

3150:02 BIOCHEMISTRY

Bachelor of Science

NOTE TO STUDENT: A student is expected to be familiar with the degree requirements. The following information has official approval of the Department of Chemistry but is intended only as a guide. **Freshman Year: A prospective major is urged to contact the Department of Chemistry during the freshmen year to schedule an appointment with an adviser in that department.** Official degree requirements are established at the time of admission to the degree-granting college.

FIRST YEAR

<u>Fall Semester</u>	<u>Semester Credit Hours</u>	<u>Prerequisites</u>
3150:151 Principles of Chemistry I (Lect. & Recitation) (Note d.)	3	Placement in 3450:149 or higher or permission
3150:152 Principles of Chemistry I Lab (Note d.)	1	3150:151 (co-req.)
3450:149 Precalculus Math (Note a.)	4	Placement Test or 3450:145 1
English Composition Requirement (Note b.)	4	Appropriate Placement by Adviser
3100:111 Principles of Biology I (Lecture and Lab)	4	
Speech/ Oral Communication (Note b.)	<u>3</u>	
	19	

Spring Semester

3150:153 Principles of Chemistry II (Lect. & Recitation) (Note d.)	3	3150:151 & 152
3150:154 Qualitative Analysis (Note d.)	2	3150:151, 152; 3150:153 (co-req.)
3450:221 Analytic Geometry-Calculus I	4	3450:149 or Placement Test
English Composition Requirement (Note b.)	3	
3100:112 Principles of Biology II	4	
Physical Education/Wellness (Note b.)	<u>1-3</u>	
	17-19	

SECOND YEAR

Fall Semester

3150:263 Organic Chemistry Lecture I (Note d.)	3	3150:153, 154
3150:265 Organic Chemistry Lab I (Note d.)	2	3150:263 (co-req.)
3150:265 Organic Chemistry I Discussion (Note d.)	0	3150:263 (co-req.)
3450:222 Analytic Geometry-Calculus II	4	3450:221
3650:261 Physics for Life Sciences I (Lect. & Lab)	4	
3100:211 General Genetics	3	3100:112
3100:212 General Genetics Lab	<u>1</u>	3100:112
	17	

Spring Semester

3150:264 Organic Chemistry Lecture II (Note d.)	3	3150:263
3150:266 Organic Chemistry Lab II (Note d.)	2	3150:263; 3150:264 (co-req.)
3150:266 Organic Chemistry I Discussion II (Note d.)	0	3150:263; 3150:264 (co-req.)
3400:210 Humanities in the Western Tradition I	4	32 credits and completion of 3300:112
3650:262 Physics for Life Sciences II (Lect. & Lab)	4	3650:261
Social Sciences Requirement (Note b..) -OR-		
Language Requirement (Note c.)	<u>3</u>	Appropriate Placement by Adviser
	16	

POLICY ALERT: 1) By the end of your first 48 credit hours attempted, you must have completed your General Education English, Math, and Communications (Speech) requirements; 2) By the end of your first 48 credit hours attempted, you must have declared a major and transferred to (been accepted by) a degree granting college at The University of Akron.

NOTES:

- a. All Chemistry majors should take the Math Placement Test. Those who qualify should begin with Analytic Geometry-Calculus I, 3450:221.
- b. Please see the General Education Guide <http://www.uakron.edu/advising/docs/GEN-EDUC.pdf>
- c. **A student who plans to enter the Cooperative Education Program in chemistry should plan to take the foreign language in the first two years.** Completion of the second year of a foreign language or demonstrated equivalent competence is required.
- d. Students must receive a letter grade of C- or better in all required Chemistry courses, as well as a minimum GPA of 2.0 in Chemistry courses. If a student does not earn the required C- in a required Chemistry course, they need to repeat the course within one year. Having a letter grade of lower than a C- does not restrict the intercollege transfer as long as the Chemistry GPA is the minimum 2.0

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GENERAL INFORMATION: Biochemistry is the science at the interface of the physical sciences and the life sciences and deals with the nature and properties of the molecules found in living organisms. Some of the major activities of biochemists include:

1. Determining the structure, properties and composition of the molecules of living organisms.
2. Investigating the laws that govern the interactions of biomolecules.
3. Preparing materials that have specific biological activities and find practical uses for them.

Nearly one-half of all biochemists are engaged in research and development. Nearly one-fourth are engaged in management and administration. Many biochemists are also involved in teaching, sales, and consulting.

* The employment outlook for biochemists is expected to be good in the next decade. Starting salary for an individual with a Bachelor of Science in Biochemistry is in the \$40,000 to \$42,000 a year range. * Source: American Society for Biochemistry and Molecular Biology.

The B.S. degree in biochemistry is designed for a student intending to pursue graduate studies in biochemistry or a related science or to pursue an industrial or governmental research career in biochemistry. The degree is an excellent preparation for professional schools in dentistry, pharmacy, and medicine. However, a person may wish to use a good biochemical background for future work in fields that connect chemistry with other disciplines, e.g., technical sales, patent law, company management, and environmental sciences. A student needs, in addition to biochemistry, courses in such topics as economics, chemical engineering, polymer science, physics, and statistics.

The student should be aware also that a good route to admission to medical, dental, or pharmacy school is through a major in biochemistry. The B.S. in biochemistry provides a solid background which is attractive to the professional schools during the selection process. In the B.S. program, the student can fulfill all of the prerequisites for admission to medical school.

PLACEMENT: A student is encouraged to check with his/her major department and with the Center for Career Management, Simmons Hall 301, regarding employment opportunities in the field.

ARTS & SCIENCES: Degree requirements in the College of Arts & Sciences include the completion of the second year of a foreign language at the college level (in most majors), and 47 semester credits of 300/400 level courses, not including workshops or courses that meet the Humanities in the Western Tradition or Area Studies and Cultural Diversity (World Civ) requirements. (3450:221, 222, 223, 235; 3650:291, 292 & Physics for Life Science will be counted towards the 47 credits.)

TRANSFER TO THE DEPARTMENT OF CHEMISTRY (COLLEGE OF ARTS & SCIENCES): A student should apply to the College of Arts & Sciences to enter the Department of Chemistry upon completion of 30 credits and a 2.0 or better overall GPA (including transfer work). In addition, the student must have achieved a 2.0 in all coursework in the major field (including transfer work). The 30 credits must include the completion of both English Composition courses and the General Education requirement level of mathematics. As well, a student entering the Department of Chemistry must obtain a grade of C- or better in all required Chemistry courses. This transfer process is completed through an appointment with an academic adviser, the Academic Advisement Center, Simmons Hall 205, 330-972-7430, or Summit College, Polsky 301, (330) 972-7220, depending upon the college in which you reside.