

B.S. Mathematics & Physics Major Curriculum

(Fall 2014 - Spring 2020 Cohorts), 128 Credits

<http://engineering.nyu.edu/academics/programs/mathematics-bs/curriculum>

Name:

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Mathematics Requirements: 29 Credits	Credits	Grade	Notes/Substitute
MA-UY 1024 Calculus I for Engineers or MA-UY 1324 Integrated Calculus I for Engineers	4		
MA-UY 1124 Calculus II for Engineers or MA-UY 1424 Integrated Calculus II for Engineers	4		
MA-UY 2034 Linear Algebra and Differential Equations	4		
MA-UY 2114 Calculus III: Multi-Dimensional Calculus	4		
MA-UY 2224 Data Analysis	4		
MA-UY 3113 Advanced Linear Algebra and Complex Variables	3		
MA-UY 4413 Applied Partial Differential Equations	3		
MA-UY 4423 Introductory Numerical Analysis	3		
Mathematics Electives: 10 Credits (<i>Students should select 10 credits from the following list of Math elective courses. Guided studies and graduate courses may be substituted with adviser's approval.</i>)			
MA-UY 3103 Problem Solving and Proofs	3		
MA-UY 3203 Linear Optimization	3		
MA-UY 3303 Differential Geometry	3		
MA-UY 4013 Introduction to Number Theory	3		
MA-UY 4023 Elements of Abstract Algebra	3		
MA-UY 4613 Analysis I	3		
MA-UY 4623 Analysis II	3		
Physics Requirements: 33 Credits			
PH-UY 1013 Mechanics	3		
PH-UY 2023 Electricity, Magnetism and Fluids	3		
PH-UY 2033 Waves, Optics and Thermodynamics	3		
PH-UY 2104 Analytical Mechanics	4		
PH-UY 2121 General Physics Laboratory I	1		
PH-UY 2131 General Physics Laboratory II	1		
PH-UY 2344 Introduction to Modern and Solid State Physics	4		
PH-UY 3002 Junior Physics Laboratory	2		
PH-UY 3234 Electricity and Magnetism	4		
PH-UY 4124 Thermodynamics and Statistical Physics	4		
PH-UY 4364 Introduction to the Quantum Theory	4		
Physics Electives: 7 Credits (<i>Students should select 7 credits from the following list of Applied Physics elective courses. Guided studies and graduate courses may be substituted with adviser's approval.</i>)			
PH-UY 2813 Astronomy and Astrophysics	3		
PH-UY 2823 Introduction to Geophysics	3		
PH-UY 3054 Introduction to Polymer Physics	4		
PH-UY 3103 Fundamentals of Applied Nuclear Physics	3		
PH-UY 3474 Introduction to Modern Optics	4		
PH-UY 3503 Introduction to Radiation Physics and Dosimetry	3		
PH-UY 3513 Nuclear and Radiation Instrumentation and Methods	3		
PH-UY 3603 Mathematical Physics	3		
PH-UY 3614 Computational Physics	4		
PH-UY 3703 Mathematical Physics II	3		
PH-UY 4554 Solid State Physics	4		
PH-UY 4603 Special Topics in Physics	3		
Other Required Courses: 19 Credits			
PH-UY 1002 Physics: The Genesis of Technology or MA-UY 1002 The Art of Mathematics	2		
EG-UY 1001 Engineering and Technology Forum	1		
CM-UY 1004 General Chemistry for Engineers	4		
CS-UY 1114 Introduction to Programming & Problem Solving	4		
EXPOS-UA 1 Writing the Essay or EXPOS-UA 4	4		
EXPOS-UA 2 The Advanced College Essay or EXPOS-UA 9	4		
Free Electives, Independent Study, and Projects: 14 Credits (<i>14 credits are reserved for free electives and independent study courses, of which 8 credits are reserved for a 6 credit applied physics project plus a 2 credit senior physics seminar or a 4 credit math project/thesis and an extra 4 credit math elective.</i>)			

Humanities and Social Sciences Electives: 16 Credits*			

Total Credits:

102

*** Humanities and Social Sciences Elective Requirement (4 courses, 16 credits)**

Students are required to take 16 credits in the humanities and social sciences requiring EXPOS-UA 1 and EXPOS-UA 2 as prerequisites. To gain some breadth and depth of knowledge, it is required that you take courses in at least two disciplines. These 4 humanities and social sciences electives must satisfy the following constraints:

- a. **At least one course must be a 3xxx/4xxx level humanities and social science elective.**

[Humanities and Social Sciences Electives List: http://bulletin.engineering.nyu.edu/preview_program.php?catoid=11&poid=3480](http://bulletin.engineering.nyu.edu/preview_program.php?catoid=11&poid=3480)