

**Bioinformatics Option  
(For students entering in Fall 2009)**

<b>Freshman Year/Fall Semester</b>	<b>Cr.</b>	<b>Freshman Year/Spring Semester</b>	<b>Cr.</b>
__42.101 College Writing I	3	__42.102 College Writing II	3
__81.111 Principles of Biology I	3	__81.112 Principles of Biology II	3
__81.117 Experimental Biology I	1	__81.118 Experimental Biology II	1
__84.121 Chemistry I	3	__84.122 Chemistry II	3
__84.123 Chemistry I Lab	1	__84.124 Chemistry II Lab	1
___. (Gen. Ed.) Social Science	<u>3</u>	__92.131 Calculus I	<u>4</u>
	<b>14</b>		<b>15</b>
<b>Sophomore Year/Fall Semester</b>	<b>Cr.</b>	<b>Sophomore Year/Spring Semester</b>	<b>Cr.</b>
__81.201 General Microbiology	3	__81.252 Physiology	3
__81.203 General Microbiology Lab	2	__81.254 Physiology Lab	2
__84.221 Organic Chemistry I-A	3	__84.222 Organic Chemistry II-A	3
__84.229 Organic Chemistry I-A Lab	1	__84.230 Organic Chemistry II-A Lab	1
__91.101 Computing I	4	__91.102 Computing II	4
__92.132 Calculus II	<u>4</u>	___. (Gen. Ed) Arts/Humanities	<u>3</u>
	<b>17</b>		<b>16</b>
<b>Junior Year/Fall Semester</b>	<b>Cr.</b>	<b>Junior Year/Spring Semester</b>	<b>Cr.</b>
__45.401 Bioeth. & Genet. Res. **	3	__81.____ Biology Elective***	3/4
__81.335 Principles of Genetics	3	__81.405 Bioinformatics	3
__81.337 Experimental Genetics	1	__81.407 Bioinformatics Lab	1
__81.419 Biochemistry	3	____. Statistics Elective	3
__81.421 Biochemistry Techniques	2	__92.321 Discrete Structures I	<u>3</u>
__91.201 Computing III	<u>4</u>		<b>13</b>
	<b>16</b>		
<b>Senior Year/Fall Semester</b>	<b>Cr.</b>	<b>Senior Year/Spring Semester</b>	<b>Cr.</b>
__81.451 Senior Seminar in Adv. Topics	1	__81.452 Senior Seminar in Adv. Topics	1
__91.xxx Computing Elective <sup>1</sup>	3/4	__95.104/144 Physics II	3
__95.103/141 Physics I	3	__96.104/144 Physics II Lab	1
__96.103/141 Physics Lab I	1	__81.412 Senior Research OR	
		Biology Elective***	3/4
__81.300/400 Biology Elective***	3/4	___. (Gen Ed) Arts/Humanities	3
OR Senior Research (81.411)		___. (Gen Ed) Social Science	<u>3</u>
___. (Gen Ed.) Social Science	<u>3</u>		<b>14/15</b>
	<b>14/15</b>		

**Minimum Total Credits = 120-121**

\* Consult the *Schedule of Classes* booklet regarding General Education (Gen. Ed.) requirements. The General Education Electives may be taken in any order. The department will determine which courses you should take to fulfill the University's Gen. Ed. requirements in Ethics (E) & Diversity (D).

\*\*\*Two of those 3 Biology electives must have a laboratory component (4 credits each). Courses at the 500 level also may be taken with permission.

**\*\* Replaces one Arts//Humanities (ethics) general education course.**

***College of Arts & Sciences:  
Bachelor of Science in Biological Sciences  
BIOINFORMATICS OPTION***

**Required Upper-Level Biology Courses:**

1. Biochemistry Techniques (81.421)
2. Informatics Elective: Bioinformatics Tools with Laboratory (81.105 & 81.407), Biocheminformatics (8\_.467) or other appropriate courses as they become available.

**Electives:**

Students in the Bioinformatics Option may choose any of the 300, 400, or 500 level courses (with permission) that have an “81” prefix. However, for students specifically interested in BIOTECHNOLOGY or BIOMEDICAL Applications of Bioinformatics, the following electives are considered especially suitable:

*300-400 Level:*

1. Recombinant DNA Techniques (81.467 & 81.469)
2. Cell Culture (81.476 & 81.478)
3. Immunology (81.493 & 81.495)
4. BiochemInformatics (8\_.467)
5. Biochemistry II (81.420)

*500 Level (with permission)*

1. Developmental Biology (81.580)
2. Isolation and Purification of Biotech Products (81.545)
3. Principles of Cell and Microbe Cultivation (81.535)
4. Biopharmaceutical GMP and Licensing (81.555)
5. Biotechnology Processing Projects Laboratory (81.586)

*Designated Bioinformatics Computing Electives:*

1. Analysis of Algorithms (91.404)
2. Databases I (91.309)
3. Computing IV (91.204)