DEPARTMENT AND ADVISING INFORMATION

Contacts:
- Department of Integrative Biology, 3029 Cordley Hall, 541-737-2993, ib@oregonstate.edu
- The Biosphere student lounge, 3019 Cordley Hall
- Integrative Biology Club (IBC): All biology students are automatically members. Contact integrativebiologyclub@oregonstate.edu or see Facebook for details on upcoming events.

Advising Appointments: Make appointments at http://ib.oregonstate.edu/advising/appointments

<table>
<thead>
<tr>
<th>First year student must meet each term</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophomores must meet winter OR spring term</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Juniors must meet winter OR spring term</td>
<td>?</td>
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<td>?</td>
</tr>
<tr>
<td>Transfer students meet their first term after transferring</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Seniors meet as needed to review for graduation</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

Tools:
- **Degree Checklists:** See MyDegrees in your Student Online Services, MyDegrees to view your major checklist.
- **Listserv:** Current students are auto-subscribed to the major listserv and receive posts in their ONID account.
- **IB Website:** see information about student clubs, study abroad, internship, and research opportunities http://ib.oregonstate.edu/undergraduates.

Rules:
- **GPA requirement:** The Biology major requires a 2.0 cumulative OSU and major GPA to graduate. The Pre-Medicine, Pre-Dentistry and Pre-Veterinary Medicine options require a 3.0 major GPA.
- **C- requirement for Biology (BI 21x), Math (MTH) and Chemistry (CH):** All students must receive a C- or better in any math (MTH) and BI 211, 212 and 213 or CH 23x/26x series and CH 331 to continue on to courses that have these courses as prerequisites (e.g. MTH 251, CH 232/262, BI 370).
- **Double counting courses:** Appropriate minor, major and Bacc Core Synthesis courses may count for the major upper division science electives requirement. Some major requirements also count for Baccalaureate Core courses. Options also clear categories of the major in some cases – see the options http://ib.oregonstate.edu/advising/planners.
- **S/U and withdraw (W):** Biology students cannot S/U major courses and are only allowed 12 course withdraws.
- **Double or dual majors** are not allowed in Biology, Biochemistry and Biophysics, Biochemistry and Molecular Biology, Biohealth Sciences, Microbiology or Zoology.
- **Options in Biology** are optional and transcript-visible and may alter the plans below. They include Ecology, Genetics, Marine Biology, Physiology and Behavior, Pre-Dentistry, Pre-Education, Pre-Medicine/Pre-Physician Assistant and Pre-Veterinary Medicine – see the option planners at http://ib.oregonstate.edu/advising/planners. Many other professional goals with no official options are possible.
- **Chemistry Minor:** The Chemistry Minor can be completed by taking one additional course (most students choose CH 324, CH 390 or CH 424) which also count as upper division science electives – talk to the Chemistry Department for approval and details. The CH 324 course is often restricted by major until phase II of registration.
BIOLOGY FOUR-YEAR PLANS

• Major courses are listed in order of priority. Students planning to finish in four years should average 15 credits a term.
• OSU math sequences for Biology students: MTH 065, 103, 111, 112, & [MTH 227 & 228] or [MTH 251 & 252]

<table>
<thead>
<tr>
<th>Track I</th>
<th>1st Year Tracks II and III (MTH 251 placement/credit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placed MTH 103,111 or 112</td>
<td>• BI 197 or 198 Fall, BI 298 Spring</td>
</tr>
<tr>
<td>• Start MTH Fall</td>
<td>• BI 211, 212, 213</td>
</tr>
<tr>
<td>• BI 197 or 198 Fall, BI 298 Spring</td>
<td>• CH 231 &amp; 261, 232 &amp; 262, 233 &amp; 263</td>
</tr>
<tr>
<td>• CH 231 &amp; 261, 232 &amp; 262, 233 &amp; 263</td>
<td>• 1 Baccalaureate Core (Bacc. Core) course a quarter</td>
</tr>
<tr>
<td>• Two Bacc. Core courses each term</td>
<td>• MTH starts in winter or spring</td>
</tr>
<tr>
<td>2nd Year</td>
<td>2nd Year</td>
</tr>
<tr>
<td>• BI 211, 212, 213</td>
<td>• CH 331, 332, 337</td>
</tr>
<tr>
<td>• CH 331, 332, 337</td>
<td>• One Bacc. Core Course a quarter</td>
</tr>
<tr>
<td>• One Bacc. Core course a quarter</td>
<td>• Fill in MTH courses then ST 351, 352</td>
</tr>
<tr>
<td>• Finish MTH courses then ST 351, 352</td>
<td>3rd Year</td>
</tr>
<tr>
<td>3rd Year</td>
<td>3rd Year</td>
</tr>
<tr>
<td>• ST 351, 352 if not completed above</td>
<td>• PH 201, 202, 203 or CS track courses</td>
</tr>
<tr>
<td>• PH 201, 202, 203 or CS track courses</td>
<td>• One Bacc. Core Course a quarter</td>
</tr>
<tr>
<td>• Writing Intensive Course</td>
<td>• Fill in 1 major course a quarter from:</td>
</tr>
<tr>
<td>• Fill in 1 major course a quarter from: BI 370, 311, BB 314, BI 445</td>
<td>BI 370, BI 311, BB 314</td>
</tr>
<tr>
<td>• BB 450, 451</td>
<td>• Finish MTH then 1 BI course a quarter:</td>
</tr>
<tr>
<td>• One Bacc. Core a term until finished</td>
<td>BI 370, BI 311, BB 314</td>
</tr>
<tr>
<td>4th Year</td>
<td>4th Year</td>
</tr>
<tr>
<td>• Major courses not taken 3rd year</td>
<td>• BB 450, 451</td>
</tr>
<tr>
<td>• Fill in with major courses below: Organismal Biol., Biol. &amp; Society, Physiology, MB 302 &amp; 303</td>
<td>• ST 351, 352</td>
</tr>
<tr>
<td>• Two upper division science elective courses or complete option</td>
<td>• Writing Intensive Course</td>
</tr>
<tr>
<td>• Complete coursework totaling 180/60 upper division credits</td>
<td>• One Bacc. Core a term until finished</td>
</tr>
<tr>
<td>• BI 498 Biology Major Field Test</td>
<td>• BI course(s) not taken 2nd year, then</td>
</tr>
<tr>
<td>Summer graduates take spring term, all others take last OSU term.</td>
<td>major courses: BI 445, organismal biology, biology &amp; society, physiology, and MB 302 &amp; 303.</td>
</tr>
</tbody>
</table>

BACCALAUREATE CORE REQUIREMENTS

<table>
<thead>
<tr>
<th>Category</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skills</td>
<td></td>
</tr>
<tr>
<td>Fitness (HHS 231) &amp; Fitness Lab (HHS Lab or PAC)</td>
<td></td>
</tr>
<tr>
<td>Math (C- or better required in math course prerequisites)</td>
<td>Completed as part of major; must complete in 1st 45 OSU credits</td>
</tr>
<tr>
<td>Writing I = WR 121 (A-G Fall, H-N Winter, O-Z Spring)</td>
<td>Must complete in 1st 45 OSU credits</td>
</tr>
<tr>
<td>Writing II = HC 199, 327 or 362 major (or WR 222)</td>
<td>Completed as listed here; must complete 1st 90 credits (45 if transfer)</td>
</tr>
<tr>
<td>Speech = COMM 111 OR COMM 218 for human health professions students, not veterinary medicine.</td>
<td>Completed as listed here; must complete 1st 45 credits (45 if transfer)</td>
</tr>
<tr>
<td>Perspectives - No more than two courses from any one department may be used to satisfy the perspectives requirement</td>
<td></td>
</tr>
<tr>
<td>Biological and Physical Science and second course</td>
<td>Completed as part of major</td>
</tr>
<tr>
<td>Cultural Diversity</td>
<td></td>
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<tr>
<td>Literature and the Arts</td>
<td></td>
</tr>
<tr>
<td>Social Processes and Institutions</td>
<td>PSY for health professions; GEO 204 recommended for others</td>
</tr>
<tr>
<td>Western Culture</td>
<td></td>
</tr>
<tr>
<td>Difference, Power and Discrimination</td>
<td></td>
</tr>
<tr>
<td>Difference, Power and Discrimination</td>
<td></td>
</tr>
<tr>
<td>Synthesis Courses - Courses used to fulfill the synthesis requirements may not be from the same department</td>
<td></td>
</tr>
<tr>
<td>Contemporary Global Issues (CGI)</td>
<td>Taken junior/senior year, some count toward major or options</td>
</tr>
<tr>
<td>Science, Technology, and Society (STS)</td>
<td>Taken junior/senior year, some count toward major or options</td>
</tr>
</tbody>
</table>
### BIOLOGY MAJOR REQUIREMENTS

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>F</th>
<th>W</th>
<th>SP</th>
<th>SU</th>
<th>Pre(Co)Requisites / Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 197 or BI 198 Professional Development I</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI 298 Professional Development for Biologists II (1)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>MTH 227 Calculus and Probability for Life Sci. I (4) <strong>AND</strong> MTH 228 Calculus and Probability for Life Sci. II (4)</td>
<td>X</td>
<td>X</td>
<td>C - or better in MTH 112 (complete 227 and 228 as series)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR MTH 251 Calculus (4) <strong>AND</strong> MTH 252 Calculus (4)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>251: C - or better in MTH 112, 252: C - or better in MTH 251</td>
<td></td>
</tr>
<tr>
<td>CH 231 &amp; 261 General Chem. and Lab (4+1)</td>
<td>X</td>
<td>X</td>
<td>Math placement or one term CH 101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 232 &amp; 262 General Chem. and Lab (4+1)</td>
<td>X</td>
<td>X</td>
<td>C- or better in CH 231/261</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 233 &amp; 263 General Chem. and Lab (4+1)</td>
<td>X</td>
<td>X</td>
<td>C- or better in CH 232/262</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI 211 Principles of Biology (4)</td>
<td>X</td>
<td>X</td>
<td>C- or better required in BI 211</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI 212 Principles of Biology (4)</td>
<td>X</td>
<td>X</td>
<td>CH 231/261 or 121; C- or better required in BI 212</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI 213 Principles of Biology (4)</td>
<td>X</td>
<td>X</td>
<td>CH 231/261 or 121; C- or better required in BI 213</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 331 Organic Chemistry (4)</td>
<td>X</td>
<td>X</td>
<td>C- in CH 233/263</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 332 Organic Chemistry (4)</td>
<td>X</td>
<td>X</td>
<td>C- in CH 331</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 337 Organic Chemistry Lab (4)</td>
<td>X</td>
<td>X</td>
<td>CH 332</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BB 314 Cell and Molecular Biology (4)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>C- in BI 211, 212, 213; CH 331 pre/coreq</td>
<td></td>
</tr>
<tr>
<td>BB 450 General Biochemistry (4)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>CH 332; BB 314 recommended</td>
<td></td>
</tr>
<tr>
<td>BB 451 General Biochemistry (3)</td>
<td>X</td>
<td>X</td>
<td>X?</td>
<td>BB 450</td>
<td></td>
</tr>
<tr>
<td>ST 351 Introduction to Statistical Methods (4)</td>
<td>X</td>
<td>X</td>
<td>MTH 111</td>
<td></td>
<td></td>
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<tr>
<td>ST 352 Introduction to Statistical Methods (4)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>ST 351</td>
<td></td>
</tr>
<tr>
<td>OR ST 411 AND ST 412 Methods of Data Analysis (4+4)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>ST 351; 41x courses required instead of 352 for some options</td>
<td></td>
</tr>
<tr>
<td>BI 311 Genetics (4)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>C- in BI 211, 212, 213</td>
<td></td>
</tr>
<tr>
<td>BI 370 Ecology (3)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>C- in BI 211, 212, 213</td>
<td></td>
</tr>
<tr>
<td>MB 302 General Microbiology &amp; 303 Lab (3+2)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>CH 332 AND BI 212 and 213; BB 314 recommended</td>
<td></td>
</tr>
<tr>
<td>BI 445 Evolution (3)</td>
<td>X</td>
<td>X</td>
<td>BI 311</td>
<td></td>
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<tr>
<td>BI 498 Senior Biology Major Field Test - 2 hour exam taken final term or spring if graduating summer term</td>
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</table>

### Biology Elective Areas - Declaring an option may alter these categories - see options for details

**Physics/Computer Science and Quantitative Applications (complete one track below)**

#### Track I Physics (complete the physics series)

<table>
<thead>
<tr>
<th>Course</th>
<th>F</th>
<th>W</th>
<th>SP</th>
<th>SU</th>
<th>Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH 201 General Physics (5)</td>
<td>X</td>
<td>X</td>
<td>MTH 112 or higher</td>
<td></td>
<td></td>
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<tr>
<td>PH 202 General Physics (5)</td>
<td>X</td>
<td>X</td>
<td>MTH 112 or higher</td>
<td></td>
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<tr>
<td>PH 203 General Physics (5)</td>
<td>X</td>
<td>X</td>
<td>MTH 112 or higher</td>
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</tbody>
</table>

#### Track II Computer Science and Quantitative Applications (complete the CS series and two additional courses)

<table>
<thead>
<tr>
<th>Course</th>
<th>F</th>
<th>W</th>
<th>SP</th>
<th>SU</th>
<th>Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 161 Introduction to Computer Science I (4)</td>
<td>X</td>
<td>X</td>
<td>MTH 112</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 162 Introduction to Computer Science II (4)</td>
<td>X</td>
<td>X</td>
<td>C in CS 161</td>
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</tbody>
</table>

**Complete two of the courses below to complete track II (computer science and quantitative applications)**

<table>
<thead>
<tr>
<th>Course</th>
<th>F</th>
<th>W</th>
<th>SP</th>
<th>SU</th>
<th>Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB 485 Applied Bioinformatics (3)</td>
<td>X</td>
<td>C- in BB 314, *see catalog</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>BI 456 Phylogenetics (4)</td>
<td>X</td>
<td>ST 352 or 411 and BI 311 or BI 445, *alternate winter terms</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>BI 483 Population Biology (3)</td>
<td>X</td>
<td>MTH 251 or 227, ST 352 and BI 311 or BI 370</td>
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<td></td>
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<tr>
<td>BOT 458 Ecosystem Genomics (3)</td>
<td>X</td>
<td>BI 311, BB 314, *see catalog</td>
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<td></td>
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<tr>
<td>BOT 460 Functional Genomics (3)</td>
<td>X</td>
<td>C- in BI 311 and C- in BI/BB 314</td>
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<td></td>
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<tr>
<td>BOT 475 Comparative Genomics (4)</td>
<td>X</td>
<td>BI 311 and BB 314, *alternate winter terms</td>
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<tr>
<td>BOT 476 Introduction to Computing in the Life Sciences (3)</td>
<td>X</td>
<td>BI 311, BB 314</td>
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</tr>
<tr>
<td>GEOG 360 GIScience I: GIS Information Systems &amp; Theory (4)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*see catalog</td>
<td></td>
</tr>
<tr>
<td>GEOG 361 GIScience II: Analysis and Applications (4)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>GEOG 360, MTH 112, ST 351, *see catalog</td>
<td></td>
</tr>
<tr>
<td>OC 449 Ecol. Theories in Biol. and Fisheries Oceanography (4)</td>
<td>X</td>
<td>C in MTH 228 or 225, C in ST 351, C in BI 370 *see catalog</td>
<td></td>
<td></td>
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<tr>
<td>ST 431 Sampling Methods (3)</td>
<td>X</td>
<td>ST 411</td>
<td></td>
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<tr>
<td>ST 435 Quantitative Ecology (3)</td>
<td>X</td>
<td>ST 412, *see catalog</td>
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</tbody>
</table>

**Biology and Society (take 1 of the following or see option)**

<table>
<thead>
<tr>
<th>Course</th>
<th>F</th>
<th>W</th>
<th>SP</th>
<th>SU</th>
<th>Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEC 351 Natural Resource Economics &amp; Policy (3)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>See Catalog, bacc. core synthesis– contemporary global issues</td>
</tr>
<tr>
<td>AEC 352 Environmental Economics &amp; Policy (3)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>See Catalog, bacc. core synthesis– contemporary global issues</td>
</tr>
<tr>
<td>BB 331 Introduction to Molecular Biology (3)</td>
<td>X</td>
<td>bacc core. synthesis– science, tech. and society</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BB 332 Molecular Medicine (3)</td>
<td>X</td>
<td>bacc core. synthesis– science, tech. and society</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI 175 Genomes, Identities and Society (3)</td>
<td>X</td>
<td>bacc core– difference, power and discrimination</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BI 301 Human Impacts on Ecosystems (3)</td>
<td>X</td>
<td>bacc core synthesis– contemporary global issues</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>BI 345 Introduction to Evolution (3)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>bacc core synthesis– science, tech. and society</td>
<td></td>
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<tr>
<td>BI 347 Oceans in Peril (3)</td>
<td>X</td>
<td>BI 150, 211 or 213</td>
<td></td>
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</tr>
<tr>
<td>BI 348 Human Ecology (3)</td>
<td>*</td>
<td>bacc core. synthesis– science, tech. and society</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>BI 420 Viruses in Modern Society (3)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*Alternate winter terms in odd years, bacc core. synth– science, tech. and soc.</td>
<td></td>
</tr>
<tr>
<td>BOT 324 Fungi in Society (3)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>bacc core. synthesis– science, tech. and society</td>
<td></td>
</tr>
<tr>
<td>FES/TOX 435 Genes, Chemicals in Agriculture (3)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>* See Catalog, bacc core. synthesis– science, tech. and society</td>
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</tr>
<tr>
<td>FW 350 Endangered Species, Society and Sustainability (3)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>* See Catalog, bacc core. synthesis– science, tech. and society</td>
<td></td>
</tr>
<tr>
<td>H1 312 HIV/AIDS and STIS in Society (3)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>* See Catalog, bacc. core synthesis– contemporary global issues</td>
<td></td>
</tr>
<tr>
<td>HSTS 416 History of Medicine Pre-1800 (4)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>* See Catalog, bacc core. synthesis– science, tech. and society</td>
<td></td>
</tr>
</tbody>
</table>

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* Pre/CoRequisites - X = Required, * = Suggested

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*Different from the catalog, bacc core. synthesis

---

*Alternate winter terms in odd years, bacc core. synth

---

* Science, tech. and society

---

* Contemporary global issues

---

* Difference, power and discrimination

---

* Some options:

- BI 211 Principles of Biology (4) require CH 231/261 or 121.
- BI 213 Principles of Biology (4) require CH 231/261 or 121.
- BI 331 Organic Chemistry (4) require CH 233/263.
- CH 332 Organic Chemistry (4) require CH 331.
- BI 337 Organic Chemistry Lab (4) require CH 332.
- BB 314 Cell and Molecular Biology (4) require CH 211, 212, 213; CH 331 pre/coreq.
- BB 450 General Biochemistry (4) require CH 332; BB 314 recommended.
- BI 370 Ecology (3) require CH 211, 212, 213.
- MB 302 General Microbiology & 303 Lab (3+2) require CH 332 AND BI 212 and 213; BB 314 recommended.
- BI 445 Evolution (3) require BI 311.

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* Math placement or one term CH 101

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* Math placement or one term CH 101

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* Math placement or one term CH 101
Biology and Society (continued from previous page) | F | W | SP | SU | Pre(Con)Requisites / Comments
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MB 330 Disease and Society (3) | X | * | * | * | bacc. core, difference, power and discrimination
PHL/REL 443 World Views Environ. Values (3) | X | * | * | * | See Catalog, bacc. core. synthesis– contemporary global issues
Z 349 Biodiversity: Causes, Consequences & Conservation (3) | X | X | C- in BI 211, 212, 213 | bacc core. synthesis– contemporary global issues

Organismal Biology (take 1 of the following or see option)

| BOT 313 Plant Structure (4) | X | C- in BI 211, 212, 213
| BOT 321 Plant Systematics (4) | X | C- in BI 211, 212, 213
| BOT 416 Aquatic Botany (4) | X | C- in BI 211, 212, 213
| BOT 461 Introduction to Mycology (4) | X | C- in BI 211, 212, 213
| Z 361 Invertebrate Biology **AND** Z 362 Lab (3+2) | X | C- in BI 211, 212, 213
| Z 365 Biology of Insects (4) | X | C- in BI 211, 212, 213
| Z 367 Invertebrate Biology **AND** Z 372 Lab (3+2) | X | C- in BI 211, 212, 213
| Z 422 Comparative/Functional Vert. Anatomy (5) | X | C- in BI 211, 212, 213
| Z 461 Marine & Estuarine Invertebrates (4) | X | C- in BI 211, 212, 213; taught at Hatfield Marine Sci. Center
| Z 477 Aquatic Entomology (4) | X | C- in BI 211, 212, 213; junior standing

Physiology (take 1 of the following or see option)

| BOT 331 Plant Physiology (4) | X | BI 211, 212, 213, CH 231/261 or CH 123
| BOT 332 Laboratory Techniques in Plant Biol. (3) | X | BOT 331 or BB 314
| BOT 488 Environmental Physiology of Plants (3) | X | BI 370 or a plant physiology course
| Z 423 Environmental Physiology (3) | X | C- in BI 211, 212, 213; CH 231/261 or 123
| Z 425 Embryology & Development (5) | X | BI 311 and BB 314, junior standing
| Z 431 Vert. Physiology (3) | X | C- in BI 211, 212, 213 and CH 332 pre/coreq
| Z 440 Insect Physiology (3) | X | C- in BI 211, 212, 213, CH 123 or CH 233/263

Writing Intensive Course (WIC) (select one of the following or see option)

| BB/BI 317 Scientific Theory and Practice (4) | X | X | X | C- in BI 211, 212, 213
| BI 306H Environmental Ecology | * | * | * | * See Catalog, C- in BI 211, 212, 213, 233/263
| BI/Z 319 Critical Thinking & Comm. Life Sci. (3) | X | X | C- in BI 211, 212, 213, ST 351 & ST 352 pre/coreq
| BI 371 Ecological Methods (3) | X | BI 370
| BI 373 Field Methods in Marine Ecology (3) | X | BI 370 or BI 351
| BOT 323 Flowering Plants of the World (3) | X | * See Catalog; BI 211, 212, 213
| MB 385 Emerging Infectious Diseases & Epidemics (3) | X | * See Catalog

Additional Upper Division Science Electives (complete an option or 2 of the 3 tracks below)

**Track I: Integrative Biology Course (select one course)**

| BI 358 Symbiosis and the Environment | * | * | * | * See Catalog, alternate odd years; C- CH 233/263 & BI 21x
| BI 375 Field Methods in Ecological Restoration | * | * | * | *Taught in and around Cascades campus (Bend)
| BI 427 Paleobiology (4) | X | C- in BI 211, 212, 213
| BI 456 Phylogeography | * | * | * | * See Catalog, alternate odd years; ST 352; BI 311
| BI 481 Biogeography | * | * | * See Catalog, alternate odd years; BI 370
| BI 483 Population Biology | X | ST 352, MTH 251 and BI 311 or BI 370
| BI 495 Disease Ecology | * | * See Catalog, alternate years
| MB 480 Parasitology | X | BI 311 and BB 314
| Z 350 Animal Behavior | X | C- in BI 211, 212, 213
| Z 361 Invertebrate Biology **AND** Z 362 Lab (3+2) | X | C- in BI 211, 212, 213; cannot be counted above
| Z 371 Vertebrate Biology **AND** Z 372 Lab (3+2) | X | C- in BI 211, 212, 213; cannot be counted above
| Z 425 Embryology and Development | X | BI 311 and BB 314; cannot be counted above
| Z 437 Endocrinology | * | * | * See Catalog, alternate odd years; BI 314
| Z 438 Behavioral Neurobiology | X | C- in BI 211, 212, 213 and CH 233/263
| Z 461 Marine and Estuarine Invertebrate Zoology | X | Taught at Hatfield campus, Newport; C- in BI 211, 212, 213
| Z 475 Insect Biodiversity Survey (4) | X | *Field work starts before fall; see Catalog, alternate years

**Track II: Experiential Learning (complete any combination of 3 credits of the following):**

| BI 309 Teaching Practicum– dept. approval (1-3) | BI 401 Research and Scholarship- dept. approval (1-3)
| BI 406 Projects: Curatorial Assistant- dept. approval (1-3) | BI 409 Advanced Teaching Practicum- dept. approval (1-3)
| BI 410 Internship- dept. approval (1-3) | Study Abroad– requires approval before participation

**Track III: Complete an Additional 3+ credit, upper division (300-400 level) science elective courses not used above:**

Courses from BB, BI, BOT, CH, MB, MTH, PH, ST, & Z including double major, minor and Bacc. Core Synthesis may be used. Some courses outside of COS and courses and internships completed internationally may be used by Biology Lead Advisor approval. Excluded: 401-405 except as outlined above or by approval; BB 350, BB 490-492, BI 331-333/341-343, CH 334-336, ST 314, Z 361/362, Z 461 and any 399 or 499 course not specifically approved.

**OSU GRADUATION REQUIREMENTS**

File for graduation with the Registrar three terms ahead and review your MyDegrees online checklist with an advisor

Complete the BI 498 Biology Major Field Test your final term or during spring term if planning to graduate in summer

Complete 180 total credits (major and Bacc. Core courses do not total 180) and 60 upper division credits (300-400 level)

No more than 11 PAC, 12 MUP, 15 ALS, 16 BI 309, 406 & 409 credits can be used to reach the required 180 credits

Maintain a 2.0 average GPA for your degree AND major unless otherwise required for your option-- see MyDegrees for these numbers