# Natural Science Major

## Requirements

The following courses are required for the natural science major:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required Courses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSCI 1403</td>
<td>General Biology Lecture I &amp; General Biology Lab I</td>
<td>5</td>
</tr>
<tr>
<td>NSCI 1404</td>
<td>General Biology Lecture II &amp; General Biology Lab II</td>
<td>5</td>
</tr>
<tr>
<td>NSCI 1321</td>
<td>General Chemistry Lecture I &amp; General Chemistry Lab I</td>
<td>6</td>
</tr>
<tr>
<td>NSCI 1322</td>
<td>General Chemistry Lecture II &amp; General Chemistry Lab II</td>
<td>6</td>
</tr>
<tr>
<td>NSCI 1501</td>
<td>General Physics Lecture I &amp; General Physics Lab I</td>
<td>4</td>
</tr>
<tr>
<td>NSCI 1502</td>
<td>General Physics Lecture II &amp; General Physics Lab II</td>
<td>4</td>
</tr>
<tr>
<td>NSCI 3121</td>
<td>Organic Chemistry Lecture I &amp; Organic Chemistry Lab I</td>
<td>6</td>
</tr>
<tr>
<td>NSCI 3122</td>
<td>Organic Chemistry Lecture II &amp; Organic Chemistry Lab II</td>
<td>6</td>
</tr>
<tr>
<td>NSCI 4222</td>
<td>Science, Technology, and Society Values</td>
<td>4</td>
</tr>
<tr>
<td>MATH 1203</td>
<td>Applied Calculus I</td>
<td>3 to 4</td>
</tr>
<tr>
<td>or MATH 1206</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>NSCI 2040</td>
<td>Research Design and Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

### Electives

Select at least six electives. Of these:

- Four must include a lab
- Two electives do not need to include a lab

1. NSCI 1423 Concepts in Biology Lecture I and NSCI 1424 Concepts in Biology Lecture II may be substitute, respectively, for NSCI 1403 General Biology Lecture I and NSCI 1404 General Biology Lecture II.
2. One Independent Study course, NSCI 4999 Tutorial, may count toward one of the four lab elective courses.
3. As listed in the concentrations tab (p. 2), NSCI 4630 Neurobiology is counted as a non-lab elective if taken alone, but may be counted as a lab-elective if taken with NSCI 4032 Neuroscience Lab. Note that NSCI 4032 Neuroscience Lab may be taken on its own and does not fulfill an elective requirement unless taken concurrently with NSCI 4630 or NSCI 4112.
4. NSCI 4172 Diverse Biologies/Shared Humanity or ENGL 4172 Diverse Biologies/Shared Humanity counts as a (non-lab) elective towards the major, but not towards any concentration.

Other courses may be counted at the department chair’s discretion. It is possible to select electives in order to follow special interests and career goals. This must be done in consultation with the student’s departmental adviser. A grade of C- or better is required in all courses taken to fulfill the major. A student may not take the second half of a one-year course if the grade for the first half is below a C-.

Students are advised that the lecture and laboratory components of general biology, general chemistry, general physics, and organic chemistry should always be taken concurrently.

Advanced placement course credit may be substituted in partial fulfillment of these requisites. Students without two semesters’ advanced placement in chemistry should note that NSCI 1321 General Chemistry Lecture I and NSCI 1322 General Chemistry Lecture II is the prerequisite for NSCI 3121 Organic Chemistry Lecture I and NSCI 3122 Organic Chemistry Lecture II.

## Availability

The major in natural science is available at Fordham College at Lincoln Center and Fordham’s School of Professional and Continuing Studies at Lincoln Center.

**Fordham College at Lincoln Center students:** The requirements above are in addition to those of the Core Curriculum.

**Professional and Continuing Studies students:** The requirements above are in addition to those of the PCS Core Curriculum and any additional electives that may be required to earn a minimum of 124 credits.

## CIP Code

30.0101 - Biological and Physical Sciences.

You can use the CIP code to learn more about career paths associated with this field of study and, for international students, possible post-graduation visa extensions. Learn more about CIP codes and other information resources.

## Electives

Regularly-Offered Elective courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lab and Lecture ARE corequisites</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSCI 2141</td>
<td>Vertebrate Anatomy Lecture and Vertebrate Anatomy Lab (Fall, odd years)</td>
<td>5</td>
</tr>
<tr>
<td>NSCI 2841</td>
<td>Paleontology Lab</td>
<td>5</td>
</tr>
<tr>
<td>NSCI 2142</td>
<td>Paleontology Lecture</td>
<td>5</td>
</tr>
<tr>
<td>&amp; NSCI 2842</td>
<td>Paleontology Lab (Fall, even years)</td>
<td></td>
</tr>
<tr>
<td>NSCI 4143</td>
<td>Advanced Microbiology Lecture and Microbiology Lab (Fall, even years)</td>
<td>5</td>
</tr>
<tr>
<td>NSCI 4844</td>
<td>Microbiology Lecture and Microbiology Lab (Spring, odd years)</td>
<td></td>
</tr>
<tr>
<td>NSCI 4630</td>
<td>Neuroscience</td>
<td>5</td>
</tr>
<tr>
<td>&amp; NSCI 4032</td>
<td>Neuroscience Lab (Fall)</td>
<td></td>
</tr>
</tbody>
</table>

**Lecture and lab are NOT corequisites**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 2010</td>
<td>Global Ecology Lecture and Global Ecology Lab (Fall)</td>
<td>5</td>
</tr>
<tr>
<td>NSCI 2112</td>
<td>Immunology Lecture and Immunology Lab (Spring, even years)</td>
<td>5</td>
</tr>
<tr>
<td>NSCI 3133</td>
<td>Genetics Lecture and Genetics Lab (Fall, odd years)</td>
<td>5</td>
</tr>
<tr>
<td>NSCI 3833</td>
<td>Cell and Development Biology Lecture and Cell and Development Biology Lab (Spring, even years)</td>
<td>5</td>
</tr>
</tbody>
</table>

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### Natural Science Major

**NSCI 4112 & NSCI 4812** Human and Comparative Physiology Lecture and Human and Comparative Physiology Lab (Spring) 5

**NSCI 4153 & NSCI 4853** Biological Chemistry Lecture and Biological Chemistry Lab (Fall) 5

**NSCI 4176 & NSCI 4876** Molecular Biology Lecture and Molecular Biology Lab (Spring, odd years) 5

**Lecture without lab**

**NSCI 2018** Biology of Aging (Spring, odd years) 3

**NSCI 2060** Environment: Science, Law, and Policy (Fall, odd years) 3

**NSCI 3101** Biological Modeling (Spring) 4

**NSCI 4080** Pharmacological Chemistry (Spring, odd years) 3

**NSCI 4081** Neurochemistry (Spring, even years) 3

**NSCI 4172** Diverse Biologies/Shared Humanity (Spring, even years) 4

1 Lecture can be taken without lab provided the latter is not needed to fulfill the lab elective requirement for the major.

2 Lab is offered every fall, even years.

### Concentrations

Students may pursue one of three concentrations within the major: chemical sciences (CHS), organismal biology (ORB), or cell and molecular biology (C+M). Students may major in natural sciences without declaring a concentration. Students opting for one of the concentrations must fulfill the following additional requirements:

1. One of the four lab electives must be NSCI 4999 Tutorial, in the field of the student’s chosen concentration.
2. At least two of the three remaining lab electives must be in classes in the chosen concentration, designated in the table below.
3. At least four of the six electives overall (lab or non-lab) must be in classes in the chosen concentration, designated in the table below.

Courses with the subject code CHEM are taught by the Chemistry Department and are offered exclusively at the Rose Hill campus.

### Elective and Concentration Courses

The following table indicate (a) which courses count toward the required lab elective courses and (b) which courses count toward the respective concentrations in CHS, C+M and ORB.

<table>
<thead>
<tr>
<th>Course</th>
<th>Electives including lab (minimum 4)</th>
<th>Electives: No lab</th>
<th>Counts toward CHS</th>
<th>Counts toward C+M</th>
<th>Counts toward ORB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutorial</td>
<td>NSCI 4999</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Advanced Microbiology</td>
<td>NSCI 4143 / NSCI 4843</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Aging</td>
<td>NSCI 2018</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Biological Chemistry</td>
<td>NSCI 4153 / NSCI 4153</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td>NSCI 4853</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Cell and Developmental Biology

**NSCI 3154 / NSCI 3154**  X  X

### Environment Science/Law/Policy

**NSCI 2060**  X  X

### Genetics

**NSCI 3133 / NSCI 3133**  X  X

### Global Ecology

**NSCI 2010 / NSCI 2010**  X

### Immunology

**NSCI 2122 / NSCI 2122**  X

**NSCI 2822**  X  X

### Microanatomy

**NSCI 4144 / NSCI 4844**  X  X

### Molecular Biology

**NSCI 4176 / NSCI 4876**  X

### Neuroscience

**NSCI 4630 / NSCI 4630**  X  X

**NSCI 4032**  X  X

### Neurochemistry

**NSCI 4081**  X  X

### Paleocology

**NSCI 2142 / NSCI 2842**  X  X

### Pharmacology

**NSCI 4080**  X

### Animal Physiology

**NSCI 4112 / NSCI 4112**  X  X

**NSCI 4812**

**NSCI 4032**

### Vertebrate Anatomy

**NSCI 2141 / NSCI 2841**  X

### Methods of Chemical Research

**CHEM 3141**  X

### Physical Chemistry 1 with lab

**CHEM 3621 / CHEM 3631**  X

### Physical Chemistry 2 with lab

**CHEM 3622 / CHEM 3632**  X

### Quantitative Analysis

**CHEM 3721**  X

### Instrumental Analysis

**CHEM 3722**  X

### Inorganic Chemistry with lab

**CHEM 4422 / CHEM 4432**  X

### An Introduction to Geology

**NSCI 2020**

### Machine Learning Methods for Neural and Biological Data

**NSCI 3280**

*Updated: 04-07-2024*