# B.S. in Applied Physics & B.S. in Mathematical Sciences, Applied Mathematics

(122 Credits)

## First Year

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 111</td>
<td>Calculus I</td>
</tr>
<tr>
<td>CS 100 or CS 115</td>
<td>Roadmap to Computing or Introduction to Computer Science in C++</td>
</tr>
<tr>
<td>CHEM 125</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>PHYS 111</td>
<td>Physics I</td>
</tr>
<tr>
<td>PHYS 111A</td>
<td>Physics I Lab</td>
</tr>
<tr>
<td>ENGL 101</td>
<td>English Composition: Introduction to Academic Writing</td>
</tr>
<tr>
<td>FYS SEM</td>
<td>First-Year Student Seminar</td>
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</tbody>
</table>

**Term Credits** 17

## 2nd Semester

| MATH 112     | Calculus II | 4 |
| PHYS 114     | Introduction to Data Reduction with Applications | 3 |
| PHYS 121 or PHYS 122 | Physics II or Electricity & Magnetism ECE Appl | 3 |
| PHYS 121A    | Physics II Lab | 1 |
| CHEM 125A    | General Chemistry Lab I | 1 |
| CHEM 126     | General Chemistry II | 3 |

**Term Credits** 15

## Second Year

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 213</td>
<td>Calculus III B</td>
</tr>
<tr>
<td>MATH 244</td>
<td>Introduction to Probability Theory</td>
</tr>
<tr>
<td>PHYS 234</td>
<td>Physics III</td>
</tr>
<tr>
<td>PHYS 231A</td>
<td>Physics III Lab</td>
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<tr>
<td>ENGL 102</td>
<td>English Composition: Introduction to Writing for Research</td>
</tr>
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**Term Credits** 14

## 2nd Semester

| MATH 222     | Differential Equations | 4 |
| MATH 335     | Vector Analysis | 3 |
| MATH 337     | Linear Algebra | 3 |
| PHYS 335     | Introductory Thermodynamics | 3 |
| History and Humanities GER 200 level (http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level/) | 3 |

**Term Credits** 16

## Third Year

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 331</td>
<td>Introduction to Partial Differential Equations</td>
</tr>
<tr>
<td>MATH 332</td>
<td>Introduction to Functions of a Complex Variable</td>
</tr>
<tr>
<td>PHYS 430</td>
<td>Classical Mechanics I</td>
</tr>
<tr>
<td>PHYS 432</td>
<td>Electromagnetism I</td>
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**Term Credits** 12

## 2nd Semester

<p>| MATH 340     | Applied Numerical Methods | 3 |
| PHYS 433     | Electromagnetism II | 3 |</p>
<table>
<thead>
<tr>
<th>Term Credits</th>
<th>12</th>
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<tbody>
<tr>
<td>Fourth Year</td>
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<tr>
<td>1st Semester</td>
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<tr>
<td>MATH 450</td>
<td>Methods Of Applied Math</td>
</tr>
<tr>
<td>MATH 473</td>
<td>Intermediate Differential Equations</td>
</tr>
<tr>
<td>MATH 480</td>
<td>Introductory Mathematical Analysis</td>
</tr>
<tr>
<td>PHYS 442</td>
<td>Introduction to Quantum Mechanics</td>
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<td>Term Credits</td>
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<tr>
<td>2nd Semester</td>
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<tr>
<td>MATH 451</td>
<td>Methods Appl Math II</td>
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<tr>
<td>PHYS 450</td>
<td>Advanced Physics Lab</td>
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<td>Phys/OPSE Elective</td>
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<tr>
<td>History and Humanities GER 300+ level (<a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-300-level/</a>)</td>
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<tr>
<td>Fifth Year</td>
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</tr>
<tr>
<td>1st Semester</td>
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</tr>
<tr>
<td>Math 300+ Elective</td>
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</tr>
<tr>
<td>Physics/OPSE Elective</td>
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<tr>
<td>Social Sciences GER (<a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/social-science-ger/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/social-science-ger/</a>)</td>
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</tr>
<tr>
<td>Humanities and Social Science Senior Seminar GER (<a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/hss-capstone/</a>)</td>
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<td>Term Credits</td>
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<td></td>
<td>Total Credits</td>
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