

# BACHELOR OF SCIENCE DEGREE IN BIOINFORMATICS Catalog yr: 2015-16

Advisors: Meredith Larrabee - [larrabee@email.arizona.edu](mailto:larrabee@email.arizona.edu), Sarah Kortessis - [sarahkortessis@email.arizona.edu](mailto:sarahkortessis@email.arizona.edu)

Appointments: [www.sbs.arizona.edu/advising](http://www.sbs.arizona.edu/advising)

Name: \_\_\_\_\_

Student # \_\_\_\_\_ Date: \_\_\_\_\_

## General Education Requirements

### English Composition

ENGL 101 & 102\* \_\_\_\_\_ 3 \_\_\_\_\_ 3 \_\_\_\_\_  
 OR ENGL 107 & 108\* \_\_\_\_\_ 3 \_\_\_\_\_ 3 \_\_\_\_\_  
 OR ENGL 109H\* \_\_\_\_\_ 3 \_\_\_\_\_ 3 \_\_\_\_\_

*\*A grade of B or higher in ENGL102, 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*  
 \_\_\_\_\_ & \_\_\_\_\_ 3 \_\_\_\_\_ 3 \_\_\_\_\_  
*Traditions & Cultures (2 courses)- select from 160A, B, C & D*  
 \_\_\_\_\_ & \_\_\_\_\_ 3 \_\_\_\_\_ 3 \_\_\_\_\_

### Tier Two

*Arts (3 units)-* \_\_\_\_\_ 3 \_\_\_\_\_  
*Humanities (1 course)-* \_\_\_\_\_ 3 \_\_\_\_\_  
*Individuals & Societies (1 course)-* \_\_\_\_\_ 3 \_\_\_\_\_

*\*Natural Sciences (NATS) requirement satisfied by major coursework.*

### Diversity Emphasis Course

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

\_\_\_\_\_ 3 \_\_\_\_\_

## 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

CHE M 151 (F, S, SS) or CHE M 105A & 106A \_\_\_\_\_ 4 \_\_\_\_\_  
 CHE M 152 (F, S, SS) or CHE M 105B & 106B \_\_\_\_\_ 4 \_\_\_\_\_  
 CHE M 241A & 243A (F, S, SS) \_\_\_\_\_ 3 \_\_\_\_\_ 1 \_\_\_\_\_  
 CHE M 241B & 243B (F, S, SS) \_\_\_\_\_ 3 \_\_\_\_\_ 1 \_\_\_\_\_

### Biology

MCB 181R (F, S, SS) & 181L (F, S) \_\_\_\_\_ 3 \_\_\_\_\_ 1 \_\_\_\_\_  
 E COL 182R (F, S, SS) & 182L (F, S) \_\_\_\_\_ 3 \_\_\_\_\_ 1 \_\_\_\_\_

### Mathematics

MATH 122A & 122B (F, S, SS) \_\_\_\_\_ 5 \_\_\_\_\_  
 MATH 129 (F, S, SS) \_\_\_\_\_ 3 \_\_\_\_\_

### Computer Science

CSC 127A (F, S, SS) \_\_\_\_\_ 4 \_\_\_\_\_  
 CSC 127B (F, S) \_\_\_\_\_ 4 \_\_\_\_\_

Major courses for each specific area are included on the back side of this sheet.

## 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.

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## BIOIN Major - Ecology & Evolutionary Bio Focus

### Major Core Requirements

E COL 296B	Seminar in Bioinformatics (F)	1	_____
CSC 245	Intro to Discrete Struct. (F, S)	4	_____
CSC 250	Ess. Comp. for the Sciences (F)	3	_____
CSC 345	Analysis of Discrete Struct. (F, S)	4	_____
E COL 346	Bioinformatics (S)	4	_____

### EEB Emphasis Requirements

PHYS 102, 181	Physics I with lab (F, S, SS)	3	_____	1	_____
PHYS 103, 182	Physics II with lab (F, S, SS)	3	_____	1	_____
MATH 263	Biostatistics (F, S, SS)	3	_____		
E COL 302	Ecology (F)	4	_____		
E COL 320	Genetics (F, SS)	4	_____		
E COL 335	Evolutionary Biology (S)	4	_____		
E COL 465	Phylogenetic Biology (F)	3	_____		

### Electives

At least 1 upper-division EEB elective required

\_\_\_\_\_ ( ) \_\_\_\_\_  
\_\_\_\_\_ ( ) \_\_\_\_\_

## BIOIN Major - Molecular & Cellular Bio Focus

### Major Core Requirements

E COL 296B	Seminar in Bioinformatics (F)	1	_____
CSC 245	Intro to Discrete Struct. (F, S)	4	_____
CSC 250	Ess. Comp. for the Sciences (F)	3	_____
CSC 345	Analysis of Discrete Struct. (F, S)	4	_____
E COL 346	Bioinformatics (S)	4	_____

### MCB Emphasis Requirements

PHYS 102, 181	Physics I with lab (F, S, SS)	3	_____	1	_____
PHYS 103, 182	Physics II with lab (F, S, SS)	3	_____	1	_____
MATH 263	Biostatistics (F, S, SS)	3	_____		
MCB 304	Molecular Genetics (S)	5	_____		
MCB 305	Cell & Developmental Bio (F)	4	_____		
MCB 315	Key Concepts in Quant. Bio (F)	4	_____		
BIOC 385	Metabolic Biochemistry (F, S)	3	_____		

### Electives

At least 1 upper-division MCB elective required

\_\_\_\_\_ ( ) \_\_\_\_\_  
\_\_\_\_\_ ( ) \_\_\_\_\_

## BIOIN Major - Systems Biology Focus

### Major Core Requirements

E COL 296B	Seminar in Bioinformatics (F)	1	_____
CSC 245	Intro to Discrete Struct. (F, S)	4	_____
CSC 250	Ess. Comp. for the Sciences (F)	3	_____
CSC 345	Analysis of Discrete Struct. (F, S)	4	_____
E COL 346	Bioinformatics (S)	4	_____

### Systems Biology Emphasis Requirements

MATH 254	Differential Equations (F, S, SS)	3	_____
MATH 363	Statistical Methods (F, S)	3	_____
MCB 304	Molecular Genetics (S)	5	_____
MCB 305	Cell & Developmental Bio (F)	4	_____
MCB 480	Intro to Systems Biology (F)	3	_____
BIOC 385	Metabolic Biochemistry (F, S)	3	_____
E COL 302	Ecology (F)	4	_____
E COL 335	Evolutionary Bio (S)	4	_____

### Electives

At least 1 upper-division MCB or EEB elective required

\_\_\_\_\_ ( ) \_\_\_\_\_  
\_\_\_\_\_ ( ) \_\_\_\_\_  
\_\_\_\_\_ ( ) \_\_\_\_\_

## BIOIN Major - Computer Science Focus

### Major Core Requirements

E COL 296B	Seminar in Bioinformatics (F)	1	_____
CSC 245	Intro to Discrete Struct. (F, S)	4	_____
CSC 250	Ess. Comp. for the Sciences (F)	3	_____
CSC 345	Analysis of Discrete Struct. (F, S)	4	_____
E COL 346	Bioinformatics (S)	4	_____

### CSC Emphasis Requirements

MATH 254	Differential Equations (F, S, SS)	3	_____
MATH 363	Statistical Methods (F, S)	3	_____
CSC 445	Intro to Algorithms (S)	3	_____
CSC 450	Algorithms in Bioinformatics (S)	3	_____
MCB 304	Molecular Genetics (S)	5	_____
OR E COL 320	Genetics (F, SS)	4	_____
MCB 305	Cell & Developmental Bio (F)	4	_____
OR E COL 335	Evolutionary Bio (S)	4	_____

### Electives

At least 2 upper-division CSC electives required

\_\_\_\_\_ ( ) \_\_\_\_\_  
\_\_\_\_\_ ( ) \_\_\_\_\_  
\_\_\_\_\_ ( ) \_\_\_\_\_  
\_\_\_\_\_ ( ) \_\_\_\_\_

## Graduation Requirements

- 120 total units
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