GENETICS OPTION

This option is offered within the following major(s):

- Biology - College of Science (http://catalog.oregonstate.edu/college-departments/science/school-life-sciences/integrative-biology/biology-bs-hbs/)

The Biology major Genetics option is designed to provide a solid background in genetic theory and methods, as well as their application to evolutionary questions. Option students couple the core biological sciences background from the Biology major with genetics laboratory-intensive course work in addition to genetics and bioinformatics electives. Undergraduate research or internship experience is strongly recommended for option students, and three credits can be applied to the Upper-division Science Elective requirements. The Genetics option is an excellent way to prepare for graduate programs in genetics and evolutionary biology.

Option Code: 517

Options in the Biology major require 15 or fewer additional credits (one term) beyond the basic Biology major, and most students can complete the additional course work in the Genetics option in four years.

Courses used to satisfy the Genetics option requirements also satisfy the Physics\Computer Science and Quantitative Applications, Physiology, Writing Intensive and Experiential Learning or Integrative Biology Elective requirements for the Biology major. The statistics courses in the Genetics option also complete half of the Biology major statistics requirement.

For further information, see MyDegrees or the Integrative Biology website (http://ib.oregonstate.edu).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB 315</td>
<td>MOLECULAR BIOLOGY LABORATORY</td>
<td>3</td>
</tr>
<tr>
<td>BB 345</td>
<td>INTRODUCTION TO BIOLOGICAL SEQUENCE ANALYSIS</td>
<td>2</td>
</tr>
<tr>
<td>BB 494</td>
<td>BIOCHEMISTRY LABORATORY MOLECULAR TECHNIQUES 2</td>
<td>3</td>
</tr>
<tr>
<td>BI 319</td>
<td>*THEORY PRACTICE AND DISCOURSE IN THE LIFE SCIENCES</td>
<td>3</td>
</tr>
<tr>
<td>BI 483</td>
<td>POPULATION BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>ST 411</td>
<td>METHODS OF DATA ANALYSIS</td>
<td>8</td>
</tr>
<tr>
<td>&amp; ST 412</td>
<td>and METHODS OF DATA ANALYSIS 1</td>
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</tbody>
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**Integrative Biology Elective**
Select one course from the following 3-5

- BI 454 EVOLUTIONARY GENOMICS
- BI 456 PHYLOGENETICS
- Z 425 EMBRYOLOGY AND DEVELOPMENT

**Genetics Elective**
Select one course from the following 3-4

- BB 486 ADVANCED MOLECULAR GENETICS
- BI 454 EVOLUTIONARY GENOMICS (if not taken above)
- BI 456 PHYLOGENETICS (if not taken above)
- BOT 458 ECOSYSTEMS GENOMICS
- BOT 460 FUNCTIONAL GENOMICS
- BOT 475 COMPARATIVE GENOMICS

**Bioinformatics Elective**
BB 485 APPLIED BIOINFORMATICS 3
or BOT 476 INTRODUCTION TO COMPUTING IN THE LIFE SCIENCES 3

**Experiential Learning or Science Elective Courses**
Select two of the following tracks: 6

- Track 1 Experiential Learning Credits
  - Select any combination of three credits from the following:
    - BI 401 RESEARCH AND SCHOLARSHIP (by approval)
    - BI 410 INTERNSHIP (by approval or international internships approved by the Biology Chief Advisor)

- Track 2 Additional Genetics or Bioinformatics Elective
  - Select one additional Genetics Elective or Bioinformatics Elective from the lists above

- Track 2: Additional Upper-Division Biology or Zoology Course
  - Select one additional three+ credit, 300–400 level Biology (BI) or Zoology (Z) course not used for major requirements

Total Credits 37-40

* Baccalaureate Core Course (BCC)
^ Writing Intensive Course (WIC)
1 Following completion of ST 351
2 Excluded Courses: BI 401–BI 410 credits and BCC courses

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