

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses and milestones designated as critical (in boldface and shaded areas) must be completed in the semester listed to ensure a timely graduation.

Course Subject and Title	Credit Hours	Upper Div.	Min. Grade	Major GPA	Important Notes
<b>Semester One: [14-15 Credit Hours]</b>					
<b>BSCI 10120 Biological Foundations</b>	4			■	<b>Fulfills Kent Core Basic Sciences</b>
<b>CHEM 10060 General Chemistry I</b>	4			■	<b>Fulfills Kent Core Basic Sciences</b>
<b>CHEM 10062 General Chemistry I Laboratory</b>	1			■	<b>Fulfills Kent Core Basic Sciences</b>
MATH 12002 Analytic Geometry and Calculus I <b>or</b> MATH 12021 Calculus for Life Sciences	4-5			■	MATH 12002 fulfills Kent Core Mathematics and Critical Reasoning
US 10097 Destination Kent State: First Year Experience	1				Not required for transfer students with 25 credits
<b>Semester Two: [15 Credit Hours]</b>					
BSCI 30140 Cell Biology	4	■		■	See note 1 on page 2
BTEC 10210 Introduction to Biotechnology	3			■	
CHEM 10061 General Chemistry II	4			■	Fulfills Kent Core Additional
CHEM 10063 General Chemistry II Laboratory	1			■	Fulfills Kent Core Basic Sciences
Kent Core Requirement	3				See Kent Core Summary on page 2
<b>Semester Three: [18 Credit Hours]</b>					
BSCI 30171 General Microbiology	4	■		■	
CHEM 20481 Basic Organic Chemistry I	4			■	
PHIL 21001 Introduction to Ethics	3			■	Fulfills Kent Core Humanities and global diversity requirements
Foreign Language (Elementary I)	4-5				Fulfills College General Requirement
Kent Core Requirement	3				See Kent Core Summary on page 2
<b>Semester Four: [16 Credit Hours]</b>					
BSCI 30156 Elements of Genetics	3	■		■	
CS 10051 Introduction to Computer Science	4			■	Fulfills Kent Core Mathematics and Critical Reasoning or Additional depending on course taken in semester 1
PHY 13001 General College Physics I	4			■	Fulfills Kent Core Additional if CS 10051 fulfills Kent Core Mathematics and Critical Reasoning
PHY 13021 General College Physics Laboratory I	1			■	
Foreign Language (Elementary II)	4-5				Fulfills College General Requirement
<b>Semester Five: [15 Credit Hours]</b>					
BSCI 40158 Molecular Biology	3	■		■	
BUS 10123 Exploring Business	3			■	
MATH 30011 Basic Probability and Statistics <b>or</b> MATH 12022 Probability and Statistics for Life Sciences	3			■	Take MATH 30011 if MATH 12002 was taken; take MATH 12022 if MATH 12021 was taken
Kent Core Requirement	3				See Kent Core Summary on page 2
General Elective	3				
<b>Semester Six: [16 Credit Hours]</b>					
CHEM 30284 Introductory Biological Chemistry	4	■		■	
PHIL 30015 Medicine and Morality	3	■		■	
Kent Core Requirement	3				See Kent Core Summary on page 2
Kent Core Requirement	3				
Approved Elective (upper-division)	3	■			See note 2 on page 2
<b>Summer III: [2-6 Credit Hours]</b>					
BTEC 40192 Internship in Biotechnology <b>or</b> BTEC 40196 Individual Investigation in Biotechnology	2-6	■		■	Registration for internship requires program director approval and is dependent on the availability of internship sites; BTEC 40192 fulfills experiential learning requirement

Critical requirements are boldface in shaded areas

Course Subject and Title	Credit Hours	Upper Div.	Min. Grade	Major GPA	Important Notes
<b>Semester Seven: [16 Credit Hours]</b>					
BTEC 40191 Seminar: Recent Developments in Biotechnology	1	■		■	
BTEC 40210 Case Studies in Biotechnology	3	■		■	
BTEC 40220 Bioinformatics	3	■		■	
CHEM 40248 Advanced Biological Chemistry	3	■		■	
Kent Core Requirement	3				See Kent Core Summary below
Approved Elective (upper-division)	3	■			See note 2 below
<b>Semester Eight: [9-11 Credit Hours]</b>					
BTEC 40192 Internship in Biotechnology or BTEC 40196 Individual Investigation in Biotechnology	4-6	■		■	Registration for internship requires program director approval and is dependent on the availability of internship sites
CHEM 40251 Advanced Biological Chemistry Laboratory	2	■	C	■	Fulfills writing-intensive course requirement
Approved Elective (upper-division)	3	■			See note 2 below

### Graduation Requirements Summary

Minimum Total Hours	Minimum Upper-Division Hours	Minimum Kent Core Hours	Global / Domestic Diversity Course	Writing-Intensive	Experiential Learning	Minimum Major GPA	Minimum Overall GPA
121	42	36	Kent Core	CHEM 40251	BTEC 40192 or visit <a href="http://www.kent.edu/catalog/elr">www.kent.edu/catalog/elr</a>	2.000	2.000

### Kent Core Summary

Kent Core Categories	Important Notes	Remaining Credit Hours
<b>Composition (6-8 credit hours)</b> <i>ENG 11002, 11011, 21011; HONR 10197, 10297</i>	Enrollment based on placement test	6-8
<b>Mathematics and Critical Reasoning (3-5 credit hours)</b>	Fulfilled in this major with MATH 12002 or CS 10051	0
<b>Humanities and Fine Arts (9 credit hours)</b> <i>Minimum one course from humanities in Arts and Sciences and minimum one course from fine arts</i>	3 credits fulfilled in this major with PHIL 21001; may fulfill domestic diversity requirement	6
<b>Social Sciences (6 credit hours)</b> <i>Must be selected from two curricular areas</i>	May fulfill domestic diversity requirement	6
<b>Basic Sciences (6-7 credit hours)</b> <i>Must include one laboratory</i>	Fulfilled in this major with BSCI 10120, CHEM 10060, CHEM 10062	0
<b>Additional (6 credit hours)</b>	Fulfilled in this major with CHEM 10061 and CS 10051 or PHY 13001	0

**Note 1:** Biotechnology majors are not required to take BSCI 10110 as a prerequisite for BSCI 30140; BSCI 30140 and CHEM 10061/10063 may be taken in the same semester; contact the Biotechnology Director or Department of Biological Sciences for a prerequisite override.

**Note 2:** **Approved electives** (9 credit hours), choose from the following:

BSCI 30518 Vertebrate Anatomy	4	CHEM 30301 Inorganic Chemistry I	2
BSCI 40143 Eukaryotic Cell Biology	3	CHEM 30475 Organic Chemistry Laboratory I	1
BSCI 40164 Molecular Systematics and Phylogenetics	4	CHEM 40567 Basic Concepts in Physical Chemistry	4
BSCI 40174 Immunology	3	PSYC 41363 Biopsychology	3
CHEM 30105 Analytical Chemistry I	3	Upper-division courses approved by program director	1-9
CHEM 30107 Analytical Chemistry Laboratory I	1		

**Note:** All courses taken from the list of major program requirements are used in the calculation of the major GPA.

### Kent Core

Students must complete a minimum 36 credit hours of the Kent Core. Certain courses required in programs and in student's major field may also fulfill the Kent Core. Honors equivalents shall satisfy the Kent Core. None of the courses on the Kent Core list may be taken with a pass/fail grade. Visit [www.kent.edu/catalog/kent-core](http://www.kent.edu/catalog/kent-core) for course list.



**Diversity Course Requirement**

Students must complete a two-course diversity requirement, consisting of one with a domestic (U.S.) focus and one with a global focus. One course must come from the Kent Core. The second course may be taken as a second Kent Core, within a major or minor, or as a general elective; or, with dean's approval, by completing one semester of study in another country. Visit [www.kent.edu/catalog/diversity](http://www.kent.edu/catalog/diversity) for course list.

**Writing-Intensive Course Requirement**

Students must complete a one-course writing-intensive requirement in their major and earn minimum C (2.000) grade. Visit [www.kent.edu/catalog/wic](http://www.kent.edu/catalog/wic) for course list.

**Experiential Learning Requirement (ELR)**

To provide students with direct engagement in learning experiences that promote academic relevance, meaning and an understanding of real-world issues, students must complete this requirement at Kent State, either as a for-credit course or as a non-credit, non-course experience approved by the appropriate faculty member. Visit [www.kent.edu/catalog/elr](http://www.kent.edu/catalog/elr) for course list.

**Upper-Division Requirement**

Students must complete a minimum 39 upper-division (numbered 30000 to 49999) credit hours of coursework. Programs in the College of Arts and Sciences require a minimum of 42 hours of upper-division coursework.

**Foreign Language**

Visit [www.kent.edu/catalog/foreign-languages](http://www.kent.edu/catalog/foreign-languages) for course list.

