BACHELOR OF ARTS WITH A MAJOR IN BIOLOGY

REQUIREMENTS

The following requirements must be fulfilled:

The general requirements stated under Columbian College of Arts and Sciences, Undergraduate Programs (http://bulletin.gwu.edu/arts-sciences/#degeregulationtext).

Program-specific curriculum:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Required</td>
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<tr>
<td>BISC 1115 &amp; BISC 1125</td>
<td>Introductory Biology: Cells and Molecules and Introduction to Cells and Molecules Laboratory</td>
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<tr>
<td>BISC 1116 &amp; BISC 1126</td>
<td>Introductory Biology: The Biology of Organisms and Introduction to Organisms Laboratory</td>
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<tr>
<td>BISC 2202</td>
<td>Cell Biology</td>
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<tr>
<td>BISC 2207</td>
<td>Genetics</td>
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</tr>
<tr>
<td>BISC 2450</td>
<td>Organic Evolution</td>
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</tr>
<tr>
<td>BISC 2454</td>
<td>General Ecology</td>
<td></td>
</tr>
<tr>
<td>or BISC 2452</td>
<td>Animal Behavior</td>
<td></td>
</tr>
<tr>
<td>or BISC 3460</td>
<td>Conservation Biology</td>
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</tr>
<tr>
<td>CHEM 1111 &amp; CHEM 1112</td>
<td>General Chemistry I and General Chemistry II</td>
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<tr>
<td>CHEM 2151 &amp; CHEM 2152</td>
<td>Organic Chemistry I and Organic Chemistry II</td>
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<tr>
<td>CHEM 2153 &amp; CHEM 2154</td>
<td>Organic Chemistry Laboratory I and Organic Chemistry Laboratory II</td>
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</tr>
<tr>
<td>CHEM 3165</td>
<td>Biochemistry I</td>
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</tr>
<tr>
<td>or BISC 3261</td>
<td>Introductory Medical Biochemistry</td>
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</table>

Laboratory and Electives course requirements

At least three courses must be a laboratory or have a laboratory component; these laboratory courses must numbered at the 2000 level or above.

Students who complete 1 credits of BISC 4171 or BISC 4171W, Undergraduate Research, may count this experience towards one of their laboratory requirements. A maximum of 6 credits of BISC 4171 BISC4171W may count towards degree requirements.

At least one 3 credit additional course from each of the four elective categories below.

### Biology Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>Systems category</td>
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<tr>
<td>BISC 2208</td>
<td>Genetics Laboratory ¹</td>
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<tr>
<td>BISC 2213</td>
<td>Biology of Cancer</td>
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<tr>
<td>BISC 2214</td>
<td>Developmental Biology</td>
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<td>BISC 2220</td>
<td>Developmental Neurobiology</td>
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<td>Neural Circuits and Behavior</td>
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<td>BISC 3122</td>
<td>Human Physiology</td>
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<tr>
<td>BISC 3123</td>
<td>Human Physiology Lab ¹</td>
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</tr>
<tr>
<td>BISC 3165</td>
<td>Biochemistry I</td>
<td></td>
</tr>
<tr>
<td>BISC 3208</td>
<td>Molecular Biology Laboratory ¹</td>
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</tr>
<tr>
<td>BISC 3209</td>
<td>Molecular Biology</td>
<td></td>
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<tr>
<td>BISC 3210</td>
<td>Nanobiotechnology</td>
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<tr>
<td>BISC 3211</td>
<td>Nanobiotechnology Laboratory ¹</td>
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<tr>
<td>BISC 3212</td>
<td>Immunology</td>
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<tr>
<td>BISC 3262</td>
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<td>BISC 3263</td>
<td>Special Topics in Biochemistry</td>
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<tr>
<td>BISC 3320</td>
<td>Human Neurobiology</td>
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<td>BISC 4132</td>
<td>Advanced Cellular-Molecular Biology</td>
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<td>BISC 4212</td>
<td>Virology and Antiviral Immunity</td>
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<tr>
<td>BISC 6205</td>
<td>Current Topics in Cell Smith, Donaldson, Eleftherianos, Jeremic</td>
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<td>BISC 6218</td>
<td>Innate Immunity</td>
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<td>BISC 6219</td>
<td>Host-Microbe Interactions</td>
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<td>BISC 2000</td>
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<td>BISC 2305</td>
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<td>Insect Biology Lab</td>
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<td>BISC 2332</td>
<td>Comparative Vertebrate Anatomy</td>
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<tr>
<td>BISC 2333</td>
<td>Evolution and Extinction of Dinosaurs</td>
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<td>Integrative Biology of Fishes</td>
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<td>BISC 2339</td>
<td>Parasitology</td>
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<td>BISC 6215</td>
<td>Vertebrate Phylogeny</td>
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<td>BISC 6249</td>
<td>Seminar: Developmental Biology</td>
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<td>BISC 2215</td>
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<td>BISC 2335</td>
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<tr>
<td>BISC 2337</td>
<td>Introductory Microbiology</td>
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<td>Parasitology</td>
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<td>BISC 2451</td>
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<td>BISC 2454</td>
<td>General Ecology</td>
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<td>BISC 2456</td>
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<td>BISC 3454</td>
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<td>BISC 3458</td>
<td>Plant Comparative Structure and Function</td>
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<td>BISC 3459</td>
<td>Field Biology</td>
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<td>BISC 3460</td>
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<td>BISC 3461</td>
<td>Plant-Animal Interactions</td>
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<td>Plant-Animal Interactions Laboratory</td>
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<tr>
<td>BISC 3464</td>
<td>Ecology and Evolution of Societies</td>
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<tr>
<td>BISC 6210</td>
<td>Methods of Study of Evolution</td>
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<td>BISC 6211</td>
<td>Biogeography/Coevolution</td>
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<td>BISC 6249</td>
<td>Seminar: Ecology</td>
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<tr>
<td>MATH 1231</td>
<td>Single-Variable Calculus I</td>
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**Laboratory Courses**

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<th>Title</th>
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<tr>
<td>BISC 2208</td>
<td>Genetics Laboratory</td>
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<td>Comparative Vertebrate Anatomy</td>
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<td>BISC 2335</td>
<td>Insect Biology Lab</td>
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<td>BISC 2337</td>
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<td>Introductory Microbiology</td>
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<td>BISC 2339</td>
<td>Parasitology</td>
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<tr>
<td>BISC 2453</td>
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<td>BISC 3123</td>
<td>Human Physiology Lab</td>
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<td>BISC 3453</td>
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<td>Marine Ecology Laboratory</td>
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<td>BISC 3459</td>
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<td>BISC 3462</td>
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<td>BISC 4171</td>
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**GENERAL EDUCATION**

In addition to the University General Education Requirement, undergraduate students in Columbian College must complete a further, College-specific general education curriculum—Perspective, Analysis, Communication, or G-PAC. Together
with the University General Education Requirement, G-PAC engages students in active intellectual inquiry across the liberal arts. Students achieve a set of learning outcomes that enhance their analytical skills, develop their communication competencies, and invite them to participate as responsible citizens who are attentive to issues of culture, diversity, and privilege.

**G-PAC approved courses, Dean’s Seminars, and Sophomore Colloquia that may be available for registration are listed on the CCAS Advising website** ([https://advising.columbian.gwu.edu/general-education-courses](https://advising.columbian.gwu.edu/general-education-courses)).

Coursework for the University General Education Requirement is distributed as follows:

- **Writing**—one approved course in university writing and two approved writing in the disciplines (WID) courses.
- **Humanities**—one approved course in the humanities that involves critical or creative thinking skills.
- **Mathematics or Statistics**—one approved course in either mathematics or statistics.
- **Natural or Physical Science**—one approved laboratory course that employs the process of scientific inquiry.
- **Social Sciences**—two approved courses in the social sciences.

Coursework for the Columbian College general education curriculum is distributed as follows:

- **Arts**—one approved course in the arts that involves the study or creation of artwork based on an understanding or interpretation of artistic traditions or knowledge of art in a contemporary context.
- **Global or Cross-Cultural Perspective**—one approved course that analyzes the ways in which institutions, practices, and problems transcend national and regional boundaries.
- **Humanities**—one approved course in the humanities that involves critical thinking skills (in addition to the one course in this category required by the University General Education Requirement).
- **Local or Civic Engagement**—one approved course that develops the values, ethics, disciplines, and commitment to pursue responsible public action.
- **Natural or Physical Science**—one approved laboratory course that employs the process of scientific inquiry (in addition to the one course in this category required by the University General Education Requirement).
- **Oral Communication**—one course in oral communication.

Certain courses are approved to fulfill the requirement in more than one of these categories.

Courses taken in fulfillment of G-PAC also may be counted toward majors or minors. Transfer courses taken prior to, but not after, admission to George Washington University may count toward the University General Education Requirement and G-PAC, if those transfer courses are equivalent to GW courses that have been approved by the University and the College.

**SPECIAL HONORS**

In addition to the general requirements stated under University Regulations, in order to be considered for graduation with Special Honors, students must maintain a cumulative 3.5 grade-point average in biological sciences courses and at least a 3.0 cumulative overall grade-point average. Students who meet these criteria and wish to pursue special honors must complete an approved research project under faculty direction.

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**Bachelor of Arts with a Major in Biology**