative to MATH 0520.

3 APMA 0330, APMA 0340 will sometimes be accepted as substitutes for APMA 0350, APMA 0360. APMA 1910 cannot be used as an elective.

4 Concentrators are urged to complete their introductory programming course before the end of their sophomore year.

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### Standard program for the Sc.B. degree.

**Program**

Eighteen approved semester courses in mathematics, applied mathematics, engineering, the natural or social sciences. These classes must include:

<table>
<thead>
<tr>
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<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 0090 &amp; MATH 0100</td>
<td>Introductory Calculus, Part I and Introductory Calculus, Part II</td>
</tr>
<tr>
<td>MATH 0180</td>
<td>Intermediate Calculus</td>
</tr>
<tr>
<td>MATH 0520</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>APMA 0350 &amp; APMA 0360</td>
<td>Applied Ordinary Differential Equations and Applied Partial Differential Equations</td>
</tr>
</tbody>
</table>

Select one senior seminar from the APMA 1930 or APMA 1940 series, or an approved equivalent.

Select one course on programming from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>APMA 0090</td>
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</tr>
<tr>
<td>CSCI 0170</td>
<td>Computer Science: An Integrated Introduction</td>
</tr>
</tbody>
</table>

Ten additional courses, of which six should be chosen from the 1000-level or higher level courses taught by the Division of Applied Mathematics. APMA 1910 cannot be used as an elective.

**Total Credits**

18

1 Substitution of alternate courses for the specific requirements is subject to approval by the division.

2 Concentrators are urged to consider MATH 0540 as an alternative to MATH 0520.

3 APMA 0330, APMA 0340 will sometimes be accepted as substitutes for APMA 0350, APMA 0360.

4 Concentrators are urged to complete their introductory programming course before the end of their sophomore year.
**Font Notice**

This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

Helvetica was used instead of Arial.

The editor may contact Leepfrog for a draft with the correct fonts in place.