

Recommended Academic Plan
Biotechnology General Option (BIOTC Gen at UP)
Effective (For students entering Summer 2010 and 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	ENGL 15 OR 30 (GWS) Composition/Honors Composition	3
Arts (GA), Humanities (GH) or Social Behavioral Sciences (GS)	6	PHYS 250 (GN)Introduction Physics I	4
Total Credits:	15	Total Credits:	15
Semester 3	Credits	Semester 4	Credits
CHEM 202 (must be taken in sequence with CHEM 203) or CHEM 210 Organic Chemistry (must be taken in sequence with CHEM 212 & 213)	3	CHEM 203 (must be taken in sequence with CHEM 202) or 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 251 (GN)Introductory Physics II	4	%MICRB 201 Introductory Microbiology	3
Arts (GA), Humanities (GH) or Social Behavioral Sciences (GS)	3	MICRB 202 Introductory Microbiology Laboratory	2
± LIST C FREE ELECTIVES	3	BIOL 322 Genetic Analysis	3
Total Credits:	16	Total Credits:	14-16
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
CAS 100 A, B, or C (GWS) Effective Speech	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
- To graduate, all students must earn a C or higher in 9 credits of any 400-level BMB/ MICRB/BIOTC courses except BMB 443W, 444, 445W, 446 BMB/MICRB 442, 496, MICRB 421W, 422, 447

Scheduling patterns for courses not taught each semester

Fall - only taught courses: BMB 251H, 400, 401H, 428, 430, 443W, 446, 464 BMB/MICRB 435, 450 MICRB 401, 413, 421W and MICRB/BIOTC 416 BIOTC 489

Spring - only taught courses: BMB 221, 252H, 402H, 433, 437, 444, 445W, 474, 497B BMB/MICRB 432, 460, 480 MICRB 201H, 412, 415, 422, 447 BIOTC 459, 460

± **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.

BI SC 001	BI SC 002	MATH 001	MATH 003	MATH 004	MATH 111	MATH 017
MATH 018	MATH 021	MATH 022	MATH 026	MATH 030	MATH 035	MATH 036
MATH 040	MATH 041	MATH 081	MATH 082	MATH 083	MATH 110	CHEM 001
CHEM 003	CHEM 108	CHEM 101	ENGL 004	ENGL 005	PH SC 007	PHYS 001
PHYS 150	PHYS 151	LL ED 005	LL ED 010	LL ED 123	STAT 100	