

<b>STUDENT:</b>	<b>STUDENT ID NUMBER:</b>
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*MAJOR PROGRAM*

<b>Required Chemistry</b>		
COURSE	CR	GRADE
CHM 100: GENERAL CHEMISTRY I	4	
CHM 102: GENERAL CHEMISTRY II	4	
CHM 214: ORGANIC CHEMISTRY I	4	
CHM 216: ORGANIC CHEMISTRY II	4	
CHM 230: ANALYTICAL CHEMISTRY I	4	
CHM 310: BIOCHEMISTRY I	4	
CHEM 312: BIOCHEMISTRY II	4	
CHM 314: PHYSICAL CHEMISTRY I	4	
CHM 380: SENIOR SEMINAR IN CHEM.	2	
<b>TOTAL CREDITS</b>	<b>34</b>	

<b>Required Biology</b>		
COURSE	CR	GRADE
BIO 104: PRINCIPLES OF BIOLOGY	4	
BIO 106: INTRO TO ZOOLOGY OR BIO 108: INTRO TO BOTANY	4	
<b>TOTAL CREDITS</b>	<b>8</b>	

<b>Genetics / Molecular Bio.</b>		
COURSE	CR	GRADE
BIO 216: GENETICS OR BIO 346: MOLECULAR BIOLOGY	3	
<b>TOTAL CREDITS</b>	<b>3</b>	

<b>Cell Electives</b>		
SELECT ONE COURSE	CR	GRADE
BIO 350: CELL BIOLOGY BIO 354: DEVELOPMENTAL BIOLOGY BIO 356: IMMUNOLOGY	3	
<b>TOTAL CREDITS</b>	<b>3</b>	

<b>Chemistry Electives</b>		
COURSE	CR	GRADE
CHM 3XX:	3-4	
CHM 3XX:	3-4	
CHM 3XX:	3-4	
CHM 37X: RESEARCH IN CHEMISTRY *	1-4 *	
CHM 39X: CHEMISTRY ELECTIVE	1-4 *	
<b>TOTAL CREDITS</b>	<b>4-10 **</b>	

<b>Biology Electives</b>		
COURSE	CR	GRADE
ANY COURSE FROM REQ. BIO. OR CELL ELECTIVES IF NOT USED TO FULFILL THOSE REQUIREMENTS	3	
BIO 224: APPL. ENV. MICROBIOLOGY	3	
BIO 228: HUMAN PHYSIOLOGY	3	
BIO 232: PLANT PHYSIOLOGY	3	
BIO 300: COMPARATIVE ANIMAL PHYSIOLOGY	3	
BIO 306: FOOD MICROBIOLOGY	3	
BIO 330: HISTOLOGY	3	
BIO 336: MEDICAL MICROBIOLOGY	3	
BIO 370: RESEARCH IN BIOLOGY *	1-3 *	
BIO 390: INTERNSHIP IN BIOLOGY	3-6 *	
BIO 460: CANCER BIOLOGY	3	
<b>TOTAL CREDITS</b>	<b>0-6 **</b>	

<b>Physics</b>		
COURSE	CR	GRADE
PHY 100: PHYSICS I	***	
PHY 102: PHYSICS II	4	
<b>TOTAL CREDITS</b>	<b>8</b>	

<b>Mathematics</b>		
COURSE	CR	GRADE
MAT 181: CALCULUS	***	
MAT 182: CALCULUS	***	
<b>TOTAL CREDITS</b>	<b>8</b>	

<b>Free Electives</b> <small>CHOOSE ANY COURSES THAT COUNT TOWARDS GRADUATION</small>		
COURSE	CR	GRADE
<b>TOTAL CREDITS</b>	<b>1-16</b>	

\* THE COMBINED CREDIT TOTAL TOWARD THE MAJOR PROGRAM FOR CHM 37X & BIO 370 MAY NOT EXCEED 4 CREDITS.

\*\* THE COMBINED CREDITS BETWEEN CHEMISTRY ELECTIVES AND BIOLOGY ELECTIVES SHOULD TOTAL 10 CREDITS WITH A MINIMUM OF 4 FROM CHEMISTRY ELECTIVES.

\*\*\* COURSES REQUIRED FOR THE MAJOR, BUT MAY BE USED TO SATISFY GEN ED REQUIREMENT UNDERSTANDING SCIENCE AND TECHNOLOGY.

<b>GRADUATION REQUIREMENTS</b>						
		<b>REQUIRED</b>	<b>✓</b>		<b>REQUIRED</b>	<b>✓</b>
	GENERAL EDUCATION CREDITS	<b>42-45</b>		COMPREHENSIVE EXAM	<b>PASS</b>	
	PROGRAM CREDITS (MINIMUM)	<b>75</b>		MINIMUM QPA OVERALL	<b>2.0</b>	
	ELECTIVES	<b>1-16</b>		MINIMUM QPA IN MAJOR	<b>2.0</b>	
	TOTAL CREDITS	<b>120</b>				

NAME	
EFFECTIVE DATE FALL 2018 GENERAL EDUCATION VERSION 2188	

# KUTZTOWN

## UNIVERSITY

### DEGREE REQUIREMENTS

## GENERAL EDUCATION

### Student Learning Outcomes (SLO)

*Upon completion of the requirements for the General Education Program, students will be able to:*

- 1 communicate clearly and effectively orally and in writing.
- 2 apply scientific and quantitative reasoning to solve problems and increase knowledge.
- 3 apply skills in critical analysis and reasoning for the interpretation of data.
- 4 engage critically with creative or artistic works.
- 5 demonstrate the ability to retrieve, interpret, evaluate, and use information.
- 6 analyze the role of values, ethics, diversity, and multiple perspectives in local and global society.
- 7 demonstrate an understanding of various models for the development of the whole person.
- 8 explore concepts, ideas, and methods from a variety of disciplines.

*Use this checklist to plan your degree program. Meet every semester with your academic advisor to be sure that you are taking courses that are required to attain the degree you are seeking. Discuss your goals and choose courses that will help you to attain them. Get the most out of your education by taking advantage of everything that Kutztown University has to offer.*

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**TOTAL GENERAL EDUCATION CREDITS 42-45**

FIND A FULL EXPLANATION OF THE GENERAL EDUCATION PROGRAM AT [WWW.KUTZTOWN.EDU](http://WWW.KUTZTOWN.EDU)

<b>First Year Seminar: Discovering College</b>		CREDITS REQUIRED <b>3</b>	
THESE COURSES MEET SLO 5 & 7		CREDITS EARNED:	
COURSE NUMBER	COURSE NAME	GR	CR
FYS 100	First Year Seminar		
TRANSFER STUDENTS TRANSFERRING 30 CREDITS OR MORE AND NOT TRANSFERRING AN FYS OR FYE COURSE MAY SELECT ANY APPROVED GENERAL EDUCATION COURSE TO MEET THEIR FYS REQUIREMENT.			
TRANSFER ELECTIVE:			

A	<b>Communicating With And About the World</b>		CREDITS REQUIRED <b>12</b>	
	THESE COURSES MEET SLO 1 & 5		CREDITS EARNED:	
COURSE NUMBER	COURSE NAME	GR	CR	
1	COMPOSITION 100 LEVEL CMP 1__			
2	COMPOSITION 200 LEVEL CMP 2__			
3	SPEAKING			
4	ANY WRITING (A2) OR SPEAKING COURSE (A3) OR FROM THE APPROVED LIST			

COURSES IN CATEGORIES B, C & D MUST BE TAKEN OUTSIDE THE STUDENT'S MAJOR. THE MAJOR IS DEFINED AS THE PREFIX THAT IDENTIFIES THE MAJOR. CONCOMITANT REQUIREMENTS MAY BE TAKEN TO MEET GENERAL EDUCATION REQUIREMENTS.

B	<b>Understanding Self &amp; Others</b>		CREDITS REQUIRED <b>9</b>	
	THESE COURSES MEET SLO 3 & 6		CREDITS EARNED:	
COURSE NUMBER	COURSE NAME	GR	CR	
1				
2				
3				

C	<b>Understanding Science &amp; Technology</b>		CREDITS REQUIRED <b>9-12</b>	
	THESE COURSES MEET SLO 2 & 3		CREDITS EARNED:	
COURSE NUMBER	COURSE NAME	GR	CR	
1	SCIENTIFIC INQUIRY			
2	QUANTITATIVE REASONING			
3	ANY COURSE APPROVED FOR C1 OR C2			

D	<b>Understanding &amp; Creating Ideas</b>		CREDITS REQUIRED <b>9</b>	
	THESE COURSES MEET SLO 4 & 6		CREDITS EARNED:	
COURSE NUMBER	COURSE NAME	GR	CR	
1				
2				
3				

## B.S. Biochemistry Example 4-Year Schedule

### Freshman Year

Fall Semester	Cr
CHM100 - Gen Chem I	4
BIO104 - Principles of Biology	4
MAT 105 – College Algebra MAT106 - Trigonometry, MAT115 - Precalculus, or MAT181 - Calculus I <sup>a</sup>	3 - 4
FYS100 - First Year Seminar	3
Total	14 - 15

Spring Semester	Cr
CHM102 - Gen Chem II	4
BIO106 - Intro. to Zoology <sup>b</sup>	4
MAT181 - Calculus I or MAT182 - Calculus II <sup>a+c</sup>	4
Gen Ed A1 (CMP1XX)	3
Total	15

### Sophomore Year

Fall Semester	Cr
CHM214 - Organic Chem I	4
PHY100 - Physics I <sup>a</sup>	4
MAT182 - Calculus II <sup>a+c</sup>	4
Gen Ed A2 (CMP2XX)	3
Total	15

Spring Semester	Cr
CHM216 - Organic Chem II	4
PHY102 - Physics II	4
BIO216 - Genetics	3
Gen Ed A3	3
Total	14

### Junior Year

Fall Semester	Cr
CHM310 - Biochemistry I	4
CHM230 - Analytical Chem I	4
Gen Ed A4	3
Gen Ed B1	3
Free Elective <sup>e</sup>	3
Total	17

Spring Semester	Cr
CHM312 - Biochemistry II	4
CHM Elective <sup>d</sup>	4
Gen Ed B2	3
Gen Ed D1	3
Free Elective <sup>e</sup>	3
Total	17

### Senior Year

Fall Semester	Cr
CHM314 - Physical Chem I	4
BIO or CHM Elective <sup>d</sup>	3 – 4
Gen Ed B3	3
Gen Ed D2	3
Free Elective	3
Total	16 – 17

Spring Semester	Cr
CHM380 - Senior Seminar	2
BIO or CHM Elective <sup>d</sup>	3 - 4
Cellular Biology Elective	3
Gen Ed D3	3
Free Elective	3
Total	14 -15

- a. Each of these courses also meets Gen Ed category C.
- b. Instead of BIO106 in the Spring Freshman Year; BIO108 - Intro. to Botany could be taken in the Fall.
- c. Students may be at a different level of Calculus, but should continue within the MAT sequence depending on initial mathematics course taken.
- d. 4-10 Cr (credits) are required for CHM electives, 0-6 Cr are required for BIO electives (see below).

- e. Pre-health profession students may want to take BIO 121 and BIO 122 (Anatomy and Physiology I and II) or BIO 264 and BIO 235 (Comparative Anatomy and General Physiology) as free electives in the Fall and Spring of the third or fourth year.

### Chemistry Electives (4-10 Cr required)<sup>f</sup>

Course	Cr
CHM 316 - Physical Chem II	4
CHM 318 - Adv Biochemistry	3
CHM 320 - Adv Inorganic Chem	4
CHM 326 - Adv Organic Chem	3
CHM 336 - Adv Physical Chem	3
CHM 340 - Analytical Chem II	4
CHM 351 - Selected Topics	1 - 3
CHM 352 - Selected Topics	1 - 3
CHM 353 - Selected Topics	1 - 3
CHM 370 - Research in Chem I	1 – 3 <sup>g</sup>
CHM 371 - Research in Chem II	1 – 3 <sup>g</sup>
CHM 372 - Research in Chem III	1 – 3 <sup>g</sup>
CHM 373 - Research in Chem IV	1 – 3 <sup>g</sup>
CHM 390 - Internship in Chem	1 - 4

### Biology Electives (0-6 Cr required)<sup>f</sup>

Course	Cr
BIO216 - Genetics	3
BIO346 - Molecular Biology	3
BIO350 - Cell Biology	3
BIO354 - Developmental Biology	3
BIO356 - Immunology	3
BIO235 - General Physiology	3
BIO224 - Appl Env Microbiology	3
BIO300 - Comparative Animal Physiology	3
BIO306 - Food Microbiology	3
BIO 330 - Histology	3
BIO 336 - Medical Microbiology	3
BIO 370 - Research in Biology	1 – 3 <sup>g</sup>
BIO 390 - Internship in Biology	3 - 6

f. Some of these electives (CHM and BIO) are not offered every semester.

g. The sum total of CHM370, CHM371, CHM372, CHM373 & BIO 370 may not exceed 4 credits toward the major program.

Note that a minimum of 120 Cr are required for graduation (42-45 Cr Gen Ed, 75-78 Cr Major).