Name:

General Education Requirements

English Composition
ENGL 101 & 102* 3 3
OR ENGL 107 & 108* 3 3
OR ENGL 109H* 3 3

*Grade of B or higher in ENGL 102, 108 or 109H is required to satisfy the Mid-Career Writing Assessment (MCWA).

Second Language
2nd semester proficiency by credit or exam required

Mathematics
Requirement satisfied by Bioinformatics Foundation courses.

Tier One
Individuals & Societies (2 courses) - select from 150A, B, C

Traditions & Cultures (2 courses) - select from 160A, B, C, D

Tier Two
Arts (3 units)

Humanities (1 course)

Individuals & Societies (1 course)

Natural Sciences (NATS) requirement satisfied by major coursework.

Diversity Emphasis Course
One course must be taken that focuses on Gender, Race, Class, Ethnicity, Sexual Orientation or Non-Western Studies. Certain Tier One or Tier Two courses can also be used to satisfy this requirement.

Upper Division Requirement
A minimum of 42 units of upper division (300/400 level) coursework is required to complete this degree. Students are responsible to ensure this requirement is met.

Bioinformatics Major Foundation Courses

Chemistry
CHEM 151 or CHEM 141 & 143 or CHEM 161 & 163 4
CHEM 152 or CHEM 142 & 144 or CHEM 162 & 164 4
CHEM 241A & 243A (F, S, SS) 3 1
CHEM 241B & 243B (F, S, SS) 3 1

Biology
MCB 181R (F, S, SS) & 181L (F, S) 3 1
ECOL 182R (F, S, SS) & 182L (F, S) 3 1

Mathematics
MATH 122A & 122B (F, S, SS) OR MATH 125 (F, S) 3-5
MATH 129 (F, S, SS) 3

Computer Science
CSC 110 (F, S, SS) OR ISTA 130 (F, S) 4
CSC 120 (F, S, SS) 4

Bioinformatics Major Core Courses

Major Core Requirements
ECOL 296B Seminar in Bioinformatics (F) 1
CSC 245 Intro to Discrete Struct. (F, S) 4
OR MATH 243 Discrete Math in CS (F, S, SS) 3
CSC 250 Ess. Comp. for the Sciences (S) 3
CSC 345 Analysis of Discrete Struct. (F, S) 4
ECOL 346 Bioinformatics (S) 4

Major courses for each specific area are included on the back side of this sheet.
BACHELOR OF SCIENCE DEGREE IN BIOINFORMATICS  Catalog yr: 2017-18
Advisors: Athena Andriakos - aandriakos@email.arizona.edu, Sarah Kortessis - sarahkortessis@email.arizona.edu
Appointments: wiseadvising.arizona.edu

Graduation Requirements
- ☐ 120 total units
- ☐ 42 upper division units
- ☐ 30 units or more completed at UA
- ☐ 2.00 or higher cum & major GPA
- ☐ 56 university units
- ☐ Major Complete
- ☐ General Education Complete
- ☐ MCWA Complete - A grade of B or higher in ENGL 102, 108 or 109H OR with ENGL 308

BIOIN Major - Ecology & Evolutionary Bio Focus

<table>
<thead>
<tr>
<th>EEB Emphasis Requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 263 Biostatistics (F, S, SS)</td>
<td>3</td>
</tr>
<tr>
<td>ECOL 302 Ecology (F)</td>
<td>4</td>
</tr>
<tr>
<td>ECOL 320 Genetics (F, SS)</td>
<td>4</td>
</tr>
<tr>
<td>ECOL 335 Evolutionary Biology (S)</td>
<td>4</td>
</tr>
<tr>
<td>ECOL 326 Genomics (F, SS)</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
- At least 11 units upper division Bioinformatics electives required

BIOIN Major - Systems Biology Focus

<table>
<thead>
<tr>
<th>Systems Biology Emphasis Requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 263 Biostatistics (F, S, SS)</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 384 Foundations in Biochemistry (F, S, SS)</td>
<td>3</td>
</tr>
<tr>
<td>MCB 301 Molecular Basis of Life (F, S)</td>
<td>4</td>
</tr>
<tr>
<td>MCB 304 Molecular Genetics (F)</td>
<td>4</td>
</tr>
<tr>
<td>MCB 305 Cell &amp; Developmental Bio (S)</td>
<td>4</td>
</tr>
<tr>
<td>ECOL 302 Ecology (F)</td>
<td>4</td>
</tr>
<tr>
<td>ECOL 335 Evolutionary Bio (S)</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives
- At least 7 units upper division Bioinformatics electives required

BIOIN Major - Computer Science Focus

<table>
<thead>
<tr>
<th>CSC Emphasis Requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 223 Vector Calculus (F, S, SS)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 254 Differential Equations (F, S, SS)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 363 Statistical Methods (F, S)</td>
<td>3</td>
</tr>
<tr>
<td>CSC 445 Intro to Algorithms (S)</td>
<td>3</td>
</tr>
<tr>
<td>MCB 304 Molecular Genetics (F)</td>
<td>4</td>
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<tr>
<td>OR ECOL 320 Genetics (F, SS)</td>
<td>4</td>
</tr>
<tr>
<td>MCB 305 Cell &amp; Developmental Bio (S)</td>
<td>4</td>
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<tr>
<td>OR ECOL 335 Evolutionary Bio (S)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Must take either MCB 304/305 or ECOL 320/335**

Electives
- At least 8 units upper division Bioinformatics electives required

MATH 263 Biostatistics (F, S, SS) | 3 |
ECOL 302 Ecology (F) | 4 |
ECOL 320 Genetics (F, SS) | 4 |
ECOL 335 Evolutionary Biology (S) | 4 |
ECOL 326 Genomics (F, SS) | 3 |