Applied Mathematics, B.S.

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The Bachelor of Science in Applied Mathematics focuses on mathematical and computational methods applicable in the sciences, engineering, and industry. In particular, this degree is suitable preparation for professions featuring sophisticated mathematical modeling and/or scientific computing. This degree is also suitable preparation for graduate study in applied mathematics or related disciplines.

Students should consult with an advisor to design a program best fitted to their interests and goals.

Bachelor of Science

Summary of Requirements for the Degree

1. University Requirements (123 total s.h.)
   - MATH 0701 (4 s.h.) and/or ENG 0701 (4 s.h.), if required by placement testing.
   - All Temple students must take a minimum of two writing-intensive courses at Temple as part of their major. Following is a list of courses that can be used to satisfy the writing-intensive requirement:
     - MATH 3096 Introduction to Modern Algebra 3
     - MATH 3098 Modern Algebra
     - MATH 4096 Senior Problem Solving 3
   - Students must complete the General Education (GenEd) requirements.
   - Students who complete CST majors typically receive a waiver for 2 Science & Technology (GS) and 1 Quantitative Literacy (GQ) GenEd courses.

2. College Requirements
   - 90 credits within the College of Science & Technology (CST) or the College of Liberal Arts (CLA).
   - 45 Upper-Level (2000+) credits within the College of Science & Technology (CST) or the College of Liberal Arts (CLA).

3. Major Requirements for Bachelor of Science (66-67 s.h.)

   **Computer & Information Science course**
   - CIS 1053 Programming in Matlab 4
   - or CIS 1057 Computer Programming in C

   **Mathematics courses**
   - MATH 1041 Calculus I 4
   - or MATH 1941 Honors Calculus I
   - MATH 1042 Calculus II 4
   - or MATH 1942 Honors Calculus II
   - MATH 2043 Calculus III 4
   - or MATH 2943 Honors Calculus III
   - MATH 2103 Linear Algebra with Computer Lab 4
   - MATH 2111 Basic Concepts of Math 3
   - or MATH 3003 Theory of Numbers
   - MATH 3031 Probability Theory I 3
   - MATH 3043 Numerical Analysis I (F) 4
MATH 3044  Numerical Analysis II (S)  3
MATH 3046  Differential Equations with Computer Lab (S)  4
MATH 3096  Introduction to Modern Algebra  3
or MATH 3098  Modern Algebra  3
MATH 3141  Advanced Calculus I (F)  3
MATH 3142  Advanced Calculus II (S)  3
MATH 4043  Applied Mathematics (F)  3
MATH 4051  Complex Analysis (F)  3
MATH 4096  Senior Problem Solving  3
Mathematics elective at the 3000+ level or above 3-4

Physics courses
Select one of the following  4

PHYS 1061  Elementary Classical Physics I
PHYS 2021  General Physics I
PHYS 2921  Honors General Physics I (F)

Select one of the following  4

PHYS 1062  Elementary Classical Physics II
PHYS 2022  General Physics II
PHYS 2922  Honors General Physics II (S)

Total Credit Hours 66-67

(F) - Fall only course
(S) - Spring only course

Calculation of Major GPA
The list of courses that are used to calculate major GPA is determined by the department. Students should consult with their academic advising unit for the applicable courses. In general, courses that could not apply toward the major as an elective or a required course are not counted for the major GPA. This would include MATH 1022, for example.

Distinction in Major
To graduate with Distinction in Applied Mathematics a student should meet the following requirements:

1. All requirements for the degree in Applied Mathematics must be met with a GPA of at least 3.50 in the Mathematics courses.
2. At the time of graduation, the student's overall GPA, including all college-level courses, must be at least 3.25.
3. Students must complete MATH 3098 instead of MATH 3096 in order to qualify for a Distinction in Major.
4. A student must have a GPA of 3.50 or higher in MATH 3141, MATH 3142, MATH 3098, MATH 4051 and any additional courses from the following list:
   MATH 3043  Numerical Analysis I  4
   MATH 3044  Numerical Analysis II  3
   MATH 3101  Topics in Modern Algebra  3
   Any 4000-level course other than individual study

Suggested Academic Plan

Bachelor of Science in Applied Mathematics

Requirements for New Students starting in the 2014-2015 Academic Year

Year 1
Fall  Credit Hours
MATH 1041 or 1941  Calculus I  4
Select one of the following:  4
   PHYS 1061  Elementary Classical Physics I
   PHYS 2021  General Physics I
   PHYS 2921  Honors General Physics I (F)
Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CIS 1053</td>
<td>Programming in Matlab</td>
</tr>
<tr>
<td>CIS 1057</td>
<td>Computer Programming in C</td>
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General Education/Elective Credits 4

### Term Credit Hours 16

**Spring**

- MATH 1042 or 1942 Calculus II 4
- Select one of the following: 4
  - PHYS 1062 Elementary Classical Physics II
  - PHYS 2022 General Physics II
  - PHYS 2922 Honors General Physics II (S)

General Education/Elective Credits 7

**Year 2**

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<th>Term Credit Hours 15</th>
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**Fall**

- MATH 2043 or 2943 Calculus III 4
- MATH 2103 Linear Algebra with Computer Lab (F) 4

General Education/Elective Credits 8

**Spring**

- MATH 3031 Probability Theory I 3
- MATH 3046 Differential Equations with Computer Lab (S) 4
- Select one of the following: 3
  - MATH 2111 Basic Concepts of Math
  - MATH 3003 Theory of Numbers

General Education/Elective Credits 6

**Year 3**

<table>
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<th>Term Credit Hours 16</th>
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**Fall**

- MATH 3043 Numerical Analysis I (F) 4
- MATH 3141 Advanced Calculus I (F) 3

General Education/Elective Credits 8

**Spring**

- MATH 3044 Numerical Analysis II (S) 3
- MATH 3142 Advanced Calculus II (S) 3

General Education/Elective Credits 9

**Year 4**

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<th>Term Credit Hours 15</th>
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**Fall**

- MATH 4051 Complex Analysis (F) 3
- MATH 4043 Applied Mathematics (F) 3
- Select one of the following: 3
  - MATH 3096 Introduction to Modern Algebra [WI]
  - MATH 3098 Modern Algebra [WI]

General Education/Elective Credits 6

**Spring**

- MATH 4096 Senior Problem Solving [WI] 3

3000+ Math Elective 3-4
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<tr>
<th>Term Credit Hours</th>
<th>Total Credit Hours:</th>
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<tbody>
<tr>
<td>15</td>
<td>123</td>
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(F) - Fall only course
(S) - Spring only course