BIOCHEMISTRY 315002BS

The following information has official approval of the **Department of Chemistry**, but is intended only as a supplemental guide. Official degree requirements are established at the time of transfer and admission to the degree-granting college. *Completion of this degree within the identified time frame below is contingent upon many factors, including but not limited to: class availability, total number of required credits, work schedule, finances, family, course drops/withdrawals, successfully passing courses, prerequisites, among others.* The transfer process is completed through an appointment with your academic advisor.

Italicized courses fulfill General Education requirements. Unless a course is specified, refer to the General Education guide at http://www.uakron.edu/advising/docs/General_Education_Guide.pdf.

1st Year	Fall Semester	Credit Hours	Prerequisites
	English Composition I Requirement (Note b)	3	Appropriate placement by advisor
3100:111	Principles of Biology Lecture and Lab	4	3150:151, prerequisite or corequisite
3150:151	Principles of Chemistry I Lecture	3	3450:145 (College Algebra) with C- or better
3150:152	Principles of Chemistry I Lab	1	3150:151, prerequisite or corequisite
3450:149	Precalculus	4	3450:145 (College Algebra) or appropriate placement by Advisor
Total		**15**	

1st Year	Spring Semester		
	English Composition II Requirement (Note b)	3	3300:111 or equivalent
3100:112	Principles of Biology II Lecture and Lab	4	3100:111
3150:153	Principles of Chemistry II Lecture	3	3150:151
3150:154	Qualitative Analysis Lab	2	3150:152, prerequisite; 3150:153, corequisite
3450:221	Analytical Geometry Calculus I	4	3450:149 with C- or better
Total		**16**	

2nd Year	Fall Semester		
3150:263	Organic Chemistry I Lecture	3	3150:153
3150:265	Organic Chemistry I Lab	2	3150:154, prerequisite; 3150:263, corequisite
3100:211	General Genetics Lecture	3	3100:112
3100:212	General Genetics Lab	1	3100:211, prerequisite or corequisite
3450:222	Analytical Geometry Calculus II	4	3450:221 with C- or better
3650:261	Physics for Life Sciences Lecture & Lab	4	3450:149, corequisite
Total		**17**	

2nd Year	Spring Semester		
3150:264	Organic Chemistry II Lecture	3	3150:263
3150:266	Organic Chemistry II Lab	2	3150:265
3650:262	Physics for Life Sciences II Lecture & Lab	4	3650:261
	Speech/Oral Communication Requirement	3	
	Physical Education/Wellness Requirement	1	
Total		**13**	

3rd Year	Fall Semester		
3150:305	Physical Chemistry for Biosciences	4	3150:264, 3450:222, 3650:262 or 3650:292
3150:401	Biochemistry I Lecture	3	3150:264
3100:311	Cell and Molecular Biology	3	3100:211, 3150:151, 3150:152, 3150:153 and 3150:154.
7700:101	Beginning Language I (Note a) **-OR-** American Sign Language I	4 **or** 3	
	Social Science Requirement	3	
Total		**16-17**	

3rd Year	Spring Semester		
3100:480	Molecular Biology	4	3100:211 and 3100:311
3150:402	Biochemistry II Lecture	3	3150:401
7700:102	Beginning Language II (Note a) **-OR-** American Sign Language II	4 **or** 3	Beginning Language I or 7700:101
3400:210 **or** 3400:221	*Humanities in the Western Tradition* ***-OR-*** *Humanities in the World Since 1300*	4	32 credits & 3300:112 or equivalent 32 credits & 3300:112 or equivalent
3150:370	Biochemistry Laboratory	2	3150:266
Total		**16-17**	

4th Year	Fall Semester		
3150:305	Advanced Chemistry Lab III	2	3150:264, 3450:222, 3650:262 or 3650:292
3150:3/4xx	Upper Level Chemistry Electives	4	
	Electives	4	
7700:201	Intermediate Language I **-OR-** American Sign Language III	3	Beginning Language II **or** 7700:102
	Social Science Requirement	3	
	Humanities Requirement	3	
Total		**19**	

4th Year	Spring Semester		
3100:485, 486	Cell Physiology & Lab	4	3100:112 and 3150:401
7700:202 7700:222	Intermediate Language II **-OR-** American Sign Language IV **AND** Survey of Deaf Culture in America	3 **or** 3 2	Intermediate Language I **or** 7700:201 Sign Language students only
	Humanities Requirement	3	
	Area Studies/ Cultural Diversity Requirement	2	
	Area Studies/ Cultural Diversity Requirement	2	
3150:3/4xx	Upper Level Biochemistry Elective	4	
Total		**18-20**	

	Total Credits for Degree	**Min 128**	

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.

Student must obtain a grade of C- or better in all required chemistry courses. If a grade of less than C- is obtained in a required chemistry course, the student must successfully repeat the course within a year.

Notes:

a. Demonstration of ability to use another language by completion of the second year of a foreign language or sign language is required. See your advisor for placement. Please note that all four semesters must be completed in the SAME language and it's recommended you begin your first language class as soon as possible.

b. For English Composition I, 3300:111 (English Composition I) or 3300:113 (African-American Language and Culture I) are the recommended classes to the meet the General Education English requirement. 2020:121 (English) fulfills the English Composition I requirement. For English Composition II, 3300:112 (English Composition II) or 3300:114 (African-American Language and Culture II) are the recommended classes to the meet the General Education English requirement. 2020:222 (Technical Report Writing) fulfills the English Composition II requirement.

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.

Students can take either Physics for Life Sciences I & II (3650:261 & 262) – OR - Elementary and Classical Physics I & II (3650: 291 & 292)

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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 Career Center, Student Union 211, regarding employment opportunities in the field.

COLLEGE OF ARTS & SCIENCES:
Degree requirements in Arts & Sciences include the demonstration of ability to use another language by completion of the second year of a foreign language or sign language and a minimum of 47 credits of 300/400 level courses (excluding workshops and General Education courses) consisting of either:

- Upper level (300/400) courses both in and outside the student's major
- Any courses outside the major department as specified in and approved by the student's major department chair (permission should be obtained prior to enrollment) except workshops and General Education courses

(3450:221, 222, 223, 235; 3650:291, 292 & Physics for Life Science will be counted towards the 47 credits)

TRANSFER TO COLLEGE OF ARTS & SCIENCES: Students should apply to the college upon the attainment of:

- ✓ a cumulative GPA of 2.0 or better (includes transfer coursework until 30 credits are earned at UA)
- ✓ a major GPA of 2.0 or better (includes transfer coursework until 30 credits are earned at UA)
- ✓ 30 credits completed including both required English composition courses and 3 credits of mathematics or statistics that meets the General Education requirement

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.

Students can arrange inter-college transfers through an appointment with their academic advisor; advisor contact information is listed in "My Akron."

(Booker)