

BIOSC	Cr	Grade	Notes
0150 Intro Bio I (UHC0715)	3		
0160 Intro Bio II (UHC0716)	3		
0350 Genetics (UHC0355)	3/4		
1540 Computational Bio	3		
1810 Macromolecular	3		
CS			
0401 Int. Prog Java *	4		
0441 Discrete Structures	3		
0445 Data Structures	3		
1501 Algorithm Implem	3		

\* Students without a programming background are encouraged to take Introduction to Programming CS 0007 prior to CS 0401.

CHEM	Cr	Grade	Notes
0110 General Chem 1	4		
0120 General Chem 2	4		
0310 Organic Chem 1	3		
0320 Organic Chem 2	3		
MATH / STAT			
Math 0220 Calculus I	4		
Stat 1000 Applied Stats	4		
Stat 1221 Regression	3		
Interdisciplinary			
BIOSC/CS 1640 Bioinf. Software Design	3		
BIOSC 1903/CS 1950 Undergraduate Research*	4		

\* Taken as variable credits over multiple terms as early as sophomore year. Research must be pre-approved by Kirk Pruhs or Paula Grabowski.

Electives (12 cr total)	Cr	Grade	Notes
See list on other side			
	3		
	3		
	3		
	3		
WRIT: with CS 1501 or 1510	0		

### Foundational Skills Requirements

Comp Int \_\_\_\_\_ Sem in Comp \_\_\_\_\_

CAS Writ \_\_\_\_\_ 2nd Writ \_\_\_\_\_ (in your major)

Algebra \_\_\_\_\_ Quant \_\_\_\_\_

### General Education Requirements

Lit \_\_\_\_\_

Music/Art \_\_\_\_\_

CEX \_\_\_\_\_

Phil \_\_\_\_\_

Soc Sci \_\_\_\_\_

Hist \_\_\_\_\_

Natural Sciences \_\_\_\_\_ Fulfilled by major

For. Lang. \_\_\_\_\_

IF 1 \_\_\_\_\_

IF 2 \_\_\_\_\_

IF 3 \_\_\_\_\_

IF Non-Western \_\_\_\_\_

Any Non-Western course fills 2 Gen Ed req's – itself and one other.

### **Grade and QPA requirements:**

A grade of C (not C-) or better is required in all major courses.

A minimum GPA of 2.0 in all major courses taken is required for graduation.

If a C- or lower is earned in an elective course for the major but is not repeated, the course will be used to calculate the overall GPA but will not be counted toward the 12 elective credits required for the major.

Need 120 credits TOTAL for any Bachelor's Degree

**Departmental WRIT Courses**

These courses have sections to fulfill the WRIT requirement for the Bioinformatics Major:

CS 1510 Algorithm Design  
CS 1501 Algorithm Implementations

**Approved Elective Courses****Term Offered****Pre-Req****Biological Sciences (BIOSC)**

1820 Metabolic Pathways and Regulation	Sp	BIOSC 1810
1830 Biochemistry Laboratory	Sp	BIOSC 1820 <sup>c</sup>
1940 Molecular Biology	F	BIOSC 1000 or 1810
1950 Molecular Genetics Laboratory	F	BIOSC 1940 <sup>c</sup>
1500 Cell Biology	F	BIOSC 1000 or 1810
1545 Mathematics of Biology	Sp	ONE of: BIOSC 1000, 1810, 1080, 1250, 1500, 1540 or MATH 0280

**Chemistry (CHEM)**

1410 Physical Chemistry 1	F,Sp,Sm	MATH 0240, CHEM 0120, PHYS 0111 or 0175
1420 Physical Chemistry 2	F,Sp,Sm	CHEM 1410
1460 Intro Modern Computational Science	Sp	CHEM 0320
0250 Intro Analytical Chemistry	F,Sp,Sm	CHEM 0120

**Computer Science (CS)**

1510 Algorithm Design	F	CS 1501, CS 1502
1515 Scientific Computation	every other year	CS 0445; Math 0230, Math 0118 or Math 0280
1520 Programming Languages for Web Applications	F,Sp,Sm	CS 0445
1555 Database Management Systems	F,Sp,Sm	CS 0441, 0445
1566 Intro. Computer Graphics	once/year	CS 0445, 0447; Math 0280 or instructor's permission
1571 Intro to Artificial Intelligence	F	CS 1501, 1502 (or equivalent)
1645 Intro to High Performance Computing Systems	every other year	CS 0449

**Statistics (STAT)**

1301 Statistical Packages	infrequently	STAT 1221
1311 Applied Multivariate Analysis	infrequently	STAT 1221
1321 Applied Time Series	infrequently	STAT 1221

<sup>c</sup> = co-req

**Bioinformatics Major Notes:**

- 1) Research must be **PRE**-approved by Kirk Pruhs or Paula Grabowski.
- 2) With approval of the Bioinformatics Program Committee, may take electives in other departments.
- 3) It is possible to earn a CHEM or STAT minor by taking a several extra courses. See Advisor for more info.
- 4) Students who have completed CS 0401 may not enroll in CS 0004, 0007 or 0110.
- 5) BIOSC 1000 cannot be substituted for BIOSC 1810.
- 6) CHEM 1810 can only be substituted for BIOSC 1810 if it is not possible for the student to schedule BIOSC 1810.
- 7) No Bioinformatics major courses may be taken on an S/NC basis.
- 8) Bioinformatics advising is available in both the Department of Biological Sciences and the Department of Computer Science. Bioinformatics majors must select an official advisor from on of the two departments.