

The Pennsylvania State University
 Department of Biochemistry & Molecular Biology
 BIOTECHNOLOGY MAJOR – Clinical Laboratory Science Option
 Course Requirements (For students entering Fall 2012 and later)

1. GENERAL EDUCATION			
ARTS (6 cr)			
	(GA)	3	
	(GA)	3	
	(GA)	3	
HUMANITIES (6 cr)			
	(GH)	3	
	(GH)	3	
	(GH)	3	
SOCIAL & BEHAVIORAL SCIENCES (6 cr)			
	(GS)	3	
	(GS)	3	
	(GS)	3	
Students may petition to substitute 3 credits from one of the above knowledge domains for 3 credits in another domain, thereby substituting 9-6-3 credit pattern for the default 6-6-6 pattern in these general education courses.			
COMMUNICATIONS (GWS) (9 cr)			
^ ENGL 015 or 030; Rhetoric & Comp		3	
^ CAS 100 A, B, or C: Effective Speech		3	
^ ENGL/CAS 137H (fall) and 138T (spring) - Honor students first-year experience in place of ENGL30/CAS100.			
ENGL 202C: Technical Writing		3	
HEALTH & PHYSICAL ACTIVITIES (3 cr)			
(GHA or GHS or GPE)			
(GHA or GHS or GPE)			
(GHA or GHS or GPE)			
WRITING ACROSS THE CURRICULUM (3 cr)			
		3	
US/INTERNATIONAL CULTURES (6 cr)			
(US)			
(IL)			
2. REQUIREMENTS FOR THE MAJOR			
CHEMISTRY (8 cr)			
CHEM 110 (H): Chemical Principles I - "C" required		3	
CHEM 111: Experimental Chemistry I - "C" required		1	
CHEM 112 (H): Chemical Principles II - "C" required		3	
CHEM 113: Experimental Chemistry II		1	
BIOCHEMISTRY & MOLECULAR BIOLOGY (6 cr)			
BMB 211: Elementary Biochem		3	
BMB 212: Elementary Biochem Lab		1	
BMB 221: Applied Biochemistry		2	
MICROBIOLOGY (52 cr)			
MICRB 201: Intro. Microbiology		3	
MICRB 202: Intro. Microbiology Lab		2	
MICRB 251: Molecular & Cell Biology I		3	
MICRB 252: Molecular & Cell Biology II		3	
MICRB 410: Principals of Immunology		3	
MICRB 412: Medical Microbiology		3	
MICRB 421W: Lab Gen/Applied Micro		3	
MICRB 422: Medical Microbiology Lab		2	
MICRB 405 A-F Seminar/Practicum		30	
MATHEMATICS (8 cr)			
MATH 140: Calculus I - "C" required		4	
MATH 141: Calculus II		4	
BIOLOGY (3 cr)			
BIOL 322: Genetic Analysis		3	
PHYSICS (8 cr)			
PHYS 250: Intro Physics I		4	
PHYS 251: Intro Physics II		4	
FIRST YEAR SEMINAR (1 cr)			
PSU 016: First Year Seminar		1	

3. ELECTIVES IN THE MAJOR			
Select 6 or 8 credits from chemistry sequence:			
CHEM 210 (H): Organic Chemistry I		3	
CHEM 212 (H): Organic Chemistry II		3	
CHEM 213: Organic Chemistry Lab		2	
or			
CHEM 202: Fund. of Organic Chem I		3	
CHEM 203: Fund. of Organic Chem II		3	
4. LIST C FREE ELECTIVES			
Select 1-3 credits from department list			
Total			
LIST C FREE ELECTIVES - With the EXCEPTION of the courses listed below, ALL courses appearing in the University Bulletin are acceptable as elective courses: 6 credits of ROTC may be applied toward graduation requirements. Students MAY NOT fulfill this requirement with lower level or general education courses in math and science (including but not limited to examples such as: any BI SC course, any B M B course below the 100 level, MATH 110 and 111, and the like). Students MAY NOT fulfill this requirement with courses that significantly repeat material from courses required for the major, (including but not limited to examples such as: CHEM 202 or 203 after taking CHEM 210 or 212, or vice-versa; PHYS 250 or 251 after taking PHYS 211, 212, 213, and 214, or vice-versa; and so forth). Students MAY NOT fulfill this requirement with remedial courses (including but not limited to examples such as: LL ED 005 and 010; ENGL 004, 005, and 006; CHEM courses below CHEM 110; MATH courses below MATH 110; STAT 100; PHYS courses below PHYS 211; and the like).			
5. TO GRADUATE			
A "C" grade or better is required in 2 of the following 3 courses. All 3 courses required.			
MICRB 201: Intro. Microbiology		3	
MICRB 251: Molecular & Cell Biology		3	
MICRB 252: Molecular & Cell Biology		3	
Total ≥		9	
+			
Earn "C" or higher in 9 credits of any 400-level MICRB/BMB/BIOTC courses except BMB 442, 443W, 444, 445W, 446, 488, 496, MICRB 421W, 422, 447			
Total ≥ 9			
6. ENTRANCE TO MAJOR			
2.0 GPA is required			
CHEM 110 (H): Chemical Principals		3	
CHEM 111: Experimental Chemistry I		1	
CHEM 112 (H): Chemical Principals II		3	
MATH 140: Calculus I		4	
A student enrolled in this major must receive a grade "C" or better in the following courses specified by Senate Policy 82-44			
7. REMEDIAL & REPEATS			
Courses that do not meet degree requirements			
8. SENATE POLICY 83-80			
Source/Time Credit acquisition:			
36 of last 60 credits at PSU?			
60 credits in last 5 years?			
9. GPA/CREDITS			
Overall GPA must be ≥ 2.0			
Total credits earned (less repeats and remedial); must have at least 125 credits to graduate).			
10. University Activities/Awards			
11. Program Exceptions			