

**2004-2005**  
**BIOCHEMISTRY MAJOR – BACHELOR OF SCIENCE DEGREE**  
**MEDICINAL CHEMISTRY CONCENTRATION**  
**DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY**

<b>MAJOR REQUIREMENTS</b>					<b>ALTERNATIVE SEQUENCE</b>				
<i>Course</i>	<i>Title</i>	<i>Hrs</i>	<i>Tr</i>	<i>UD</i>	<i>Course</i>	<i>Title</i>	<i>Hrs</i>	<i>Tr</i>	<i>UD</i>
CHM 117	Gen Chem. Majors	4			CHM 113	General Chem.	4		
CHM 118	Gen Chem. Majors	4			CHM 115	General Chem. (or CHM 116)	5		
CHM 317	Organic Chem. Majors	3			CHM 331	General Organic Chem.	3		
CHM 319	Organic Chem. Lab Majors	1			CHM 335	General Organic Chem. Lab	1		
CHM 318	Organic Chem. Majors II	3			CHM 332	General Organic Chem.	3		
CHM 320	Org Chem. Lab Majors II	1			CHM 336	General Organic Chem. Lab	1		
CHM 341	Elem Physical Chem.	3							
CHM 343	Elem Physical Chem. Lab	1							
CHM 433	Advanced Organic Chem.	3							
CHM 435	Medicinal Chemistry	3							
BCH 461	General Biochemistry	3							
BCH 462	General Biochemistry	3							
BCH 463	Biophysical Chemistry	3							
BCH 467	Analytical Biochem. Lab	3							
BCH/CHM	Elective	3							
<b>Related Courses</b>									
MBB 245	Cellular and Molecular Bio.	3							
MBB 246	Cellular and Mole Bio. Lab	1							
BIO 353	Cell Biology	3							
BIO 360	Animal Physiology	3							
MAT 270	Calculus w/Geometry I	4							
MAT 271	Calculus w/Geometry II	4							
PHY 111	General Physics	3							
PHY 113	General Physics Lab	1							
PHY 112	General Physics	3							
PHY 114	General Physics Lab	1							

Electives: **BCH 465 CHM 434, 453**

BIO 187 General Biology I (or BIO 188) 4

**Major must include minimum of 67 hours, 12 hours upper division at ASU, "C" minimum in all upper division courses**

<b>UNIVERSITY GENERAL STUDIES</b>	<b>COLLEGE OF LIBERAL ARTS &amp; SCIENCES</b>
<b>First Year Comp</b> ("C" minimum) _____ _____  <b>Literacy/Critical Inquiry (L)</b> _____ <b>Literacy/Critical Inquiry</b> (upper division satisfied by BCH 467) <b>Mathematical Studies (CS)</b> _____  <b>Mathematical Studies (MA)</b> (satisfied by major)  <b>Humanities/Fine Art (HU)</b> (6-9 hours, HU and SB must total 15 hours) _____ _____ _____  <b>Social Behavioral Sciences (SB)</b> (6-9 hours, one HU or SB must be upper division) _____ _____ _____  <b>HU and SB Awareness Areas</b> (must cover all three) Cultural (C) _____ Global (G) _____ Historical (H) _____	<b>Second Language</b> _____ (proficiency through intermediate level, "C" min.)  <b>Humanities</b> (6 hours, upper division, choose from: AFH, CSH, ENG, HPS, HUM, PHI, REL, WSH) <i>All second language literature or civilization courses.</i> <i>Can NOT double count with University General Studies.</i> _____ _____  <b>Social Behavioral Sciences</b> (6 hours, upper division choose from: AFS, ASB, CSS, ECN, GCU, HST, PGS, POS, SOC, WST <b>except for WST 413, 464 and 470</b> ) <i>Can NOT double count with University General Studies.</i> _____ _____  <b>Bridge Course</b> (to view refer to: <a href="http://clas.asu.edu/students/roadmap/degreerequirements/">http://clas.asu.edu/students/roadmap/degreerequirements/</a> )  <b>Natural Science/Mathematics</b> (satisfied by major)

**Required: 120 total hours, 45 upper division hours, 30 hours in residence at ASU, 2.00 minimum GPA**

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CATALOG 2004-2005

The schedule presented below is a model program of study that includes all the departmental requirements for courses in chemistry and related subjects. It presents a sequence that accommodates prerequisites for the required courses. Students and advisers should recognize that the order of courses in this outline is a model program and many other plans will work as well.

Year 1

Semester (Fall)	hours	Semester (Spring)	hours
CHM 117 General Chem. - Majors	4	CHM 118 General Chem. - Majors	4
MAT 270 Calculus w/Geom. I	4	MAT 271 Calculus w/Geom. II	4
ENG 101 First-year Comp.	3	ENG 102 First-year Comp.	3
		+ MBB 245 Cellular and Mole. Bio.	3
		+ MBB 246 Cellular and Mole. Bio. Lab	1
*Non-major	<u>3-6</u> 14-17	*Non-major	<u>3-6</u> 14-17

Year 2

Semester (Fall)	hours	Semester (Spring)	hours
CHM 317 Organic Chem. - Majors	3	‡BIO 360 Animal Physiology	3
CHM 319 Org. Chem. Lab - Majors	1	CHM 318 Organic Chem. - Majors	3
PHY 111 Physics	3	CHM 320 Org. Chem. Lab Majors	1
PHY 113 Physics Lab	1	PHY 112 Physics	3
		PHY 114 Physics Lab	1
*Non-major	<u>6-9</u> 14-17	*Non-major	<u>3-6</u> 14-17

Year 3

Semester (Fall)	hours	Semester (Spring)	hours
BIO 353 Cell Biology	3	BCH 462 General Biochemistry	3
CHM 341 Elem. Physical Chem.	3	BCH 463 Biophysical Chem.	3
CHM 343 Elem. Physical Chem. Lab	1	BCH 467 Analytical Biochem. Lab	3
BCH 461 General Biochemistry	3		
*Non-major	<u>6</u> 15	*Non-major	<u>6</u> 15

Year 4

Semester (Fall)	hours	Semester (Spring)	hours
CHM 433 Advanced Org Chem. I	3	CHM 435 Medicinal Chemistry	3
		@ CHM/BCH elective	3
*Non-major or Electives	<u>12</u> 15	*Non-major or Electives	<u>12</u> 15

\* Non-major courses: Courses that satisfy university general studies and College of Liberal Arts and Sciences graduation requirements and any other interests the student chooses to pursue.

@ May be taken any semester to complete the chemistry hours requirement. NOTE: only 3 hrs. of credit for CHM/BCH elective is required.

+ BIO 187 (4) or 188 (4) may be taken in place of the combination of MBB 245 and 246. Those students planning to apply to medical school or pharmacy school are strongly encouraged to take both BIO 187 (4) and 188 (4) in place of MBB 245 and 246.

‡ BIO 340 (4) may be taken in place of BIO 360 (3). Students planning to apply to medical school or pharmacy school are strongly encouraged to take both BIO 340 (4) and BIO 360(3).