

TO: The Faculty of the College of Engineering
FROM: The School of Agricultural and Biological Engineering
RE Curriculum Changes - Biological Engineering Plan of Study

The faculty of the School of Agricultural & Biological Engineering have approved the following update to the curriculum for Biological Engineering. The requested consolidation provides a non-concentration option for Biological Engineering students.

Summary of Changes:

1. No changes to degree requirements. Establishes a general plan of study for students to earn a degree in Biological Engineering without a concentration.

Reasons:

1. The College of Agriculture has typically required a specific eight-semester plan of study and distinct degree requirements for every established major/concentration combination.
2. During the initial creation of the Biological Engineering concentrations a plan of study for students to earn the BE degree without a concentration was not created.
3. The College of Agriculture recently approved a “no-concentration” plan of study for Biological Engineering, an approach which more closely matches other College of Engineering degrees that utilize concentrations (Civil Engineering and Chemical Engineering).
4. This provides an opportunity for students to earn a degree in Biological Engineering without a specific concentration. Current procedures necessitate providing exceptions to established concentrations in order to validate degree audit tools like myPurduePlan.



Bernard A. Engel
Professor and Head
Agricultural and Biological Engineering Department

Date: February 8th, 2018

Biological Engineering

Suggested Arrangement of Courses:

Credits	Fall 1st Year	Prerequisite	Credits	Spring 1st Year	Prerequisite
4	CHM 11500 General Chemistry	pre/co: MA 16100/16500	4	CHM 11600 General Chemistry	CHM 11500
3-4	First-Year Composition Selective		3	COM 11400 Fundamentals of Speech or COM 21700 Science Writing and Presentation or EDPS 31500 Collaborative Leadership: Interpersonal Skills	
2	ENGR 13100 Transforming Ideas to Innovation I		3	CS 15900 Programming Applications for Engineers	ENGR 13100
4	MA 16500 Plane Analytic Geometry and Calculus I	ALEKS 85+	4	MA 16600 Plane Analytic Geometry and Calculus II	MA 16500
4	PHYS 17200 Modern Mechanics	co: MA 16500	2	ENGR 13200 Transforming Ideas to Innovation II	ENGR 13100
18			16		

Credits	Fall 2nd Year	Prerequisite	Credits	Spring 2nd Year	Prerequisite
4	ABE 20100 Thermodynamics of Biological Systems I	CHM 11600	3	ABE 20200 Thermodynamics of Biological Systems II of Biological Systems II	ABE 20100, MA 26100
1	ABE 29000 Sophomore Seminar		3	CHE 32000 Statistical Modeling and Quality Enhancement	p
4	Core Biology Selective		3	Life Science Selective	
4	CHM 25700 Organic Chemistry or (CHM 25500 and CHM 25501) [Organic Chemistry I and Organic Chemistry Lab I]	CHM 11600	4	MA 26200CC Linear Algebra and Differential Equations	MA 26100
4	MA 26100 Multivariate Calculus	MA 16600	3	UCC Humanities Selective	
17			16		

Credits	Fall 3rd Year	Prerequisite	Credits	Spring 3rd Year	Prerequisite
3	ABE 30300 Applications of Physics and Chemistry to Biological Processes	ABE 20200, CHM 25700, pre/co: ABE 30700	3	ABE 30100 Numerical and Computational Modeling in Biological Engineering	ABE 30700, MA 30300, CS 15900
3	ABE 30700 Momentum Transfer in Food and Biological Systems	ABE 20200, co: MA 30300	3	ABE 30400 Bioprocess Engineering Laboratory	Co: ABE 30300
3	ABE 37000 Biological/Microbial Kinetics and Reaction Engineering	CHM 25700, MA 26200, BIOL 22100	3	ABE 30800 Heat and Mass Transfer in Food and Biological Systems	ABE 30700
3	MA 30300 Partial Differential Equations for Engineering and the Sciences	MA 26200	3	ABE Engineering Selective	
4	Core Biology Selective		3	ABE 45700 Transport Operations in Food and Biological Engineering I	co: ABE 30300
			3	Economics Selective	
16			18		

Credits	Fall 4th Year	Prerequisite	Credits	Spring 4th Year	Prerequisite
3	ABE 46000 Sensors and Process Controls	MA 26200	3	ABE 55800 Process Design for Food and Biological Systems	ABE 55700
1	ABE 49000 Professional Practice in Agricultural and Biological Engineering	ABE 29000	3	Engineering Selective	
3	ABE 55700 Transport Operations in Food and Biological Engineering II	ABE 45700	3	Life Science or Engineering Selective	
3	Written or Oral Communication Selective		3	Humanities or Social Science Selective	
3	Humanities or Social Science Selective		3	Humanities or Social Science Selective (30000+ level)	
13			15		