

**BACHELOR OF SCIENCE DEGREE IN BIOINFORMATICS** Catalog yr: 2023

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

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

Date: \_\_\_\_\_

**General Education Requirements**

English Composition

ENGL 101 & 102\* \_\_\_\_\_ 3 \_\_\_\_\_ 3 \_\_\_\_\_

OR ENGL (106 &) 107 & 108\* \_\_\_\_\_ 3 \_\_\_\_\_ 3 \_\_\_\_\_

OR ENGL 109H\* \_\_\_\_\_ 3 \_\_\_\_\_

\*A 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

MATH 122A & 122B (OR 125) *Calculus I* \_\_\_\_\_ 5 (3) \_\_\_\_\_

General Education

UNIV 101 Intro to General Education \_\_\_\_\_ 1 \_\_\_\_\_

Exploring Perspectives

Artist \_\_\_\_\_ 3 \_\_\_\_\_

Humanist \_\_\_\_\_ 3 \_\_\_\_\_

Natural Scientist \_\_\_\_\_ 3 \_\_\_\_\_

Social Scientist \_\_\_\_\_ 3 \_\_\_\_\_

Building Connections

Course 1 \_\_\_\_\_ 3 \_\_\_\_\_

Course 2 \_\_\_\_\_ 3 \_\_\_\_\_

Course 3 \_\_\_\_\_ 3 \_\_\_\_\_

Capstone

UNIV 301 \_\_\_\_\_ 1 \_\_\_\_\_

May double dip up to 9 units between general education and major requirements

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 141 & 145 General Chemistry I \_\_\_\_\_ 4 \_\_\_\_\_

CHEM 142 & 146 General Chemistry II \_\_\_\_\_ 4 \_\_\_\_\_

CHEM 241A & 243A *Organic Chemistry I* \_\_\_\_\_ 3 \_\_\_\_\_ 1 \_\_\_\_\_

CHEM 241B & 243B *Organic Chemistry II* \_\_\_\_\_ 3 \_\_\_\_\_ 1 \_\_\_\_\_

Biology

MCB 181R & 181L *Introductory Biology I* \_\_\_\_\_ 3 \_\_\_\_\_ 1 \_\_\_\_\_

ECOL 182R & 182L *Introductory Biology II* \_\_\_\_\_ 3 \_\_\_\_\_ 1 \_\_\_\_\_

Mathematics

MATH 263 *Biostatistics* \_\_\_\_\_ 3 \_\_\_\_\_

Computer Science

ISTA 130 *Computational Thinking and Doing* \_\_\_\_\_ 4 \_\_\_\_\_

ISTA 116 *Statistical Foundations for Information Age* \_\_\_\_\_ 3 \_\_\_\_\_

**Bioinformatics Major Core Courses (19 units)**

ECOL 296B *Seminar in Bioinformatics (Fall only)* \_\_\_\_\_ 1 \_\_\_\_\_

ECOL 346 *Bioinformatics (Spring only)* \_\_\_\_\_ 4 \_\_\_\_\_

ECOL 320 *Genetics* \_\_\_\_\_ 4 \_\_\_\_\_

ECOL 335 *Evolutionary Biology (Spring only)* \_\_\_\_\_ 4 \_\_\_\_\_

ISTA 320 *Applied Data Visualization* \_\_\_\_\_ 3 \_\_\_\_\_

ISTA 321 *Data Mining and Discovery* \_\_\_\_\_ 3 \_\_\_\_\_

OR ISTA 322 *Data Engineering* \_\_\_\_\_ 3 \_\_\_\_\_

OR ISTA 331 *Principles and Practice of Data Science* \_\_\_\_\_ 3 \_\_\_\_\_

Major Electives

Elective courses must be upper division (300 or 400 level)

Minimum of 22 units of upper division Bioinformatics electives

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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.

**4 Year Plan with Calculus Placement**

<b>Fall</b>	<b>14</b>	<b>Spring</b>	<b>17</b>
CHEM 141	3	CHEM 142	3
CHEM 145	1	CHEM 146	1
MATH 122A	1	MATH 263	3
MATH 122B	4	ISTA 130	4
ECOL 296B	1	ENGL 102	3
ENGL 101	3	Gen Ed	3
UNV 101	1		

<b>Fall</b>	<b>16</b>	<b>Spring</b>	<b>13</b>
CHEM 241A	3	CHEM 241B	3
ECOL 182 R	3	MCB 181R	3
ECOL 182 L	1	MCB 181L	1
ISTA 116	3	ISTA 320	3
Gen Ed	3	Gen Ed	3
Gen Ed	3		

<b>Summer</b>	<b>2</b>
CHEM 243 A	1
CHEM 243 B	1

<b>Fall</b>	<b>17</b>	<b>Spring</b>	<b>15</b>
ECOL 320	4	ECOL 335	4
ISTA 321	3	ECOL 346	4
OR 322 OR 331		Major Elective	3
Major Elective	3	Language 102	4
Major Elective	3		
Language 101	4		

<b>Fall</b>	<b>15</b>	<b>Spring</b>	<b>13</b>
Major Elective	3	Major Elective	3
Major Elective	3	Major Elective	3
Major Elective	3	Gen Ed	3
Major Elective	3	Gen Ed	3
Gen Ed	3	UNIV 301	1

**Total Units                    120**

\*Must reach 120 total units

**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.

**4 Year Plan with MATH 112 Placement**

<b>Fall</b>	<b>11</b>	<b>Spring</b>	<b>18</b>
MATH 112	3	CHEM 141	3
ENGL 101	3	CHEM 145	1
ECOL 296B	1	MATH 120R	4
UNIV 101	1	ENGL 102	3
Gen Ed	3	ISTA 130	4
		Gen Ed	3

<b>Fall</b>	<b>16</b>	<b>Spring</b>	<b>13</b>
MATH 122A	1	MCB 181R	3
MATH 122B	4	MCB 181L	1
CHEM 142	3	CHEM 241A	3
CHEM 146	1	ISTA 320	3
ECOL 182R	3	MATH 263	3
ECOL 182L	1		
ISTA 116	3		

<b>Fall</b>	<b>14</b>	<b>Spring</b>	<b>18</b>
ECOL 320	4	ECOL 335	4
CHEM 241B	3	ECOL 346	4
ISTA 321	3	Gen Ed	3
OR 322 OR 331		Major Elective	4
Major Elective	4	Gen Ed	3

<b>Summer</b>	<b>2</b>
CHEM 243 A	1
CHEM 243 B	1

<b>Fall</b>	<b>16</b>	<b>Spring</b>	<b>14</b>
Language 101	4	Language 102	4
Major Elective	3	Major Elective	3
Major Elective	3	Major Elective	3
Gen Ed	3	Major Elective	3
Gen Ed	3	UNIV 301	1

**Total Units            120**

<u>Graduation Requirements</u>				
<input type="checkbox"/> 120 total units	<input type="checkbox"/> 42 upper division units	<input type="checkbox"/> 30 units or more completed at UA	<input type="checkbox"/> 2.00 or higher cum & major GPA	<input type="checkbox"/> 56 university units
<input type="checkbox"/> Major Complete	<input type="checkbox"/> General Education Complete	<input type="checkbox"/> MCWA Complete- A grade of B or higher in ENGL 102, 108 or 109H OR with ENGL 308.		