

Recommended Academic Plan
Biotechnology General Option (BIOTC Gen at UP)
Effective Fall 2012 or later

Semester 1	Credits	Semester 2	Credits
~ MATH 140 (GQ) Calculus with Analytic Geometry I	4	MATH 141(GQ) Calculus with Analytic Geometry II	4
~ CHEM 110(GN) Chemical Principles	3	~ CHEM 112(GN) Chemical Principals	3
~ CHEM 111 (GN) Experimental Chemistry	1	CHEM 113 (GN) Experimental Chemistry	1
PSU 016 First-Year Seminar	1	% MICRB 201 Introductory Microbiology	3
^ ENGL 15 (30) Rhetoric and Composition (GWS)	3	MICRB 202 Introductory Microbiology Laboratory	2
Arts (GA), Humanities (GH) or Social Behavioral Sciences (GS)	3	^ CAS 100 A, B, or C (GWS) Effective Speech	3
Total Credits:	15	Total Credits:	16
Semester 3	Credits	Semester 4	Credits
CHEM 202 (must be taken in sequence with CHEM 203) <i>or</i> CHEM 210 Organic Chemistry (must be taken in sequence with CHEM 212 & 213)	3	CHEM 203 (must be taken in sequence with CHEM 202) <i>or</i> CHEM 212 Organic Chemistry CHEM 213 Organic Chemistry (must be taken in sequence with CHEM 210 & 212)	3 3 2
% BMB 251 Molecular & Cell Biology I	3	% BMB 252 Molecular & Cell Biology II	3
PHYS 250 (GN) Introduction Physics I	4	PHYS 251 (GN) Introductory Physics II	4
Arts (GA), Humanities (GH) or Social Behavioral Sciences (GS)	3	BIOL 322 Genetic Analysis	3
± LIST C FREE ELECTIVES	3		
Total Credits:	16	Total Credits:	13-15
Semester 5	Credits	Semester 6	Credits
BMB 211 Elementary Biochemistry	3	BMB 221 Applied Biochemistry	2
MICRB 410 Principles of Immunology	3	BIOTC 459 Plant Tissue Culture & Biotechnology	3
MICRB 421W Laboratory of General & Applied Microbiology	3	BMB 442 Lab in Proteins, Nucleic Acids, & Molecular Cloning	3
± LIST C FREE ELECTIVES	3	ENGL 202C Technical Writing	3
Arts (GA), Humanities (GH) or Social Behavioral Sciences (GS)	3	Health & Physical Activity (GHA)	1.5
Health & Physical Activity (GHA)	1.5	STAT 250 (GQ) Introduction to Biostatistics	3
Total Credits:	16.5	Total Credits:	15.5
Semester 7	Credits	Semester 8	Credits
BIOTC 416 Microbial Biotechnology	2	Arts (GA), Humanities (GH) or Social Behavioral Sciences (GS)	3
Arts (GA), Humanities (GH) or Social Behavioral Sciences (GS)	6	# 400 LEVEL ELECTIVE	3
BIOTC 489 Animal Cell Culture Methods	3	BIOTC 479 Methods in Biofermentations	3
# 400 LEVEL ELECTIVE	3	± LIST C FREE ELECTIVES	5-7
± LIST C FREE ELECTIVES	3		
Total Credits:	17	Total Credits:	14-16

- **Bold** type indicates courses requiring a quality grade of C or better.
- *Italic type* indicates courses that satisfy both major and General Education requirements.
- **Italic Bold** type indicates courses requiring a quality grade of C or better and that satisfy both major and General Education requirements.
- GWS, GHA, GQ, GN, GA, GH, and GS are codes used to identify General Education requirements.
- US, IL, and US;IL are codes used to designate courses that satisfy University United States/International Cultures requirement.
- W is the code used to designate courses that satisfy University Writing Across the Curriculum requirements.
- ~ indicates courses required to enter into this major.
- % indicates all 3 courses are required to graduate; a quality grade of C or better is required in 2 of the 3 courses.
- # any 400 level Biochemistry & Molecular Biology (BMB), Microbiology (MICRB), or Biotechnology (BIOTC) lecture course or Food Science (FD SC) 408.
- ± indicates see the Department List for exclusions see reverse side
- ^ indicates honor students should schedule ENGL/CAS 137H in the fall and ENGL/CAS 138T in the spring. The sequence should be completed in the first year.
- To graduate, all students must earn a C or higher in 9 credits of any 400-level BMB/ MICRB/BIOTC courses except BMB 442, 443W, 444, 445W, 446, 488, 496, MICRB 421W, 422, 447

Scheduling patterns for courses not taught each semester

Fall - only taught courses: BMB 251H, 400, 401H, 428, 430, 443W, 448, 464 BMB/MICRB 435, 450 MICRB 401, 413, 421W and MICRB/BIOTC 416

Spring - only taught courses: BMB 221, 252H, 402H, 433, 437, 445W, 474 BMB/MICRB 432, 460, 480 MICRB 201H, 412, 415, 422, 447

± **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).