

GENERAL INSTITUTE REQUIREMENTS

REST Requirement

Through Restricted Electives in Science and Technology (REST) Requirement subjects, students can broaden and deepen the educational foundation in basic science begun in the first-year program and further the understanding of scientific inquiry. These subjects are designed to give students the opportunity to proceed further in areas already studied, or to explore other areas of potential interest.

REST subjects vary in approach and emphasis. Some give a systematic introduction to the fundamental concepts and principles of a field; others illustrate through examples some of the attitudes, concerns, and methods that characterize professional work in the field. In general, REST subjects are not too specialized, too advanced, or devoted chiefly to instruction in a particular skill. Students typically take REST subjects in the second year, although with the proper prerequisites they may begin taking them in the first year.

Students meet the REST Requirement by taking two subjects from the list below. Of the subjects used to fulfill the requirement, the student can take no more than one in their department. However, subjects designated with a J that are offered jointly with another department do not fall under the departmental limitation.

In many cases, subjects required by a Departmental Program for the SB degree are also on the lists of REST and Laboratory Requirement subjects. Thus, students who follow a particular Departmental Program may simultaneously satisfy some part of these requirements.

REST Requirement Subjects

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| 1.00 | Engineering Computation and Data Science | 12 |
| 1.000 | Introduction to Computer Programming and Numerical Methods for Engineering Applications | 12 |
| 1.018[J] | Fundamentals of Ecology | 12 |
| 1.050 | Solid Mechanics | 12 |
| 2.001 | Mechanics and Materials I | 12 |
| 2.003[J] | Dynamics and Control I | 12 |
| 2.086 | Numerical Computation for Mechanical Engineers | 12 |
| 3.020 | Thermodynamics of Materials | 12 |
| 3.021 | Introduction to Modeling and Simulation | 12 |
| 4.440[J] | Introduction to Structural Design | 12 |

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| 5.07[J] | Introduction to Biological Chemistry | 12 |
| 5.12 | Organic Chemistry I | 12 |
| 6.1200[J] | Mathematics for Computer Science | 12 |
| 6.1910 | Computation Structures | 12 |
| 6.2000 | Electrical Circuits: Modeling and Design of Physical Systems | 12 |
| 6.3000 | Signal Processing | 12 |
| 6.3700 | Introduction to Probability | 12 |
| 6.Co6[J] | Linear Algebra and Optimization | 12 |
| 7.03 | Genetics | 12 |
| 7.05 | General Biochemistry | 12 |
| 8.03 | Physics III | 12 |
| 8.033 | Relativity | 12 |
| 8.04 | Quantum Physics I | 12 |
| 8.041 | Quantum Physics I | 12 |
| 8.20 | Introduction to Special Relativity | 9 |
| 8.21 | Physics of Energy | 12 |
| 8.282[J] | Introduction to Astronomy | 9 |
| 8.286 | The Early Universe | 12 |
| 9.01 | Introduction to Neuroscience | 12 |
| 10.301 | Fluid Mechanics | 12 |
| 11.074 | Cybersecurity Clinic | 12 |
| 12.001 | Introduction to Geology | 12 |
| 12.002 | Introduction to Geophysics and Planetary Science | 12 |
| 12.003 | Introduction to Atmosphere, Ocean, and Climate Dynamics | 12 |
| 12.004 | Introduction to Chemistry of Habitable Environments | 12 |
| 12.400 | Our Space Odyssey | 12 |
| 12.425[J] | Extrasolar Planets: Physics and Detection Techniques | 12 |
| 14.30 | Introduction to Statistical Methods in Economics | 12 |
| 15.053 | Optimization Methods in Business Analytics | 12 |
| 15.069 | Applied Probability and Statistics | 12 |
| 16.001 | Unified Engineering: Materials and Structures | 12 |
| 16.C20[J] | Introduction to Computational Science and Engineering | 6 |
| 18.03 | Differential Equations | 12 |
| 18.032 | Differential Equations | 12 |
| 18.05 | Introduction to Probability and Statistics | 12 |
| 18.06 | Linear Algebra | 12 |
| 18.090 | Introduction to Mathematical Reasoning | 12 |

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| 18.600 | Probability and Random Variables | 12 |
| 18.700 | Linear Algebra | 12 |
| 18.Co6[J] | Linear Algebra and Optimization | 12 |
| 20.110[J] | Thermodynamics of Biomolecular Systems | 12 |
| 22.01 | Introduction to Nuclear Engineering and Ionizing Radiation | 12 |
| 22.02 | Introduction to Applied Nuclear Physics | 12 |
| 22.071 | Analog Electronics and Analog Instrumentation Design | 12 |
| IDS.045[J] | System Safety | 12 |
| <i>The following combinations of six-unit subjects also count toward the REST Requirement:</i> | | |
| 5.601 & 5.602 | Thermodynamics I and Thermodynamics II and Kinetics | 12 |
| 5.611 & 5.612 | Introduction to Spectroscopy and Electronic Structure of Molecules | 12 |
| 6.100A & 6.100B | Introduction to Computer Science Programming in Python and Introduction to Computational Thinking and Data Science | 12 |
| 6.100A & 16.C20[J] | Introduction to Computer Science Programming in Python and Introduction to Computational Science and Engineering | 12 |