



# BIOLOGICAL ENGINEERING CURRICULUM

Pre-Medical Emphasis (Effective 8/17/2015)

Name: \_\_\_\_\_  
 MSUID#: \_\_\_\_\_  
 Net ID: \_\_\_\_\_  
 Advisor: \_\_\_\_\_

SEMESTER <b>1</b> F	CH 1213 Chemistry I	CH 1211 Chem I Lab	**Soc/Beh Sci Elective (3hr)	BIO 1134 Biology I	MA 1713 Calculus I	EN 1103 En Comp I	ABE 1911 Engr in Life Sci	<b>18</b>
SEMESTER <b>2</b> S	CH 1223 Chemistry II	CH 1221 Chem II Lab	PH 2213 Physics I	*Bio Sci Elective (3h)	MA 1723 Calculus II	EN 1113 En Comp II	ABE 1921 Intro to Engr Des	<b>17</b>
SEMESTER <b>3</b> F	CH 4513 Org Chem 1	CH 4511 Org Chem 1 Lab	PH 2223 Physics II	EM 2413 Engr Mech I	MA 2733 Calculus III	MA 3123 Intro to Stat Infer		<b>16</b>
SEMESTER <b>4</b> S	CH 4523 Org Chem 2	CH 4521 Org Chem 2 Lab	PH 2233 Physics III	EM 2433 Engr Mech II	MA 2743 Calculus IV	ABE 4803 Biosys Simulation	MCAT	<b>16</b>
SEMESTER <b>5</b> F	BIO 3304 Gen Micro Bio	ABE 3413 Bio Instrum I	BCH 4013 Prin Biochem	EM 3213 Mech of Materials	MA 3253 Diff Equations	ABE 4911 Engr Seminar	MCAT	<b>17</b>
SEMESTER <b>6</b> S	GE 3513 Tech Writing	ABE 4423 Bio Instrum II	ABE 3303 Trans in Biol Env	EM 3313 Fluid Dynamics	*Engr Elective (3hr)	ABE 3813 Bio Phys Prop of Mat	MCAT	<b>18</b>
SEMESTER <b>7</b> F	**Humanities Elective (3h)	*ABE Elective (3 hrs)	ABE 4323 Phys Sys in BME		*Engineering Elective (3h)	ABE 4813 Princ Engr Design		<b>15</b>
SEMESTER <b>8</b> S	**Humanities Elective (3hr)	*Engr / Math Elective (3h)	**Fine Arts Elective (3h)	**Soc/Beh Sci Elective (3h)		ABE 4833 Pract Engr Design		<b>15</b>

L - Lab Included  
 F - Fall  
 S - Spring

\* Restricted elective course options are listed on the back  
 \*\* Must be on University core curriculum

Updated: October 23, 2017

TOTAL **132**

### **Biological Science Electives:**

BIO 2103 - Cell Biology  
BIO 3504 - Comparative Anatomy (with Lab)  
BIO 4114 - Cellular Physiology  
BIO 4405 - Pathogenic Microbiology  
BIO 4413 - Immunology  
BIO 4433 - Principles of Virology  
BIO 4473 - Medical Virology  
BIO 4503 - Vertebrate Embryology  
BIO 4504 - Comparative Vertebrate Embryology  
BIO 4514 - Animal Physiology  
ADS 4613 - Physiology of Reproduction  
BCH 4113 - Essentials of Molecular Genetics

### **Biological Science Electives:**

BIO 3103 - Genetics with Lab  
BIO 3104 - Ecology  
BIO 4204 - Plant Anatomy and Lab  
BIO 4213 - Plant Ecology  
BIO 4324 - Soil Microbiology  
BIO 4404 - Env Microbiology with Lab  
CVM 2443 - Essentials of Biotech  
WF 3133 - Applied Aquatic Ecology with Lab  
WF 4372 - Water Quality Mgt  
ADS 4213 - Livestock Nutrient Analysis  
ADS 3213 - Performance Analysis of Meat Animal with Lab  
PSS 4103 - Forage and Pasture Crops with Lab  
FO 4452 - Remote Sensing Applications with Lab (FO 4451)

### **Engineering /Math Electives:**

CE 3803 - Environmental/Water Res Engineering with lab  
CE 3813 - Environment/Water Res Engineering with lab  
CE 4843 - Advanced Sanitary Analysis  
CE 4893 - Hazardous Waste Mgt  
CHE 4613 - Air Pollution Control Design  
CHE 4623 - Hazardous Waste Incineration  
CHE 4990 - Pollution Abatement and Control  
EG 1143 - Graphic Communication  
CSE 4613 - Bio-Computing  
CSE 4623 - Computational Biology  
IE 4113 - Human Factor Engineering  
IE 4173 - Occupational Safety Engineering  
IE 4553 - Engineering Law and Ethics  
IE 4733 - Linear Programming  
IE 4743 - Engineering Design Optimization  
IE 4533 - Project Management  
IE 3913 - Engineering Economics I  
IE 4613 - Engineering Statistics I  
PH 2233 - Physics III  
ECE 3714 - Digital Devices and Logic Design

### **Engineering Electives:**

MA 3113 - Intro to Linear Algebra  
MA 3353 - Differential Equation II  
MA 4313 - Numerical Analysis I  
MA 4373 - Intro to Partial Differential Equation  
EM 4123 - An Intro to Finite Element Method  
EM 4133 - Mechanics of Composite Materials  
EM 4213 - Advanced Mechanics of Materials  
ME 3113 - Engineering Analysis  
ME 3533 - Thermodynamics  
ME 4123 - Failure of Engineering Materials  
ME 4743 - Lab CIEW  
ME 4833 - Intermediate Fluid Mechanics

### **ABE Electives:**

ABE 4523 - Biomedical Materials  
ABE 4613 - Biomechanics  
ABE 4723 - Tissue Engineering  
ABE 2873 - Land Surveying  
ABE 3513 - GPS/GIS  
ABE 4543 - Precision Agriculture II  
ABE 4624 - Exp Methods Material Research  
FO 4453 - Remote Sensing Applications  
IE 4733 - Linear Programming