The Core science requirement aims to develop critical awareness of the methods and limits of scientific inquiry, while fostering observational and analytical skills, particularly in reference to the natural and physical world. When choosing a science course, students should make sure they have reviewed and met the specified prerequisites for the course prior to enrollment.

Students who are considering careers in science-related fields, including health-related professions, are urged to begin their study of science within the first two semesters after matriculation at GS.

Science Requirement
To fulfill the science requirement, students must successfully complete three courses selected from two of the following Columbia departments or from the list of approved courses below, no more than two of which should be from the same department:

- Astronomy
- Biological Sciences
- Chemistry
- Earth and Environmental Sciences
- Ecology, Evolution, and Environmental Biology
- Physics
- Psychology (Columbia department only, excluding courses numbered at the 2600, 3600, or 4600 level)

Students may also use international high school leaving exams for which they received at least three transfer credits on the Entrance Credit Report (ECR) in one of the disciplines listed above to fulfill one of the three science requirement courses.

List of Approved Science Courses
The list of approved courses that fulfill the science requirement includes recommended sequences, science courses for non-science majors, and approved courses from departments not listed above and Barnard.

The following two courses may satisfy both the QR requirement and one science requirement when passed with a letter-grade of C or above. The P/D/F grading option is not available for either of these two courses.

- Foundations of Science (SCNC UN1212)
  Using modern, student-centered, active and collaborative learning techniques, students will engage — through field observations, in-class experiments, computer simulations, and selected readings — with a range of ideas and techniques designed to integrate and anchor scientific habits of mind. Topics covered will include statistics, basic probability, a variety of calculations skills, graph reading and estimation, all aimed at elucidating such concepts as energy, matter, cells, and genes in the context of astronomy, biology, chemistry, earth sciences, neuroscience, and physics.

- FRONTIERS OF SCIENCE (SCNC CC1000)
  The principal objectives of Frontiers of Science are to engage students in the process of discovery by exploring topics at the forefront of science and to inculcate or reinforce the specific habits of mind that inform a scientific perspective on the world. Sample topics include the evolution of human language, brain dynamics, global climate change, the nanoworld, and biodiversity, among others.

GS students interested in taking one of these courses should have earned a minimum score of 16 on the GS Quantitative Reasoning Exam and/or meet the specific criteria listed in the Quantitative Reasoning section of the website by the specified timelines. Prior to enrolling in Frontiers of Science, students should also read the first chapter of the electronic textbook Scientific Habits of Mind and take the self-exam.

Courses Designed For Nonscience Majors

### Astronomy

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR UN1234</td>
<td>The Universal Timekeeper, Reconstructing History Atom by Atom</td>
</tr>
<tr>
<td>ASTR UN1403</td>
<td>Earth, Moon and Planets (Lecture)</td>
</tr>
<tr>
<td>ASTR UN1404</td>
<td>STARS, GALAXIES # COSMOLOGY</td>
</tr>
<tr>
<td>ASTR UN1420</td>
<td>Galaxies and Cosmology</td>
</tr>
<tr>
<td>ASTR UN1453</td>
<td>Another Earth</td>
</tr>
<tr>
<td>ASTR UN1610</td>
<td>THEOR-UNIVERS: BABYLON-BIG BANG</td>
</tr>
<tr>
<td>ASTR UN1836</td>
<td>Stars and Atoms</td>
</tr>
<tr>
<td>ASTR BC1753</td>
<td>LIFE IN THE UNIVERSE</td>
</tr>
<tr>
<td>ASTR BC1754</td>
<td>Stars, Galaxies, and Cosmology</td>
</tr>
</tbody>
</table>

**Recommended Sequences:**

- ASTR UN1403
- ASTR UN1404
- ASTR UN1403
- ASTR UN1420
- ASTR UN1403
- ASTR UN1836
- ASTR UN1403
- ASTR BC1754
- ASTR BC1753
- ASTR BC1754

### Biology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>BIOL UN1002</td>
<td>Theory and Practice of Science: Biology</td>
</tr>
<tr>
<td>BIOL UN1130</td>
<td>Genes and Development</td>
</tr>
</tbody>
</table>

### Computer Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>COMS W1001</td>
<td>Introduction to Information Science</td>
</tr>
<tr>
<td>COMS W1002</td>
<td>Computing in Context</td>
</tr>
</tbody>
</table>

### Earth and Environmental Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>EAEE E2100</td>
<td>A better planet by design</td>
</tr>
</tbody>
</table>

### Earth and Environmental Sciences

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EESC UN1001</td>
<td>Dinosaurs and the History of Life: Lectures and Lab</td>
</tr>
<tr>
<td>EESC UN1003</td>
<td>Climate and Society: Case Studies</td>
</tr>
<tr>
<td>EESC UN1011</td>
<td>Earth: Origin, Evolution, Processes, Future</td>
</tr>
<tr>
<td>EESC UN1030</td>
<td>OCEANOGRAPHY</td>
</tr>
<tr>
<td>EESC UN1053</td>
<td>Planet Earth</td>
</tr>
<tr>
<td>EESC UN1201</td>
<td>Environmental Risks and Disasters</td>
</tr>
<tr>
<td>EESC UN1401</td>
<td>Dinosaurs and the History of Life: Lectures</td>
</tr>
<tr>
<td>EESC UN1411</td>
<td>Earth: Origin, Evolution, Processes, Future: Lectures</td>
</tr>
<tr>
<td>EESC UN2330</td>
<td>SCIENCE FOR SUSTAINABLE DEVPT</td>
</tr>
</tbody>
</table>

### Ecology, Evolution, and Environmental Biology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEEB W1001</td>
<td>Biodiversity</td>
</tr>
<tr>
<td>EEEB UN1010</td>
<td>Human Origins and Evolution</td>
</tr>
<tr>
<td>EEEB UN1011</td>
<td>Behavioral Biology of the Living Primates</td>
</tr>
<tr>
<td>EEEB S1115S</td>
<td>The Life Aquatic</td>
</tr>
</tbody>
</table>
Recommended Sequences:

EEEB UN1001  -  EEEB UN3087  
Biodiversity  
and Conservation Biology

EEEB UN1010  -  EEEB UN1011  
Human Origins and Evolution  
and Behavioral Biology of the Living Primates

Electrical Engineering

ELEN E1101  
The digital information age

Food Studies

FSEB UN1020  
Food and the Body

FSPH UN1100  
FOOD, PUBLIC HEALTH & PUBLIC POLICY

Philosophy

PHIL UN3411  
SYMBOLIC LOGIC

PHIL GU4424  
Modal Logic

Physics

PHYS UN1001  
Physics for Poets

PHYS UN1018  
Weapons of Mass Destruction

Recommended Sequences:

PHYS UN1001  -  PHYS C1002  
Physics for Poets  
and Physics for Poets

Psychology**

Columbia Department only:

PSYC UN1001  
The Science of Psychology

PSYC UN1010  
Mind, Brain and Behavior  
(Effective Fall 2018, this course will no longer be offered. For students who took this course before Fall 2018, it may be used to partially satisfy the Science Requirement.)

PSYC UN1021  
Science of Psychology Explorations and Applications (Effective beginning Spring 2021)

Science

SCNC UN1212  
Foundations of Science

SCNC UN1800  
Energy and Energy Conservation

Statistics

STAT UN1001  
INTRO TO STATISTICAL REASONING

STAT UN1010  
Statistical Thinking For Data Science

*  Note: Students electing to take Human Origins and Evolution (EEEB UN1010) and Behavioral Biology of the Living Primates (EEEB UN1011) as a sequence are recommended, but not required, to take EEEB UN1010 before EEEB UN1011.

**  Note: 2600-, 3600-, or 4600-level psychology courses may not be used to fulfill the science requirement.

***  Note: The Science of Psychology (PSYC UN1001) or an equivalent introductory course approved by the Psychology Department must be taken as a prerequisite to any psychology course numbered 22xx or 24xx.

****  Students may not receive credit for both PSYC BC 1101 and PSYC UN 1001. Psychology majors should consult the Psychology department for additional restrictions on overlapping courses.

Additional Courses Approved for the Science Requirement

Most of the following courses have required prerequisites and/or require instructor approval. Prerequisite and instructor approval requirements can be found in the course descriptions for each course or on the department website.

Astronomy

Any 3-point course numbered 2000 or higher

Biology

Any 3-point course numbered 2000 or higher

Chemistry

CHEM UN1403  
GENERAL CHEMISTRY I-LECTURES

CHEM UN1404  
General Chemistry II ( Lecture)

CHEM UN1500  
General Chemistry Laboratory

CHEM UN1604  
2ND TERM GEN CHEM (INTENSIVE)

CHEM UN2507  
Intensive General Chemistry Laboratory

Any 3-point course numbered 3000 or higher

Computer Science

COMS W1004  
Introduction to Computer Science and Programming in Java

COMS W1005  
Introduction to Computer Science and Programming in MATLAB

ENGI E1006  
Introduction to Computing for Engineers and Applied Scientists

COMS W1007  
Honors Introduction to Computer Science

Any 3-point course numbered 3000 or higher

Computing Science - Philosophy (CSPH)

CSPH G4801  
Mathematical Logic I

CSPH G4802  
Math Logic II: Incompletness

Earth and Environmental Sciences

EESC UN2100  
Earth's Environmental Systems: The Climate System

EESC UN2200  
EARTH'S ENVIRONMENTAL SYSTEMS: THE SOLID EARTH

EESC UN2300  
Earth's Environmental Systems: The Life System

Any 3-point course numbered 3000 or higher

Ecology, Evolution, and Environmental Biology

EEEB UN2001  
Environmental Biology I: Elements to Organisms

EEEB UN2002  
Environmental Biology II: Organisms to the Biosphere

EEEB UN3087  
Conservation Biology (Any 3-point course numbered 3000 or higher except EEEB GU4321 or EEEB GU4700)

History-Applied Math

HSAM UN2901  
Data: Past, Present, and Future

Mathematics

Any 3-point course numbered 1100 or higher

Physics

PHYS UN1201  
General Physics I

PHYS UN1202  
General Physics II

PHYS UN1401  
Introduction To Mechanics and Thermodynamics

PHYS UN1402  
INTRO ELEC/MAGNETSM # OPTCS

PHYS UN1403  
Introduction to Classical and Quantum Waves

PHYS UN1601  
Physics, I: Mechanics and Relativity

PHYS UN1602  
Physics, II: Thermodynamics, Electricity, and Magnetism

Any 3-point course numbered 2000 or higher

Psychology*

Any 3-point course numbered 32xx, 34xx, 42xx, or 44xx **
Statistics
Any 3-point course except STAT W3997

* Note: 2600-, 3600-, or 4600-level psychology courses may not be used to fulfill the science requirement.

** Note: These courses may serve as a second term of a recommended sequence starting with The Science of Psychology (PSYC UN1001).

Special Summer Program
The following special program fulfills two of the three terms of the science requirement.

Earth Institute Center for Environmental Sustainability [EICES]
- Summer Ecosystem Experience for Undergraduates (SEE-U):
  Locations change yearly. Check with the center in the spring semester for details.