**DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING**

**APPROVED LISTING OF MATH/SCIENCE/TECHNICAL ELECTIVES**

**Spring 2017**

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| **NOTE**: Electives are governed by the approved list in effect at the time a course is taken. Students should check the current list before enrolling in a course to confirm that the course is an approved elective. |

ABET requires a minimum of 32 hours of a combination of college level mathematics and basic sciences (some with experimental experience) appropriate to the discipline. Basic sciences are defined as biological, chemical, and physical sciences.

ECE technical electives are defined as any course in Engineering (including ES courses), Computer Science, or any Math, Physics, or Stat courses on this list.

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| **AGROECOLOGY / SOIL SCIENCE** | | | | |
| AECL | | 1000 | Agroecology (4) | |
| AECL | | 3030 | Ecological Web: Ecology of Plant Protection (3) | |
| SOIL | | 4100 | Soil Physics (3) | |
| **ASTRONOMY** | | | | |
| ASTR | | 1050 | Survey of Astronomy (4) | |
| ASTR | | 2310 | General Astronomy I (4) | |
| ASTR | | 2320 | General Astronomy II (4) | |
| **ATMOSPHERIC SCIENCE** | | | | |
| ATSC | | 2000 | Introduction to Meteorology (4) | |
| ATSC | | 2100 | Global Warming (3) | |
| ATSC | | 3032 | Weather Analysis and Forecasting (3) | |
| ATSC | | 4001 | Modeling the Earth System (4) | |
| ATSC | | 4010 | Atmospheric Processes I (3) | |
| ATSC | | 4031 | Atmospheric Dynamics (3) | |
| ATSC | | 4033 | Atmospheric Remote Sensing (3) | |
| ATSC | | 4035 | Atmospheric Processes II (3) | |
| ATSC | | 4320 | The Ocean Environment (3) | |
| ATSC | | 4400 | The Physical Basis of Climate (3) | |
| ATSC | | 4410 | Introduction to Micrometeorology (3) | |
| **BOTANY** | | | | |
| BOT | | 3000 | Plant Ecophysiology/Plant Form and Function (4) | |
| BOT | | 3100 | Plants and Civilization (3) | |
| **CHEMISTRY** | | | | |
| CHEM | | 1030 | General Chemistry II (4) | |
| CHEM | | 1060 | Advanced General Chemistry II (4) | |
| CHEM | | 2300 | Introductory Organic Chemistry (4) | |
| Plus all Chemistry courses that have CHEM 1020, 1030, 1050, or 1060 as a prerequisite | | | | |
| **GEOLOGY** | | | | |
| GEOL | 1100 | | | Physical Geology (4) |
| GEOL | 1110 | | | Physical Geology for Engineers (4) |
| GEOL | 2000 | | | Geochemical Cycles and the Earth Systems (4) |
| GEOL | 2010 | | | Mineralogy (3) |
| GEOL | 2020 | | | Introduction to Petrology (2) |
| GEOL | 2050 | | | Principles of Paleontology (3) |
| GEOL | 2070 | | | Intro to Oceanography (4) |
| GEOL | 2080 | | | General Field Geology (3) |
| GEOL | 2100 | | | Stratigraphy and Sedimentation (4) |
| GEOL | 2150 | | | Geomorphology (4) |
| Plus all Geology courses that have GEOL 1100 or 2000 as a prerequisite | | | | |

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| **LIFE SCIENCES (BIOLOGY)** | | |
| LIFE | 1010 | General Biology (4) |
| LIFE | 2002 | Global Ecology (3) |
| LIFE | 2022 | Animal Biology (4) |
| LIFE | 2023 | Biology of Plants and Fungi (4) |
| LIFE | 2050 | Biology of Aging and Human Development (3) |
| Plus all Life Sciences courses that have LIFE 1010 as a prerequisite | | |
| **MATH** | | |
| MATH | 2250 | Linear Algebra (3) |
| MATH | 2300 | Discrete Structures (3) |
| MATH | 3205 | Analysis I: Elementary Real Analysis (3) |
| MATH | 3310 | Applied Differential Equations II (3) |
| MATH | 3340 | Introduction to Scientific Computing (3) |
| MATH | 3500 | Algebra I: Introduction to Rings and Proofs (3) |
| MATH | 3700 | Combinatorics (3) |
| MATH | 4200 | Analysis 2: Advanced Analysis (3) |
| MATH | 4205 | Analysis 3: Undergraduate Topics in Analysis (3) |
| MATH | 4230 | Introduction to Complex Analysis (3) |
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| MATH | 4255 | Mathematical Theory of Probability (3) |
| MATH | 4265 | Introduction to the Theory of Statistics (3) |
| MATH | 4340 | Numerical Methods for Ordinary and Partial Differential Equations (3) |
| MATH | 4420 | Advanced Logic (3) |
| MATH | 4500 | Matrix Theory (3) |
| MATH | 4510 | Algebra II: Introduction to Group Theory |
| MATH | 4520 | Algebra III: Topics in Abstract Algebra |
| MATH | 4550 | Theory of Numbers (3) |
| MATH | 4600 | Foundations of Geometry (3) |
| **MICROBIOLOGY / MOLECULAR BIOLOGY** | | |
| MICR | 2021 | General Microbiology (4) |
| MICR | 2220 | Pathogenic Microbiology (4) |
| MICR/MOLB | 2240 | Medical Microbiology (5) |
| Plus all Micro/Molecular Biology courses that have MICR/MOLB 2021 as a prerequisite | | |
| **PHYSICS** | | |
| PHYS | 2250 | Themodynamic Systems in Energy Science |
| PHYS | 2310 | Physics Ill: Wave and Optics (4) |
| PHYS | 2320 | Physics IV: Modern Physics (3) |
| PHYS | 4340 | Semiconductor Materials and Devices (3) |
| Plus all Physics courses that have PHYS 1210 or 1310 as a prerequisite | | |
| **STATISTICS** | | |
| STAT | 4220 | Basic Engineering Statistics (3) |
| STAT | 4255 | Mathematical Theory of Probability (3) |
| STAT | 4265 | Introduction to the Theory of Statistics (3) |
| **ZOOLOGY** | | |
| ZOO | 2040 | Human Anatomy (and Human Anatomy Lab ZOO 2041) (3 + 1) |
| ZOO | 2450 | Principles of Fish and Wildlife Management (3) |
| Plus all Zoology courses that have LIFE 1010 as a prerequisite | | |