

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

(122 Credits)

Course	Title	Credits
<b>First Year</b>		
<b>1st Semester</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
Term Credits		17
<b>2nd Semester</b>		
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 Laboratory	1
MATH 112	Calculus II	4
CHEM 126	General Chemistry II	3
CHEM 124	General Chemistry Laboratory	1
Term Credits		15
<b>Second Year</b>		
<b>1st Semester</b>		
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
Term Credits		14
<b>2nd Semester</b>		
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 ( <a href="http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level">http://catalog.njit.edu/undergraduate/academic-policies-procedures/general-education-requirements/ger-200-level</a> )		3
Term Credits		16
<b>Third Year</b>		
<b>1st Semester</b>		
MATH 331	Introduction to Partial Differential Equations	3
MATH 332	Introduction to Functions of a Complex Variable	3
PHYS 430	Classical Mechanics I	3
PHYS 432	Electromagnetism I	3
Social Science 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> )		3
Term Credits		15

**2nd Semester**

MATH 340	Applied Numerical Methods	3
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> )		3
Physics/OPSE Elective		3
Physics/OPSE Elective		3
PHYS 433	Electromagnetism II	3
Term Credits		15

**Fourth Year****1st Semester**

MATH 450	Methods Of Applied Math	3
MATH 473	Intermediate Differential Equations	3
MATH 480	Introductory Mathematical Analysis	3
PHYS 442	Introduction to Quantum Mechanics	3
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> )		3
Term Credits		15

**2nd Semester**

Math Elective 300+		3
MATH 451	Methods Appl Math II	3
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> )		3
Phys/OPSE Elective		3
PHYS 450	Advanced Physics Laboratory	3
Term Credits		15
Total Credits		122

**General Education Requirements and Electives**

All students are required to satisfy the General Education Requirements (GER). All GER 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 Education 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.