Minnesota State University Mankato

Academic Map Proposal

Proposal Number	13397
Create Date	4/7/16
Modified Date	4/29/16
Author	Penny Knoblich, penny.knoblich@mnsu.edu
Are you the contact for this proposal?	Yes
Does this proposal require approval from multiple Colleges or Departments?	No
College	Science, Engineering and Technology, Dean: Brian Martensen
Department	Biological Sciences, Chair: Penny Knoblich
Proposal Type	Academic Map
Full Program Name	Biotechnology BS
Award	BS
Emphasis	
Option	
Version Number	2
Version	Biotechnology
Version Explanation	Even numbered year
programType	Broad Major
Minor Required	No
Minor Specific	
Minor Specific	
Program Description	Biotechnology is the application of recent developments in technology to manipulate the genetic and biochemical characteristics of an organism so that the organism or its metabolites can be economically produced for our benefit. Careers include a wide variety of industrial applications, such as antibiotic and pharmaceutical; food; energy; agricultural pesticides; herbicides; fertilizers; growth chemicals and breeding programs; industrial chemicals, biocatalysts and diagnostics.
Admission Requirement	32 earned semester credit hours including BIOL 105 and BIOL 106, with a grade of a “C” or better in both BIOL 105 and BIOL 106; and a minimum cumulative GPA of 2.0.
Advising	Each student must meet with an advisor each semester. Following the meeting the student will be given an access code which allows the student to register for classes.
Program Notes	
Program Phone Number	(___) ___-____
Program Website(Url)	

Fall Year 1

Designator	Course Number	Course Name	Credits	Milestones
BIOL	105	General Biology I	4	Requires a C or better
MATH	121	Calculus I	4	
ENG	101	Composition	4	
		General Education Course	3	

Fall Year 1 Notes

General Education categories 1A, 2, 3, and 4, will be filled by required courses.

Spring Year 1

Designator	Course Number	Course Name	Credits	Milestones
BIOL	106	General Biology II	4	Requires a C or better
--- MATH HLTH STATS	--- 122 475 154	Choose one course: Calculus II OR Biostatistics OR Elementary Statistics	--- 4 3 3	
		Writing Intensive General Education Course	4	
		General Education Course	3-4	

Spring Year 1 Notes

You may apply to the major at the end of this term if 32 semester credit hours have been completed, BIOL 105 and 106 have been completed with a C or better, and the GPA is 2.0 or better.

Fall Year 2

Designator	Course Number	Course Name	Credits	Milestones
BIOL	211	Genetics	4	
CHEM	201	General Chemistry I	5	
PHYS	211	Principles of Physics I	4	
		General Education Course	2	

Fall Year 2 Notes

Spring Year 2

Designator	Course Number	Course Name	Credits	Milestones
BIOL	270	General Microbiology	4	
CHEM	202	General Chemistry	5	
PHYS	212	Principles of Physics II	4	
		General Education Course	2	

Spring Year 2 Notes

Fall Year 3

Designator	Course Number	Course Name	Credits	Milestones
BIOL	320	Cell Biology	4	
BIOL	453	Biological Engineering Analysis I	4	
CHEM	322	Organic Chemistry I	4	
CHEM	323	Supplemental Organic Chemistry	1	

		General Education Course	3	

Fall Year 3 Notes

Spring Year 3

Designator	Course Number	Course Name	Credits	Milestones
BIOL	452	Biological Instruments	3	
CHEM	360	Principles of Biochemistry	4	
BIOL	454	Biological Engineering Analysis II	4	
		General Education Course	4	

Spring Year 3 Notes

Apply for graduation one full year before your graduation date. 40 credits of upper division courses are required for graduation, (including biology courses).

Fall Year 4

Designator	Course Number	Course Name	Credits	Milestones
BIOL	474	Immunology	4	
--- BIOL BIOL BIOL	--- 456 497 499	Choose one course: Biotechnology Project/Laboratory I OR Internship I OR Individual Study	--- 3 3 3	
		Writing Intensive Course	4	
		Gold or Purple Course	4	

Fall Year 4 Notes

Two writing intensive courses (in addition to ENG 101) are required for graduation. Be sure all general education, diversity, and writing intensive requirements have been met.

Spring Year 4

Designator	Course Number	Course Name	Credits	Milestones
BIOL	476	Microbial Physiology and Genetics	5	
--- BIOL BIOL BIOL	--- 457 497 499	Choose one course: Biotechnology Project/Laboratory II OR Internship I OR Individual Study	--- 3 3 3	
BIOL 479	360	Molecular Biology	4	
		Purple Course	3	

Spring Year 4 Notes

Academic Map CheckList
Graduation Requirement

Minimum of 15 credits per semester
General Education = 44 credits
Writing Intensive = 2 courses (6 credits minimum)
Diverse Cultures = 2 course (6 credits minimum) from two disciplines
Major = 89 Credits
Upper-Division Requirements = 40 credits minimum
Total credits required for degree 120 Credits

Date	Action	**Role**	User	Comments
4/29/16			Knoblich, Penny	Created
4/29/16	Recommended	Chair of Biological Sciences	Knoblich, Penny	
4/29/16	Recommended	Dean of Science Engineering and Technology	Martensen, Brian	
5/22/16	Approved	Academic Affairs VP	Wells, Marilyn	

DARS Encoder **AgileGrad**