**DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING**

# APPROVED LISTING OF MATH/SCIENCE ELECTIVES

**Spring 2020**

**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.

## 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

## 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)

MATH 4230 Introduction to Complex Analysis (3) 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 PHYS 1310 or PHYS 1220 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