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| \**REQUIRES A GRADE OF “C” OR BETTER* |
| Date | Grade | Course | Cr | Title | Sem | Pre-Req | Co-Req |
| Semester 1 | (17 Credits) |  |  |  |  |  |
|  |  | GE-S  | 3 | Social Sciences (w/ 6K words, D or N as needed) | F S Su |  |  |
|  |  | State Core- H | 3 | Humanities (w/ D or N as needed)  | F S Su |  |  |
|  |  | MAC 2311\* | 4 | Analytical Geometry & Calc 1 (GE-M) | F S Su | Passing Score Readiness Assessment  |  |
|  |  | CHM 2095\* | 3 | General Chemistry 1 (or CHM2045) (GE- B/P) | F S Su | Passing Score Readiness Assessment  |  |
|  |  | CHM 2045L | 1 | General Chemistry Lab 1 (GE-B/P) | F S Su |  |  |
|  |  | IDS 1161 IDS 2935  | 3 | What is The Good Life or Quest 1 (w/ 4K words) | F S Su |  |  |
| Semester 2 | (14 Credits) |  |  |  |  |  |
|  |  | CHM 2096\* | 3 | General Chemistry 2 (Or CHM2046) (GE-B/P) | F S Su | CHM 2095 & CHM 2045L |  |
|  |  | CHM 2046L | 1 | General Chemistry Lab 2 (GE-B/P) | F S Su |  |  |
|  |  | ABE2062 | 3 | Biology for Engineers (GE-B/P) | F |  |  |
|  |  |  Or BSC2010 |  |  **or** Integrated Principles of Biology 1 | F S Su |  |  |
|  |  | MAC 2312\* | 4 | Analytical Geometry & Calc 2 (GE-M) | F S Su | MAC 2311 |  |
|  |  | IDS 2935 | 3 | Quest 2 | F S Su |  |  |
| Semester 3 | (17 Credits) |  |  |  |  |  |
|  |  | PHY 2048\* | 3 | Physics with Calculus 1 (GE-B/P) | F S Su | MAC 2311 | MAC 2312 |
|  |  | PHY 2048L | 1 | Physics Lab 1 (GE-B/P) | F S Su |  | PHY 2048 |
|  |  | MAC 2313\* | 4 | Analytical Geometry & Calc 3 (GE-M) | F S Su | MAC 2312 |  |
|  |  | ABE 2012C\*  | 3 | Intro to Biological Engineering (2K words) | F  |  | MAC 2311 |
|  |  | State Core-S | 3 | Social Sciences (with D if needed) |  |  |  |
|  |  | GE-C  | 3 | ENC1101 or ENC1102 (6K words) | F S Su |  |  |
| Semester 4 | (15 Credits) |  |  |  |  |  |
|  |  | PHY 2049\* | 3 | Physics with Calculus 2 (GE-B/P) | F S Su | PHY 2048, MAC 2312 | MAC 2313 |
|  |  | PHY 2049L | 1 | Physics with Calculus Lab 2 (GE-B/P) | F S Su |  |  |
|  |  | MAP 2302 | 3 | Elementary Differential Equations | F S Su | MAC 2312 |  |
|  |  | EGM 2511\* | 3 | Engineering Mechanics-Statics | F S Su | PHY 2048 | MAC 2313 |
|  |  | EML 3007 | 3 | Elements of Thermodyn. and Heat Transfer | F S Su | CHM 2095, MAC 2313 & PHY 2048 |  |
|  |  | EGN 2020C | 2 | Engineering Design & Society | F S Su |  |  |
| Semester 5 | (12 Credits) |  | **THIS IS A SUMMER SEMESTER** |  |   |  |
|  |  | EGM3520\* | 3 | Mechanics of Materials | F S Su | EGM 2511, MAC 2313 |  |
|  |  | EML 2023 orCGN 2328 | 3 | Computer Aided Graphics and Design or Technical Drawing and Visualization | F S Su | 2 EG or > |  |
|  |  | CGN 3710 orEEL 3003 | 3 | Experimentation and Instrumentation in Civil Engineering or Elements of Elec. Eng. | F S Su | PHY 2049 |  |
|  |  | CHM 2200 (F,Su) (or 2210) or BCH3023 | 3 | Organic Chemistry (or Organic Chem 1) or Elem Organic and Biological Chemistry | F S Su | CHM 2096 & CHM 2046L or equiv. |  |
| Semester 6 | (12-13 Credits) |  |  |  |  |  |
|  |  | ABE 3612C\* | 4 | Heat & Mass Transfer in Biological Systems | F |  | CGN 3421, ENV3040c, or COP2271 & lab |
|  |  | ENV 3040C  or CGN 3421  or COP 2271 & lab | 3-4 | Computer Methods in Environmental Eng or Computer Methods in Civil Eng (4). or Computer Programming for Engineers | F S | 3 EG or >MAC 2313, MAP 2302MAC 2312 |  |
|  |  | EGM 3400\* | 2 | Elements of Dynamics | F S | EGM 2511, MAC 2313 |  |
|  |  | ENC 3246 (6K words) | 3 | Professional Communication for Engineers | F S | ENC 1101 |  |
| Semester 7 | (13-15 Credits) |  |  |  |  |  |
|  |  | ABE 3000C\* | 3 | Applications in Biological Engineering | S | BSC 2010 or equiv. |  |
|  |  | ABE 3652C\* Or CGN3501C | 3-4 | Physical & Rheolog. Prop. of Bio MaterialsCivil Engineering Materials (4) | S | CHM 2045, MAC 2313 & PHY 2048 |  |
|  |  | EGS4034 or EML2920 or ECH4934 | 1 | Engineering Professionalism and Ethics course | F S |  |  |
|  |  | EGN3353C or CWR3201 | 3-4 | Fluid Mechanics(3) or Hydrodynamics(4) | F S Su | MAC 2313 & EGM 2511EGN3400, MAP3202 |  |
|  |  |  | 3 | Departmental Elective |  |  |  |
| Semester 8 | (13 Credits) |  |  |  |  |  |
|  |  | ABE 4171\* | 3 | Power and Machines for Biological Systems | F | EGM3520 & EML3007 |  |
|  |  | ABE 4042C\* | 2 | Biological Engineering Design 1 | F | 4 EG |  |
|  |  | ABE 4662 | 3 | Quantification of Biological Processes | F | ABE 2062 or BSC 2010, CWR 3201 or EGN 3353C  | ABE 3612C |
|  |  |  | 5 | Departmental Elective |  |  |  |
| Semester 9 | (15 Credits) |  |  |  |  |  |
|  |  | ABE 4043C\* | 2 | Biological Engineering Design 2 | S | ABE 4042C, 4 or 5 EG |  |
|  |  | ABE3212C\* | 4 | Land & Water Resources Engineering | S | ENV 3040C | CWR 3201 orEGN 3353 |
|  |  |  | 6 | Technical Elective |  |  |  |
|  |  |  | 3 | Engineering Elective |  |  |  |

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| TECHNICAL SCIENCE ELECTIVES |
| Date | GR | Course # | Course | CR |
|  |  | ALS3133 | Ag & Environmental Quality  | 3 |
|  |  | AGR3001 | Environment, Food & Society  | 3 |
|  |  | AGR3303 | Genetics | 3 |
|  |  | ANS3006C | Intro to Animal Science | 4 |
|  |  | AOM or PKG prefixed course 3000 or above | **As approved by advisor** |  |
|  |  | BCH3025 | Fundamentals of Biochemistry  | 4 |
|  |  | BCH4024 | Intro to Bioch & Molec Biology | 4 |
|  |  | BOT3503 | Physiology & Molecular Biology of Plants | 3 |
|  |  | EES3000 | Environmental Sciences & Humanity | 3 |
|  |  | EES3000L | Environmental Sciences & Humanity Lab | 1 |
|  |  | EES4102 | Wastewater Microbiology | 2 |
|  |  | EES4102L | Environmental Biology Lab | 1 |
|  |  | EES 4103 | Applied Ecology | 2 |
|  |  | EES4401 | Public Health Engineering  | 3  |
|  |  | FOR3004 | Forest Conservation & People  | 3 |
|  |  | FOS3042 | Introductory Food Science  | 3 |
|  |  | FOS4204 | Food Safety and Sanitation  | 2 |
|  |  | FOS4222 | Food Microbiology  | 3 |
|  |  | FOS4222L | Food Microbiology Lab  | 2 |
|  |  | FOS4311 | Food Chemistry  | 3 |
|  |  | FOS431lL | Food Chemistry Lab  | 1 |
|  |  | FOS 4427C | Principles of Food Processing  | 4 |
|  |  | FOS4522C | Seafood Technology  | 3 |
|  |  | FOS4722C | Quality Control in Foods  | 3 |
|  |  | FOS4731 | Government Regulations in Food Industry  | 2 |
|  |  | HUN2201 | Fundamentals of Human Nutrition  | 3 |
|  |  | HUN3403 | Nutrition through the Life Cycle  | 2 |
|  |  | MCB3020 | Basic Biology of Microorganisms  | 3 |
|  |  | MCB3020L | Basic Biology of Microorganisms Lab  | 2 |
|  |  | MCB4304 | Genetics of Microorganisms  | 3 |
|  |  | MCB4403 | Prokaryotic Cell Structure and Function  | 3 |
|  |  | PCB3034C | Intro to Ecology  | 4 |
|  |  | PCB3063 | Genetics | 4 |
|  |  | PCB3134 | Eukaryotic Cell Structure and Function  | 3 |
|  |  | PLS 3004C | Principles of Plant Science | 3 |
|  |  | APK2100C | Applied Human Anatomy with Lab | 4 |
|  |  | APK2105C | Applied Human Physiology with Lab | 4 |
|  |  | APK3220C | Biomechanical Basis of Movement | 3 |
|  |  | WIS3401 | Wildlife Ecology & Management | 3 |
|  |  | WIS4443C | Wetland Wildlife Ecology  | 4 |
|  |  | The above electives have been identified as appropriate for your specialization area but you are not limited to this list. Other technical, departmental, or engineering courses at the 3000 level or approve may count if approved in advance by your advisor. **Other** **ABE courses count toward any elective area.** | ***Note: Pre-med and Pre-vet science courses may count toward technical electives. Check with your advisor.***  |  |

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| DEPARTMENTAL ELECTIVES |
| Date | GR | Course # | Course | CR |
|  |  | ABE4033 | Fundamentals & Applications of Biosensors | 3 |
|  |  | ABE4034 | Remote Sensing in Engeering | 3 |
|  |  | ABE4231 | Irrigation & Drainage | 4 |
|  |  | ABE4413C | Postharvest Operations Eng.  | 3 |
|  |  | ABE 4905 | Safety Eng or Indus. Hygiene or Individual Study | 1-4 |
|  |  | ABE4655C  | Bioproducts | 3 |
|  |  | ABE4812 | Food Engineering Unit Operations | 3 |
|  |  | ABE4932 | Modeling Natural-Human Systems | 3 |
|  |  | ABE4949 | Full-time work experience | var |
|  |  | One AOM or PKG prefixed course 3000 or above | 3 |
|  |  |  |  |  |
|  |  |  | Grad level courses (5000+) |  |
|  |  | ABE5643C | Biological and Agricultural Systems Analysis  | 3 |
|  |  | ABE5646 | Biological and Agricultural Systems Simulation | 3 |
|  |  | ABE5707C | Agricultural Waste Management  | 3 |
|  |  | ABE5663 | Applied Microbial Biotechnology | 3 |
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| ENGINEERING ELECTIVES |
|  |  | ECH4323 | Process Control Theory  | 3 |
|  |  | ECH4323L | Chemical Engineering Lab 5 | 1 |
|  |  | ECH4504 | Chemical Kinetics & Reactor Design | 4 |
|  |  | ECH4524 | Heterogeneous Kinetics & Reactor Design | 2 |
|  |  | EGM4313 | Intermediate Engineering Analysis | 4 |
|  |  | EGM4473 | Experimental Optimum Eng. Design  | 3 |
|  |  | EGM4592 | Bio-Solid Mechanics | 3 |
|  |  | EGM4853 | Bio-Fluid Mechanics | 3 |
|  |  | EGN4641 | Engineering Entrepreneurship | 3 |
|  |  | EGN4643 | Engineering Innovation | 3 |
|  |  | EGN4038 | Engineering Leadership | 3 |
|  |  |  | ENV Courses |  |
|  |  |  | CWR Courses |  |