The following slides are meant to help guide newly declared and prospective majors in navigating a major in Biology at Barnard. Courses are organized by their pre-requisites and whether the course is offered in the fall, spring, or either semester. Whether a course is offered in the spring or fall is provided as a general guideline; these are subject to change at the discretion of the instructor. Questions can be directed to the department administrator, Melissa Flores (mflores@barnard.edu) or the chair, Hilary Callahan (hcallaha@barnard.edu).
To skip to a section, click on the topic you’d like to review. Otherwise, click here to go to the next slide.
**Introductory Biology Requirement**

**Notes:** Those considering a major in biology should begin with BIOL BC1500 or BIOL BC1002 in their freshman fall.

- **Co-Requisite for BIOL BC1501:**
  - BIOL BC1511
  - BIOL BC1501 Recitation
  - (Fall Only; Asynchronous)

- **Co-Requisite for BIOL BC1502:**
  - BIOL BC1002
  - Global Health & Ecology
  - (Fall Only)

- **Co-Requisite for BIOL BC1503:**
  - BIOL BC1513
  - BIOL BC1503 Recitation
  - (Spring Only; Asynchronous)

**Co-Requisites:**
- BIOL BC1510
- BIOL BC1500 Discussion Section
- BIOL BC1501
- Introductory Lab in Organismal & Evolutionary Biology
- BIOL BC1500
- Introduction to Organismal & Evolutionary Biology
- (Fall Only)
- BIOL BC1502
- Introduction to Cellular & Molecular Biology
- (Spring Only)

**Recommended:** once a student has completed the full-year introductory 1500-level sequence, they are encouraged but not required to take BIOL BC2100 Molecular & Mendelian Genetics.
If you have not yet taken genetics, click the bubble below to see which courses you can take prior to fulfilling your genetics requirement.

Upper-Level Labs & Lectures WITHOUT A Genetics Pre-Requisite

If you are currently enrolled in or have already taken genetics, click the bubble below to see which courses you have met the pre-requisites for.

BIOL BC2100 Molecular & Mendelian Genetics

OR

BIOL UN3031 Genetics

Genetics Requirement

Notes: Recommended, but not required to complete in your sophomore year following the 1500-level series.

Though Genetics is a pre-requisite for many courses, especially C&M courses, some C&M and many P&O and E&E courses do not require Genetics and can be taken as early as your sophomore year.

Upper-Level Lab & Electives Requirements

Notes: Students must complete five courses from the three categories: Cellular & Molecular (C&M), Physiological & Organismal (P&O), and Ecological & Evolutionary (E&E). To select and complete one of the three tracks, at least four courses must be from the appropriate category and at least one from another category. To complete the Biology Major that is general rather than a specialized track, the five courses must include at least one course from each of the three categories. Although some courses are listed in multiple categories, a student can only use a course towards one of the categories. If a student completes courses which make them eligible for more than one of the four options, then they may select which one is reflected on their transcript. Students may take any upper-level Biology lab courses for which they meet the pre- or co-requisite. A year-long research & seminar or project lab course may fulfill up to two lab courses. Students may also take laboratory courses at Columbia (or other institutions) to satisfy the lab requirement with permission from the Chair.
To view Columbia course equivalents/other course options, click here.

Upper-Level Labs & Lectures WITHOUT A Genetics Pre-Requisite

Physiological & Organismal
- BIOL BC2262 Vertebrate Biology (Fall/Spring)
- BIOL BC2500 MATLAB for Scientists* (Fall/Spring)
- BIOL BC3360 Physiology (Spring Only)
- BIOL BC2272 Ecology (Fall/Spring)
  *This course can count as an upper-level lab

Cellular & Molecular
- CHEM BC3282 Biological Chemistry* (Spring Only)
  *This course has additional CHEM pre-requisites
- BIOL BC3362 Molecular & Cellular Neurosciences (Fall Only)
  *This course can count as an upper-level lab
- BIOL BC2500 MATLAB for Scientists* (Fall/Spring)

Ecological & Evolutionary
- BIOL BC2262 Vertebrate Biology (Fall/Spring)
- BIOL BC2240 Plant Evolution & Diversity (Fall/Spring)
- BIOL BC2280 Animal Behavior (Spring Only)
- BIOL BC2278 Evolution (Fall/Spring)
  *This course can count as an upper-level lab
- BIOL BC2500 MATLAB for Scientists* (Fall/Spring)
- BIOL BC3380 Applied Ecology & Evolution (Fall/Spring)
- BIOL BC2851 Plants & Profits: The Global Power of Botany (Fall/Spring)
- BIOL BC2272 Ecology (Fall/Spring)

Note: BIOL BC2500 MATLAB for Scientists can be used to fulfill a lecture for all three categories, however, it may not fulfill your breadth requirement (i.e. cannot be the only course for a category).

Pre-Requisite For:
- BIOL BC2281 Lab in Animal Behavior (Fall Only)
- BIOL BC3361 Lab in Physiology (Spring Only)
- BIOL BC2873 Lab in Ecology (Fall/Spring)

Co-Requisite For:
- BIOL BC3360 Physiology (Spring Only)

To view a list of upper-level biology lab courses offered at Barnard, click here.
To view Columbia course equivalents/other course options, click here.

To view a list of upper-level biology lab courses offered at Barnard, click here.
Upper-Level Biology Labs Offered at Barnard

- BIOL BC2281 Laboratory in Animal Behavior (pre-req: BIOL BC2280)
- BIOL BC2490 Coding in Biology* (pre-req: BIOL BC2100)
- BIOL BC2500 MATLAB for Scientists** (pre-req: BIOL BC1500, BIOL BC1502, & MATH UN1101)
- BIOL BC2801 Laboratory in Genetics (pre-/co-req: BIOL BC2100)
- BIOL BC2841 Laboratory in Plant Evolution and Diversity (pre-req: BIOL BC1500, BIOL BC1501, BIOL BC1502, & BIOL BC1503)
- BIOL BC2873 Laboratory in Ecology (pre-req: BIOL BC1500, BIOL BC1501, BIOL BC1502, & BIOL BC1503)
- BIOL BC3303 Laboratory in Molecular Biology (pre-/co-req: BIOL BC2100)
- BIOL BC3305-BC3306 Project Laboratory in Molecular Genetics (yearlong) (pre-req: BIOL BC2100)
- BIOL BC3311 Laboratory in Cell Biology (pre-req: BIOL BC2100)
- BIOL BC3321 Laboratory in Microbiology (pre-req: BIOL BC3320)
- BIOL BC3354 Laboratory in Embryology (pre-req: BIOL BC2801, BIOL BC3303, BIOL BC3305-BC3306, BIOL BC3311, OR BIOL BC3321)
- BIOL BC3361 Laboratory in Physiology (pre-/co-req: BIOL BC3360)
- BIOL BC3363 Laboratory in Molecular and Cellular Neuroscience (pre-req: BIOL BC3362)
- BIOL BC3591-BC3592 Guided Research and Seminar

*Note: Coding in Biology can count either as an upper-level lab for the GB, C&M, P&O, and E&E tracks, or as an upper-level elective in the C&M category.

**Note: MATLAB for Scientists can count either as an upper-level lab for the GB, C&M, P&O, and E&E tracks, or as an upper-level elective in the C&M, P&O, and E&E categories, but cannot fulfill a breadth requirement.

List of Commonly Offered Upper Level Labs

Notes: General Biology, C&M, P&O, and E&E majors must complete at least three upper-level labs. Students may take any upper-level biology lab courses for which they meet the pre- or co-requisite, meaning a course that must be taken prior to or simultaneously in order to enroll in the lab course.

A yearlong research & seminar or project lab course may fulfill up to two lab courses. Students may also take laboratory courses at Columbia (or other institutions) to satisfy the lab requirement with permission from the Chair.

Here, courses are listed with their course pre-requisite equivalents.
**Senior Capstone Experience**

**Notes:** In Senior Seminar, enrolled students participate in a seminar focusing on primary literature and compose and give a presentation on a senior thesis in the format of a literature review. This course may also count as an upper-level elective if a topic is taken prior to the topic taken during your senior year (i.e. as space is available in the class, you may be able to take this course as a junior). Genetics is a pre-requisite.

**Notes:** In Senior Thesis Research and Seminar, students complete an original research project in a lab, and compose and give a presentation on a senior thesis in the format of a primary research paper. Students may not be enrolled in both Senior Thesis Research and Seminar AND Guided Research and Seminar. They may, however, continue a project begun in their sophomore or junior year while enrolled in Guided Research and Seminar.
Chemistry Requirement

Notes: All majors, regardless of their track, must complete at least one semester of General Chemistry (with laboratory) and at least one semester of Organic Chemistry (with laboratory). Equivalent courses at Columbia may be taken in lieu of the Barnard Chemistry CHEM BC2001 + CHEM BC2012 General Chemistry lecture + lab and CHEM BC3230 + CHEM BC3328 Organic Chemistry lecture + lab courses.
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<tr>
<th>Upper-Level Labs</th>
<th>Physiological &amp; Organismal</th>
<th>Cellular &amp; Molecular</th>
<th>Ecological &amp; Evolutionary</th>
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<tr>
<td>EEEB W3215</td>
<td>BIOL UN3006 General Physiology*</td>
<td>BIOL UN3022 Developmental Biology*</td>
<td>EEEB W3204 Dynamics of Human Evolution</td>
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<td>EEEB G4910 Field Botany - Plant Systematics</td>
<td>BIOL UN3005 Neurobiology II: Development &amp; Systems (Fall Only)</td>
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<td>*Equivalent to BIOL BC3352 Development (Fall Only)</td>
<td>EEEB UN3007 Conservation Biology (Fall/Spring)</td>
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<td>*Equivalent to BIOL BC3360 Physiology (Spring Only)</td>
<td>EEEB UN3220 The Evolution of Human Growth &amp; Development (Spring Only)</td>
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<td>BIOL UN3022 Developmental Biology*</td>
<td>BIOL UN3041 Cell Biology*</td>
<td>EEEB W3030 Biology, Systematics, and Evolutionary History of *&quot;The Apes&quot; (Fall/Spring)</td>
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<td>*Equivalent to BIOL BC3352 Development (Fall Only)</td>
<td>EEEB UN3970 Biological Basis of Human Variation (Fall/Spring)</td>
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<td>Behavioral Biology of Living Primates (Spring Only)</td>
<td>BIOL UN3073 Cellular &amp; Molecular Immunology</td>
<td>EEEB W4111 Ecosystem Ecology &amp; Global Change (Fall/Spring)</td>
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<td>EEEB W3208</td>
<td>EEBB W4112 Ichthyology</td>
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<td>EEBB W4110 Coastal Estuarine Ecology (Fall/Spring)</td>
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<td>Explorations in Primate Anatomy (Fall/Spring)</td>
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