Biological Engineering Electives

Biosystems Engineering

Departmental Electives: (Choose at least one of the following)
ABE 4034  Remote Sensing in Engineering: Science, Sensor & Applications (3)
ABE 4231  Irrigation and Drainage Engineering (4)
ABE 4303C  Structural and Environmental Design (3)
ABE 4413C  Post Harvest Operations Engineering (3)
ABE 4905  Industrial Hygiene or Independent Study (1-4)
Any graduate-level ABE course

Engineering Electives: (6 credits minimum up to 13 credits)
ECH 4323  Process Control Theory (3)
ECH 4323L  Chemical Engineering Lab (1)
ECH 4504  Chemical Kinetics & Reactor Design (4)
ECH 4524  Heterogeneous Kinetics & Reactor Design (2)
EGM 4313  Intermediate Engineering Analysis (4)
EGM 4473  Experimental Optimum Engineering Design (3)
EGM 4590  Biodynamics (3)
EGM 4592  Bio-Solid Mechanics (3)
EGM 4853  Bio-Fluid Mechanics (3)
ENV  Environmental Engineering Courses
CWR  Civil Engineering Courses

Technical/Biological Science Electives
ALS 3133  Agricultural & Environmental Quality (3)
AGR 3001  Environment, Food & Society (3)
AGR 3303  Genetics (3)
ANS 3006C  Intro to Animal Science (4)
AOM 4062  Food Engineering
BOT 3503  Physiology & Molecular Biology of Plants (3)
BCH 3025  Fundamentals of Biochemistry (4)
EES 3000  Environmental Sciences & Humanity (3)
EES 3000L  Environmental Sciences & Humanity Lab (1)
EE 54102  Wastewater Microbiology (2)
EES 4102L  Environmental Biology Lab (1)
EES 4103  Applied Ecology (2)
EES 4401  Public Health Engineering (3)
FOR 3004  Forest Conservation & People (3)
FOS 3042  Introductory Food Science (3)
FOS 4204  Food Safety and Sanitation (2)
FOS 4222  Food Microbiology (3)
FOS 4222L  Food Microbiology Lab (2)
FOS 4311  Food Chemistry (3)
FOS 4311L  Food Chemistry Lab (1)
FOS 4427C  Principles of Food Processing (4)
FOS 4522C  Seafood Technology (3)
FOS 4722C  Quality Control in Foods (3)
FOS 4731  Government Regulations in Food Industry (2)
HUN 2201  Fundamentals of Human Nutrition (3)
HUN 3403  Nutrition through the Life Cycle (2)
MCB 3020  Basic Biology of Microorganisms (3)
MCB 3020L Basic Biology of Microorganisms Lab (2)
MCB 4304  Genetics of Microorganisms (3)
MCB 4403  Prokaryotic Cell Structure and Function (3)
PCB 3034C  Intro to Ecology (4)
PCB 3063  Genetics (4)
PCB 3134  Eukaryotic Cell Structure and Function (3)
PLS 3004C  Principles of Plant Science (3)
APK 2100C  Applied Human Anatomy with Lab (4)
APK 2105C  Applied Human Physiology with Lab (4)
APK 3220C  Biomechanical Basis of Movement (3)
WIS 3401  Wildlife Ecology & Management (3)
WIS 4443C  Wetland Wildlife Ecology (4)

Land and Water Resources Engineering

Departmental Electives: (Choose at least one of the following)
ABE 4033  Biosensors (3)
ABE 4034  Remote Sensing in Engineering: Science, Sensor & Applications (3)
ABE 4303C  Structural and Environmental Design (3)
ABE 4413C  Post Harvest Operations Engineering (3)
ABE 4662  Quantification of Biological Processes (3)
ABE 4812  Food and Bioprocess Engineering Unit Operations (4)
ABE 4905  Industrial Hygiene or Independent Study (1-4)
Any graduate-level ABE course

Engineering Electives: (Choose at least one of the following)
CWR4111  Engineering Hydrology (3)
CWR4114  Surface Hydrology (3)
CWR4120  Groundwater (3)
CWR4306  Urban Stormwater Systems Design (3)
CWR4542  Water Resources Engineering (3)
ENV4601  Environmental Resources Management (2)
ENV4041C  Environmental Analysis (3)
ENV4405  Nutrient Control and Water Reuse (3)
ENV4514C  Water and Wastewater Treatment (3)

Technical Electives (Choose at least one of the following)
AEB 3413  Economics of Environmental Policy (3)
AEB 4434  Land and Water Economics (3)
ALS 3133  Agricultural & Environmental Quality (3)
AOM 4434  Precision Agriculture (3)
EES4050  Environmental Planning and Design (3)
EES4102  Wastewater Microbiology (2)
EES4200  Environmental Chemistry of Carbon Compounds (2)
EES4201  Water Chemistry (3)
PLS 3004C  Principles of Plant Science (3)
**Agricultural Production Engineering**

**Departmental Electives:** (Choose at least one of the following)
- ABE 4034  Remote Sensing in Engineering: Science, Sensor & Applications (3)
- ABE 4231c  Irrigation and Drainage Engineering (4)
- ABE 4812  Food Engineer Unit Op

**Engineering Electives:** (6 credits minimum up to 13 credits)
- CGN4101  Civil Engr Cost Analysis
- CEG 4012  Geotechnical Engineer
- CEG 4104  Retain Wall Embank
- CEG 4111  Foundations Engr Design
- CES 3102  Mechanics of Eng Structure
- CES 4141  Stress Analysis
- CES 4605  Analysis/Design Steel
- EML 4450  Energy Conversion
- EML 4600  Refrigeration & Air Fundamentals
- EML 4601  Heat Air Sys Design

**Technical/Biological Science Electives**
- ALS 3133  Agricultural & Environmental Quality (3)
- AEB 3103  Principles of FRE
- AEB 3111  Linear Program Agriculture
- AGR 4210  Physiology & Ec Crops
- AGR 4214c  Applied Field Crop Prod
- AGR 4231c  Forage Science & Range
- ANS 3006c  Intro To Animal Science (4)
- ANS 3251  Bio/Mang Dairy Cattle
- ANS 3384  Genet Improv Farm Animals
- AOM 4062  Food Engineering
- AOM 4434  Precision Agriculture
- EES 3008  Energy & Environment
- PLS 3004C  Principles of Plant Science (3)
- SUR 3331  Photogrammetry
- SUR 3322  Intro to Mapping
- SUR 3393  Geographic Info Systems

**Packaging Engineering**

**Technical Science Electives**
- PKG4941  Internship/Co-op
- AEB3133  Principles of Agribusiness Management
- AEB3300  Agricultural and Food Marketing
- AOM 4062  Food Engineering
- FOS3042  Introduction to Food Science