

# B.S. in Applied Mathematics and B.S. in Applied Physics

(130 Credits)

**First Year**

<b>1st Semester</b>		<b>Term Credits</b>
HUM 101	English Composition: Writing, Speaking, Thinking I	3
PHYS 111	Physics I	3
PHYS 111A	Physics I Laboratory	1
MATH 111	Calculus I	4
CS 100 or CS 115	Roadmap to Computing or Intro. to CS I in C++	3
CHEM 125	General Chemistry I	3
FRSH SEM	Freshman Seminar	0
<b>Term Credits</b>		<b>17</b>

**2nd Semester**

PHYS 114	Introduction to Data Reduction with Applications	3
PHYS 121	Physics II	3
PHYS 121A	Physics II Laboratory	1
MATH 112	Calculus II	4
CHEM 126	General Chemistry II	3
CHEM 124	General Chemistry Laboratory	1
Physical Education:GUR Elective		1
<b>Term Credits</b>		<b>16</b>

**Second Year****1st Semester**

MATH 213	Calculus III B	4
MATH 244	Introduction to Probability Theory	3
PHYS 234	Physics III	3
PHYS 231A	Physics III Laboratory	1
HUM 102	English Composition: Writing, Speaking, Thinking II	3
Social Science (lower-level):GUR Elective		3
<b>Term Credits</b>		<b>17</b>

**2nd Semester**

MATH 222	Differential Equations	4
MATH 335	Vector Analysis	3
PHYS 335	Introductory Thermodynamics	3
English Composition and Cultural History (lower-level): GUR		3
Social Science (lower-level):GUR Elective		3
Physical Education Elective		1
<b>Term Credits</b>		<b>17</b>

**Third Year****1st Semester**

MATH 337	Linear Algebra	3
PHYS 430	Classical Mechanics I	3
PHYS 432	Electromagnetism I	3
Select one of the following:		3-4
MATH 227	Mathematical Modeling	
Math 300+ Elective		
MATH 332	Introduction to Functions of a Complex Variable	3

Eng/Hist/Lit/Phil/STS:GUR Elective		3
<b>Term Credits</b>		<b>18-19</b>
<b>2nd Semester</b>		
MATH 340	Applied Numerical Methods	3
MATH 331	Introduction to Partial Differential Equations	3
Physics/OPSE Elective		3
Physics/OPSE Elective		3
PHYS 433	Electromagnetism II	3
<b>Term Credits</b>		<b>15</b>
<b>Fourth Year</b>		
<b>1st Semester</b>		
MATH 480	Introductory Mathematical Analysis	3
PHYS 442	Introduction to Quantum Mechanics	3
MATH 473	Intermediate Differential Equations	3
Eng/Hist/Lit/Phil/STS/SS/THTR:GUR Elective		3
MATH 450H		3
<b>Term Credits</b>		<b>15</b>
<b>2nd Semester</b>		
Management:GUR Elective		3
Capstone Seminar Humanities and Social Sciences (upper-level):GUR		3
PHYS 450	Advanced Physics Laboratory	3
MATH 451H		3
Phys/OPSE Elective <sup>1</sup>		3
<b>Term Credits</b>		<b>15</b>
<b>Total Credits</b>		<b>130-131</b>

<sup>1</sup> This Phys/OPSE course must satisfy the Engineering Technology GUR requirement. Courses that meet this requirement are all OPSE courses, PHYS 443 Modern Optics, PHYS 444 Fluid and Plasma Dynamics, PHYS 481 Applied Solid State Physics: Microelectronics I, PHYS 482 Applied Solid State Physics: Microelectronics II and PHYS 485 Computer Modeling of Applied Physics Problems.

## General University Requirements and Electives

All students are required to satisfy the General University Requirements (GUR). All GUR courses and additional mathematics, technical, and free electives are to be selected in consultation with a faculty advisor in the Department of Mathematical Sciences. Refer to the General University Requirements (<http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-university-requirements>) section of this catalog for further information on electives.

## Co-op Courses

In Mathematical Sciences, the co-op courses, MATH 310 Co-op Work Experience I and MATH 410 Co-op Work Experience II, bear degree credit and count as technical or free electives, subject to approval by a faculty advisor in the Department of Mathematical Sciences.

## Electives

All electives should be selected after consultation with a Mathematical Sciences faculty advisor. Any mathematics course numbered 331 or above may be used as a mathematics, technical, or free elective. Any NJIT course at or above the 100 level may be used as a technical or free elective; except a technical elective is a course that has a significant mathematical and/or scientific content. All elective courses are to be chosen in consultation with a faculty advisor in the Department of Mathematical Sciences.