

## Chemistry Major with ACS-Certified\* Biochemistry Concentration

This program is designed for the student who wishes to pursue a career as a professional chemist in the area of biochemistry and the biological sciences. \*We anticipate that it will meet the requirements for ACS certification.

Below is a suggested schedule of courses. This information is provided as a guide and does not supersede information provided by advisors or the Bulletin. Each student will develop a specific course schedule in consultation with their departmental advisor. For details of all the University, College and Departmental requirements for graduation, students should consult the Bulletin.

**75 semester hours** is required (not including General Education requirements). (F, S and Sum indicates that this course is usually offered in Fall, Spring and Summer semesters.)

### Freshman Year:

Chem 105 (General Chem I; 3 ch; F, S and Sum)  
Chem 105L (General Chem I Lab; 1 ch; F, S and Sum)  
Chem 106 (General Chem II; 3 ch; F, S and Sum)  
Chem 106L (General Chem II Lab; 1 ch; F, S and Sum)  
Biol 101 (Principles of Biology I; 3 ch; F and Sum)  
Biol 101L (Principles of Biology Lab; 1 ch; F and Sum)  
Biol 102 (Principles of Biology II; 3 ch; S and Sum)  
Biol 102L (Principles of Biology II Lab; 1 ch; S and Sum)  
Math 131 (Calculus I; 4 ch; F, S and Sum)

### Sophomore Year:

Chem 351 (Organic Chem I; 3 ch; F and Sum)  
Chem 351L (Organic Chem I Lab; 1 ch; F and Sum)  
Chem 352 (Organic Chem II; 3 ch; S and Sum)  
Chem 352L (Organic Chem II Lab; 1 ch; S and Sum)  
Chem 321 (Analytical Chem; 4 ch; S)  
Chem 321L (Analytical Chem Lab; 0 ch; S)  
Physics 205 (General Phys I; 4 ch; F,)  
Physics 205L (General Phys I Lab; 1 ch; F)  
Physics 206 (General Phys II; 4 ch; S)  
Physics 206L (General Phys II Lab; 1 ch; S)  
Math 132 (Calculus II; 4 ch; F, S, and Sum)

### Junior Year:

Chem 355 (Organic Chem Lab Techniques; 2 ch; S)  
Chem 461 (Physical Chem I; 4 ch; F)  
Chem 461L (Physical Chem I Lab; 1 ch; F)  
Chem 341 (Inorganic Chemistry; 3 ch; S)  
Two from: Biol 330/330L (General Physiology; S); Biol 374/374L (Cellular and Molecular Biology; S);  
Biol 380/380L (Genetics; F)

### Senior Year:

Chem 431 (Biochemistry I, 3 ch; F)  
Chem 431L (Biochemistry I Lab; 1 ch; F)  
Chem 432 (Biochemistry II; 3 ch; S)  
Chem 405 (Senior Seminar in Chemistry; 1 ch; S)

**Advanced Electives** (3 ch required): Three hours of advanced electives from Chemistry are required. Chem 421, 340, 462, 495, 499, and other courses offered on alternate years will count (See class schedule or consult your advisor to find when these courses will be offered.) Chem 330 and 399 cannot be used as advanced electives.

## ACS-Certified<sup>1</sup> Biochemistry Concentration Curriculum - 2012-13

The degree courses are in boldface. The plan below is only a suggested sequence, but courses must be taken with observance of prerequisites. Prerequisites are indicated in brackets.

	Fall	Spring
Freshman	<b>Chem 105</b> [see catalog for <b>3</b> <b>Chem 105L</b> [math recommend.] <b>1</b> <b>Biol 101</b> <b>3</b> <b>Biol 101L</b> <b>1</b> English course <sup>2</sup> <b>3</b> (Basic skills course if needed <sup>2</sup> , Univ 101, or move one FS here ) <b>3</b> 14	<b>Chem 106</b> [Chem 105/105L] <b>3</b> <b>Chem 106L</b> <b>1</b> <b>Math 131</b> <sup>2</sup> [appropriate math <b>4</b> skills] <b>Biol 102</b> [Chem 105] <b>3</b> <b>Biol 102L</b> <b>1</b> Comm 101 <b>3</b> 15
Sophomore	<b>Chem 351</b> [Chem 105/L] <b>3</b> <b>Chem 351L</b> <b>1</b> <b>Math 132</b> [Math 131] <b>4</b> <b>Phys 205</b> [Math 131] <b>4</b> <b>Phys 205L</b> <b>1</b> Found. Stud. course <b>3</b> 16	<b>Chem 352</b> [Chem 351] <b>3</b> <b>Chem 352L</b> [Chem 351L] <b>1</b> <b>Phys 206</b> [Phys 205, Math 132] <b>4</b> <b>Phys 206L</b> <b>1</b> <b>Chem 321/321L</b> [Chem 106/L] <b>4</b> Found. Stud. course <b>3</b> 16
Junior	<b>Chem 461</b> [Chem 321, Math 132] <b>4</b> <b>Chem 461L</b> [Chem 321] <b>1</b> <b>Biol 330/L, 374/L, or 380/L</b> <sup>3</sup> <b>4</b> Eng 305T <b>3</b> PE 101 or HLTH 111 (3 ch) <b>2</b> Found. Stud. course <b>3</b> 17	<b>Chem 341</b> [Chem 352] <b>3</b> <b>Biol 330/L, 374/L, or 380/L</b> <sup>3</sup> <b>4</b> <b>Chem 355</b> [Chem 352] <b>2</b> Option <b>3</b> Found. Stud. course <b>3</b> 15
Senior	<b>Chem 431</b> [Chem 352] <b>3</b> <b>Chem 431L</b> <b>1</b> <b>Advanced elect</b> <sup>4</sup> <b>3</b> Found. Stud. courses (3) <b>9</b> 16	<b>Chem 432</b> [Chem 431] <b>3</b> <b>Chem 405</b> <b>1</b> Found. Stud. courses (2) <b>6</b> Option <b>5</b> 15

[Prerequisite]      [Pre- or Co-requisite]

- At this time, we anticipate that this will become an ACS-approved curriculum.
- Specific requirements are determined by proficiencies met upon entering. One basic skills course is built into this schedule, but you may need more. You may need one semester of English (107) or two (101 & 105). You may need to add language courses. You may need to start with a lower-level math course before Math 131 (Calculus). Additional courses reduce the number of "Option" courses later in the curriculum. Two Foundational Studies UDIE courses may be replaced by completion of a minor or second major. (A Biology minor can be completed by taking *all* of the five Biology courses listed above, and BIOL 350/350L.)
- Check catalog for biology prerequisites. Biol 380 is normally offered in the Fall; 330 and 374 in the Spring.
- Three hours advanced chemistry electives required; additional courses are your choice, as needed to complete University graduation requirement of 124 credits. Chem 495 and 499 can be taken for variable credit.