Fall 2015

Biological Engineering: Food and Biological Processing Engineering

https://ag.purdue.edu/oap/Pages/major.aspx

129 credits required for graduation

	Credits	Course number	Course Title
Departmental/Program Major Courses (129 credits)			
Required Major Courses (45 credits)			
_____	4	ABE 20100	Thermodynamics of Biological Systems I
_____	3	ABE 20200	Thermodynamics of Biological Systems II
_____	1	ABE 29000	Sophomore Seminar
_____	3	ABE 30100	Numerical and Computational Modeling in Biological Engineering
_____	3	ABE 30300	Applications of Physics and Chemistry to Biological Processes
_____	3	ABE 30400	Bioprocess Engineering laboratory
_____	3	ABE 30700	Momentum Transfer in Food and Biological Systems
_____	3	ABE 30800	Heat and Mass Transfer in Food and Biological Systems
_____	3	ABE 31400	Design of Electronic Systems
_____	3	ABE 37000	Biological/Microbial Kinetics and Reaction Engineering
_____	3	ABE 45700	Transport Operations in Food and Biological Engineering I
_____	3	ABE 46000	Sensors and Process Controls
_____	1	ABE 49000	Professional Practice in Agricultural and Biological Engineering
_____	3	ABE 55700	Transport Operations in Food and Biological Engineering II
_____	3	ABE 55800	Process Design for Food and Biological Systems
_____	3	ABE 58000	Process Engineering of Renewable Resources
Other Departmental /Program Course Requirements (84 credits) (See Advising Resources)			
_____	2	ENGR 13100	Tranforming Ideas to Innovation I
_____	2	ENGR 13200	Tranforming Ideas to Innovation II
_____	4	CHM 11500	General Chemistry (satisfies Science #1 for core)
_____	4	CHM 11600	General Chemistry (satisfies Science #2 for core)
_____	4	CHM 25700 or (CHM 25500 and CHM 25501)	Organic chemistry or (Organic chemisry I and Organic chemistry Lab I)
_____	4	MA 16500	Plane Analytic Geometry and Calculus I (satifies Quantitative Reasoning for core)
_____	4	MA 16600	Plane Analytic Geometry and Calculus II
_____	4	MA 26100	Multivariate Calculus
_____	4	MA 26200	Linear Algebra and Differential Equations
_____	3	MA 30300	Equations for Engineering and the Sciences
_____	4	PHYS 17200	Modern Mechanics
_____	3	CS 15900	Programming Applications for Engineering
_____	3	CHE 32000	Statistical Modeling and Quality Enhancement
_____	4	BIOL 11000	Fundamentals of Biology I
_____	4	BIOL 22100	Introduction to Microbiology
_____	3	NUTR 20500 or BCHM 30700	Food Science I or Biochemistry
_____	3	_____	Biological or Food Science Selective
_____	4	ENGL 10600	First-Year Composition (satisfies Written Communication for core) (satisfies Information Literacy Selective for core)
_____	3	COM 11400	Fundamentals of Speech Communication (satisfies Oral Communication for core)
_____	3	_____	Written or Oral Communications Selective
_____	3	_____	Economics Selective (satisfies Human Culture Behavioral/Social Science for core)
_____	3	_____	UCC Humanities Selective (satisfies Human Cultures Humanities for core)
_____	3	_____	Humanities or Social Science Selective
_____	3	_____	Humanities or Social Science Selective
_____	3	_____	Humanities or Social Science Selective (30000+ level)

University Core Requirements:

Human Cultures Humanities: _____
Human Cultures Behavioral/Social Science: _____
Information Literacy: _____
Science #1: _____
Science #2: _____
Science, Technology, and Society: _____
Written Communication: _____
Oral Communication: _____
Quantitative Reasoning: _____

College of Agriculture & University Level Requirements:

2.0 GPA required for Bachelor of Science degree.
32 Upper division credits taken from Purdue
6 credits International Understanding: _____ _____
3 credits Multicultural Awareness: _____
3 credits of Hum or Social Science Selective 30000+ level: _____
9 credits of Hum and/or Social Sciences outside the College of Agriculture: _____

129 semester credits required for Bachelor of Science degree.
2.0 GPA required for Bachelor of Science degree.

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Credits	Course number	Course Title	Prerequisites
	Fall 1st Year		
4	CHM 11500	General Chemistry	pre/co: calculus
4	ENGL 10600	First-Year Composition	
2	ENGR 13100	Tranforming Ideas to Innovation I	
4	MA 16500	Plane Analytic Geometry and Calculus I	ALEKS 85+
4	PHYS 17200	Modern Mechanics	MA 16500
18			
	Spring 1st Year		
4	CHM 11600	General Chemistry	CHM 11500
3	COM 11400	Fundamentals of Speech Communication	
3	CS 15900	Programming Applications for Engineers	pre/co: ENGR 13100
4	MA 16600	Plane Analytic Geometry and Calculus II	MA 16500
2	ENGR 13200	Transforming Ideas to Innovation II	ENGR 13100
16			
	Fall 2nd Year		
4	ABE 20100	Thermodynamics of Biological Systems I	CHM 11600
1	ABE 29000	Sophomore Seminar	
4	BIOL 11000	Fundamentals of Biology I	
4	CHM 25700 or (CHM 25500 and CHM 25501)	Organic Chemistry or (Organic Chemisry I and Organic Chemistry Lab I)	CHM 11600
4	MA 26100	Multivariate Calculus	MA 16600
17			
	Spring 2nd Year		
3	ABE 20200	Thermodynamics of Biological Systems II	ABE 20100, MA 26100
3	CHE 32000	Statistical Modeling and Quality Enhancement	pre/co: MA 26200
4	MA 26200	Linear Algebra and Differential Equations	MA 26100
3	NUTR 20500 or BCHM 30700	Food Science I or Biochemistry	CHM 11600
3	_____	UCC Humanities Selective	
16			
	Fall 3rd Year		
3	ABE 30300	Applications of Physics and Chemistry to Biological Processes	ABE 20200, CHM 25700 or (CHM 25500 and CHM 25501), pre/co: ABE 30700
3	ABE 30700	Momentum Transfer in Food and Biological Systems	ABE 20200, MA 26100, 26200
3	ABE 37000	Biological/Mircobial Kinetics and Reaction Engineering	CHM 25700 or (CHM 25500 and CHM 25501), MA 26200
4	BIOL 22100	Introduction to Microbiology	BIOL 11000, CHM 11600
3	MA 30300	Equations for Engineering and the Sciences	MA 26200
16			
	Spring 3rd Year		
3	ABE 30100	Numerical and Computational Modeling in Biological Engineering	ABE 37000, MA 26200, CS 15900
3	ABE 30400	Bioprocess Engineering Laboratory	co: ABE 30800
3	ABE 30800	Heat and Mass Transfer in Food and Biological Systems	ABE 30700
3	ABE 31400	Design of Electronic Systems	MA 26200
3	ABE 45700	Transport Operations in Food and Biological Engineering I	co: ABE 30800
3	_____	Economics Selective	
18			
	Fall 4th Year		
3	ABE 46000	Sensors and Process Controls	MA 26200
1	ABE 49000	Professional Practice in Agricultural and Biological Engineering	ABE 29000
3	ABE 55700	Transport Operations in Food and Biological Engineering II	ABE 45700
3	_____	Written or Oral Communication Selective	
3	_____	Humanities or Social Science Selective	
13			
	Spring 4th Year		
3	ABE 55800	Process Design for Food and Biological Systems	ABE 55700
3	ABE 58000	Process Engineering of Renewable Resources	ABE 37000
3	_____	Biological or Food Science Selective	
3	_____	Humanities or Social Science Selective	
3	_____	Humanities or Social Science Selective (30000+ level)	
15			

129

129 semester credits required for Bachelor of Science degree.
2.0 GPA required for Bachelor of Science degree.

The highlighted course is considered critical; timely progress toward the degree depends upon steady progress through each course in the plan of study, but this course, in particular, should be completed by the semester indicated.

Consultation with an advisor may result in an altered plan customized for an individual student.

Official and complete prerequisite lists are in the course catalog; the incomplete listing presented here regards this program and course sequencing.