Technical Elective Suggestions for EVEN Students

Any of the courses listed in the options are good technical electives. Other example Technical Elective Courses for EVEN are listed below. If a course is not on this list, you may request approval on a petition form. Honors sections of the courses listed below will also be accepted. Check for prerequisites with your advisor and in the catalog: http://www.colorado.edu/catalog/2017-18/.

Some graduate-level classes (5000+) can also be taken as technical electives -- check with your advisor. Note, however, that prerequisites are not listed in the catalog for graduate courses; instructor’s permission may be required.

Courses marked with an asterisk (*) fulfill the earth sciences technical elective requirement (geology, meteorology or soil science). Courses marked with † will fulfill the air/earth sciences lab/field requirement.

New courses added in red

### Arts & Sciences

**AFRR 3010 (3)** Air Force Leadership Studies I

**APPM 3010 (3)** An Introduction to Nonlinear Systems: Chaos

**APPM 3050 (3)** Scientific Computing in Matlab

**APPM 3170 (3)** Discrete Applied Mathematics

**APPM 3310 (3)** Matrix Methods and Applications

**APPM 3350 (3)** Advanced Engineering Calculus

**APPM 3570 (3)** Applied Probability

**APPM 4120 (3)** Introduction to Operations Research

**APPM 4350 (3)** Methods in Appl Math: Fourier Series/Boundary Value Prob

**APPM 4360 (3)** Methods in Appl Math: Complex Variables & Appl

**APPM 4380 (3)** Modeling in Applied Mathematics

**APPM 4390 (3)** Modeling in Mathematical Biology

**APPM 4440 (3)** Undergraduate Applied Analysis 1

**APPM 4540 (3)** Introduction to Time Series

**APPM 4450 (3)** Undergraduate Applied Analysis 2

**APPM 4560 (3)** Markov Processes, Queues, Monte Carlo Sims

**APPM 4580 (3)** Statistical Applications: Software & Methods

**APPM 4650 (3)** Intermediate Numerical Analysis 1

**APPM 4660 (3)** Intermediate Numerical Analysis 2

**APPM 4720 (3)** Open Topics in Applied Mathematics

**ASTR 3830 (3)** Astrophysics 2 - Galactic and Extragalactic

**ASTR 4330 (3)** Cosmochemistry

**ATOC 1050 (3)** Weather and the Atmosphere *

**ATOC 1060 (3)** Our Changing Environment: El Nino, Ozone and Climate *

**ATOC 1070 (1)** Weather and the Atmosphere Lab * †

**ATOC/GEOL 3070 (3)** Introduction to Oceanography *

**ATOC 3180 (3)** Aviation Meteorology *

**ATOC 3300 (3)** Analysis of Climate and Weather Observation *

**ATOC 3500/CHEM 3151 (3)** Air Chemistry and Pollution *

**ATOC 3600 (3)** Principles of Climate *

**ATOC/ASTR 3720 (3)** Planets and Their Atmospheres

**ATOC-4200 (3)** Biogeochanical Oceanography

**ATOC 4500 (1-3)** Special Topics in Atmospheric and Oceanic Sciences

**ATOC 4700 (3)** Weather Analysis and Forecasting

**ATOC 4720 (3)** Intro to Atmospheric Physics & Dynamics *

**ATOC 4750 (3)** Desert Meteorology and Climate *

**CHEM 3151/ATOC 3500 (3)** Air Chemistry and Pollution

**CHEM 3311 (4)** Organic Chemistry 1

**CHEM 3321 (1)** Lab in Organic Chemistry 1

**CHEM 3331 (4)** Organic Chemistry 2

**CHEM 3341 (1)** Lab in Organic Chemistry 2

**CHEM 4011 (3)** Modern Inorganic Chemistry

**CHEM 4021 (3)** Inorganic Laboratory

**CHEM-4131 (3)** Chemistry of Global Health

**CHEM 4141 (3)** Environmental Water and Soil Chemistry

**CHEM 4171 (3)** Instrumental Analysis

**CHEM 4181 (4)** Instrumental Analysis Lab with Environ Emphasis

**CHEM 4261(3)** Organic Materials: Structures and Functions

**CHEM 4271 (3)** Chemistry of Solar Energy

**CHEM 4531 (3)** Physical Chemistry 2

**CHEM 4581 (1)** Physical Chemistry Lab 1

**CHEM 4591 (2)** Physical Chemistry Lab 2

**CHEM 4611 (3)** Survey of Biochemistry

**CHEM 4731 (3)** General Biochemistry 2

**CHEM 4761 (4)** Biochemistry Laboratory

**E BIOS 4731 (3)** General Biochemistry 2

**E BIOS 4761 (4)** Biochemistry Laboratory

**E BIOS 4760 (4)** Mammalogy

**E BIOS 4750 (4)** Ornithology

**E BIOS 4660 (4)** Insect Biology

**ENVS/PHYS 3070 (3)** Energy and the Environment

**ENVS/EBIO 3040 Conservation Biology

**ENVS 1000 (4)** Introduction to Environmental Studies

**ENVS/EBIOS 3040 Conservation Biology

**ENVS/PHYS 3070 (3)** Energy and the Environment

**ENVS 3520 (3)** Energy and Climate Change: An Interdisciplinary Approach

**ENVS 3521 (3)** Climate Politics and Policy
ENVS 3525 (3) Int Env Problem Analysis: Topical Cornerstones
ENVS/ATOC 3600/GEOG 3601 Principles of Climate
ENVS-3621 (3) Energy Policy and Society
ENVS 4050 (3) Field Studies in Environmental Sciences
ENVS/GEOL/EBIO 4160 Intro to Biogeochemistry*
ENVS/GEOG 4201 Biometeorology

GEOL 1001 (4) Environ'1 Systems 1- Climate & Vegetation *
GEOL 1011 (4) Environ'1 Systems 2 - Landscapes and Water *
GEOL 2053 (4) Mapping a Changing World
GEOL 3053 (3) Cartography: Visualization and Information Design
GEOL 3251 (3) Mountain Geography *
GEOL 3351 (3) Biogeography
GEOL 3412 (3) Conservation Practice and Resource Management
GEOL 3601 (3) Principles of Climate *
GEOL 3662 (3) Economic Geography
GEOL 3682 (3) Geography of International Development
GEOL 4023 (3) Introduction to Quantitative Methods in Human Geography
GEOL 4093 (4) Remote Sensing of the Environment
GEOL-4721 (2) Field Methods in Active Tectonics

IPHY 4240 (3) Nutrition, Health and Performance
IPHY 3060 (4) Cell Physiology
IPHY 3410 (3) Introduction to Human Anatomy
IPHY 3415 (2) Human Anatomy Laboratory
IPHY 3430 (3) Introduction to Human Physiology
IPHY 3435 (2) Human Physiology Laboratory
IPHY 3470 (3) Human Physiology 1
IPHY 3480 (3) Human Physiology 2
IPHY 3660 (3) Dynamics of Motor Learning
IPHY 4200 (3) Physiological Genetics and Genomics
IPHY 4440 (3) Endocrinology
IPHY 4470 (3) Biology of Human Reproduction
IPHY 4540 (5) Biomechanics
IPHY 4600 (4) Immunology
IPHY 4650 (5) Exercise Physiology
IPHY 4720 (4) Neurophysiology

MATH 4200 (3) Introduction to Topology
MATH 4230 (3) Geometry of Curves and Surfaces
MATH 4330 (3) Fourier Analysis
MATH 4650 (3) Intermediate Numerical Analysis 1
MATH 4520 (3) Introduction to Mathematical Statistics
MATH 4540 (3) Introduction to Time Series
MATH 4650 (3) Intermediate Numerical Analysis 1
MATH 4660 (3) Intermediate Numerical Analysis 2
MATH 4730 (3) Set Theory

MCDB 1041 (3) Fundamentals of Human Genetics
MCDB 1150 (3) Introduction to Cellular and Molecular Biology
MCDB 1151 (1) Principles of Genetics Laboratory
MCDB 3350 (3) Fertility, Sterility, and Early Mammalian Development
MCDB 3650 (3) The Brain - From Molecules to Behavior
MCDB 3651 (3) The Brain: Dysfunction to Disease
MCDB 3990 (3) Introduction to Systems Biology for Biologists
MCDB 4201 (3) From Bench to Bedside: The Role of Science in Medicine
MCDB 4300 (3) Immunology
MCDB 4314 (3) Algorithms for Molecular Biology
MCDB 4361 (3) Evolution and Development
MCDB 4410 (3) Human Molecular Genetics
MCDB 4425 (3) Cellular Stress Responses: Molecular Mechanisms, Physiology, and Human Diseases
MCDB 4426 (3) Cell Signaling and Developmental Regulation
MCDB 4427 (3) Biology of the Visual System
MCDB 4444 (3) Cellular Basis of Disease
MCDB 4471 (3) Mechanisms of Gene Regulation in Eukaryotes
MCDB 4520 (3) Bioinformatics and Genomics
MCDB 4550 (3) Cells, Molecules and Tissues: A Biophysical Approach
MCDB 4615 (3) Biology of Stem Cells
MCDB 4650 (3) Developmental Biology
MCDB 4680 (3) Mechanisms of Aging
MCDB 4750 (3) Animal Virology
MCDB 4777 (3) Molecular Neurobiology
MCDB 4790 (3) Experimental Embryology
MCDB 4811 (3-4) Teaching and Learning Biology

PHYS 1230 (3) Light and Color for Nonscientists
PHYS 1240 (3) Sound and Music
PHYS 2130 (3) General Physics 3
PHYS 2150 (1) Experimental Physics
PHYS 2170 (3) Foundations of Modern Physics
PHYS 2210 (3) Classical Mechanics and Math Methods 1
PHYS-3000 (3) Science and Public Policy
PHYS/ENVS 3070 (3) Energy and the Environment
PHYS 3210 (3) Classical Mechanics and Mathematical Methods 2
PHYS 3220 (3) Quantum Mechanics and Atomic Physics 1
PHYS 3310 (3) Principles of Electricity and Magnetism 1
PHYS 3320 (3) Principles of Electricity and Magnetism 2
PHYS 3330 (2) Electronics for the Physical Sciences
PHYS 4130 (2) Biological Electron Microscopy
PHYS 4150 (3) Plasma Physics
PHYS 4230 (3) Thermodynamics and Statistical Mechanics
PHYS 4340 (3) Introduction to Solid State Physics
PHYS 4410 (3) Quantum Mechanics and Atomic Physics 2
PHYS 4420 (3) Nuclear and Particle Physics
PHYS 4510 (3) Optics

College of Engineering and Applied Science

AREN 1027 (3) Engineering Drawing (formerly AREN 1017)
AREN 2050 (3) Building Materials and Systems
AREN 3010 (3) Mechanical Systems for Buildings
AREN 3050 (3) Environmental Systems for Buildings 1
AREN 3060 (3) Environmental Systems for Buildings 2
AREN 3140 (3) Illumination Laboratory
AREN 3540 (3) Illumination 1
AREN 4010 (3) HVAC System Modeling and Control
AREN 4035 (3) Architectural Structures 1
AREN 4045 (3) Architectural Structures 2
AREN 4110 (3) HVAC Design
AREN 4130 (3) Optical Design for Illumination and Solid State Lighting
AREN 4315 (2) Design of Masonry Structures
AREN 4317 (5) Architectural Engineering Design
AREN 4506 (3) Project Management 1
AREN 4530 (3) Advanced Lighting Design
AREN 4540 (3) Exterior Lighting Systems
AREN 4550 (3) Illumination 2
AREN 4560 (3) Luminous Radiative Transfer
AREN 4570 (3) Building Electrical Systems Design 1
AREN 4580 (3) Daylighting
AREN 4590 (3) Computer Graphics in Lighting Engineering
AREN 4606 (3) Project Management 2: Project Execution and Control
AREN 4830 (1-3) Special Topics for Seniors/Grads.
AREN 5020 (3) Building Energy Audits
ASEN 3111 (4) Aerodynamics
ASEN 3112 (4) Structures
ASEN 3128 (4) Aircraft Dynamics
ASEN 3200 (4) Orbital Mechanics/Atitude Dynamics & Control
ASEN 3300 (4) Aerospace Electronics and Communications
ASEN 4012 (3) Aerospace Materials
ASEN 4013 (3) Foundations of Propulsion
ASEN 4114 (3) Automatic Control Systems
ASEN 4128 (3) Human Factors in Engineering and Design
ASEN 4138 (3) Aircraft Design
ASEN/ATOC 4215 (3) Oceanography*
CHEN 2810 (3) Biology for Engineers
CHEN 3220 (3) Separations and Mass Transfer
CHEN 4130 (2) Chemical Engineering Lab 2
CHEN 4330 (3) Reaction Kinetics
CHEN 4440 (3) Chemical Engineering Materials
CHEN 4450 (3) Polymer Chemistry
CHEN 4520 (3) Chemical Process Synthesis.
CHEN 4521 (3) Physical Chemistry for Engineers
CHEN 4530 (2) Chemical Engineering Design Project
CHEN 4570 (4) Instrumentation and Process Control
CHEN 4630 (1) Intellectual Property Law and Engineering
CHEN 4650 (3) Particle Technology
CHEN 4801 (3) Pharmaceutical Biotechnology
CHEN 4805 (3) Biomaterials
CHEN 4810 (2) Biological Engineering Laboratory
CHEN 4820 (3) Biochemical Separations
CHEN 4830 (3) Chemical Engineering Biokinetics
CHEN 4836 (3) Nanomaterials
CHEN 4838 (3) Sp Top: Energy Fundamentals
COEN 3210 (3) Climate Change and Engineering
CVEN 2012 (3) Introduction to Geomatics
CVEN 3022 (3) Construction Surveying
CVEN 3111 (3) Analytical Mechanics 2
CVEN 3161 (3) Mechanics of Materials 1
CVEN 3246 (3) Introduction to Construction
CVEN 3256 (3) Construction Equipment and Methods
CVEN 3323 (3) Hydraulic Engineering
CVEN 3424 (3) Water and Wastewater Treatment
CVEN 3434 (3) Introduction to Applied Ecology
CVEN 3525 (3) Structural Analysis
CVEN 3602 (3) Transportation Systems
CVEN 3698 (3) Engineering Geology *
CVEN 3708 (3) Geotechnical Engineering 1 * †
CVEN 3718 (3) Geotechnical Engineering 2 *
CVEN 4161 (3) Mechanics of Materials 2
CVEN 4353 (3) Groundwater Engineering
CVEN 4383 (3) Groundwater Modeling
CVEN 4554 (3) Fundamentals of Air Quality Management
CVEN 4474 (3) Hazardous and Industrial Waste Mgmt
CVEN 4511 (3) Intro Finite Elements
CVEN 4525 (3) Matrix Structural Analysis
CVEN 4545 (3) Steel Design
CVEN 4555 (3) Reinforced Concrete Design
CVEN 4565 (2) Timber Design
CVEN 4700 (3) Sustainability and the Built Environment
CVEN 4728 (3) Foundation Engineering
CVEN 4834 (3) Sustainable Potable Water Supply Systems in Chile
CVEN 4838 (3) Sp Top: Sustainable Community Development 1
CVEN 5393 (3) Water Resources Development & Management
CVEN 5432 (3) Water Resource Engineering Design
CVEN 5537 (3) Numerical Methods in Civil Engineering

CSCI 1240 (3) The Computational World
CSCI 1300 (4) Computer Science 1: Starting Computing
CSCI 2270 (4) Computer Science 2: Data Structures
CSCI 2400 (4) Computer Systems
CSCI 2820 (3) Linear Algebra with Computer Science Applications
CSCI 2824 (3) Discrete Structures
CSCI 2830 (1-3) Special Topics in Computer Science
CSCI 3002 (3) HCC Foundations/User-Centered Design and Dev 1
CSCI 3104 (4) Algorithms
CSCI 3112 (1-3) Human-Centered Computing Professional Dev
CSCI 3155 (4) Principles of Programming Languages
CSCI 3202 (3) Introduction to Artificial Intelligence
CSCI 3287 (3) Database and Information Systems
CSCI 3308 (3) Software Development Methods and Tools
CSCI 3434 (3) Theory of Computation
CSCI 3656 (3) Numerical Computation
CSCI 3702 (3) Cognitive Science
CSCI 3753 (4) Operating Systems
CSCI 4229 (3) Computer Graphics
CSCI 4273 (3) Network Systems
CSCI-4302 (3) Advanced Robotics
CSCI 4308 (4) Software Engineering Project 1
CSCI-4314 (3) Algorithms for Molecular Biology
CSCI 4318 (4) Software Engineering Project 2
CSCI 4446 (3) Chaotic Dynamics
CSCI 4448 (3) Object Oriented Analysis and Design
CSCI-4502 (3) Data Mining
CSCI 4555 (3) Introduction to Compiler Construction
CSCI 4576 (4) High Performance Scientific Computing 1
CSCI 4593 (3) Computer Organization
CSCI 4703 (3) Computer Architecture
CSCI 4809 (3) Computer Animation
CSCI-4830 (1-3) Special Topics in Computer Science

ECEN 1310 (4) C and MATLAB Programming for Electrical and Computer Engineers
ECEN 1400 (3) Introduction to Digital and Analog Electronics
ECEN 2060 (3) Sp Top: Renewable Energy
ECEN 2250 (3) Introduction to Circuits and Electronics
ECEN 2270 (3) Electronics Design Lab
ECEN 2350 (3) Digital Logic
ECEN 2410 (3) Renewable Sources and Efficient Electrical Energy Systems
ECEN 2703 (3) Discrete Mathematics for Computer Engineers
ECEN 3010 (3) Circuits and Electronics for Mechanical Engineers
ECEN 3030 (3) Electrical/Electronic Circuits Non-Major
ECEN 3170 (3) Electromagnetic Energy Conservation 1
ECEN 3002 to 3005 (3-5) Special Topics
ECEN 3250 (3) Microelectronics
ECEN 3300 (5) Linear Systems
ECEN 3320 (3) Semiconductor Devices
ECEN 3350 (3) Programming Digital Systems
ECEN 3360 (3) Digital Design Laboratory
ECEN 3400 (5) Electromagnetic Fields and Waves
ECEN 3410 (3) Electromagnetic Waves and transmission
ECEN 3810 (3) Introduction to Probability Theory
ECEN 4021 (3) Sp Top: Design Med Device
ECEN 4138 (3) Control Systems Analysis
ECEN 4167 (3) Electromagnetic Energy Conservation 2
ECEN 4224 (3) High Speed Digital Design
ECEN 4242 (3) Communication Theory
ECEN 4341 (3) Bioelectromagnetics

ECEN 4517 (2) Power Electronics Laboratory
ECEN 4532 (3) Digital Signal Processing Laboratory
ECEN 4553 (3) Introduction to Compiler Construction
ECEN 4555 (3) Principles of Energy Systems and Devices
ECEN 4593 (3) Computer Organization
ECEN 4606 (3) Undergraduate Optics Laboratory
ECEN 4616 (3) Optoelectric System Design
ECEN 4632 (3) Introduction to Digital Filtering
ECEN 4634 (2) Microwave and RF Laboratory
ECEN 4638 (2) Control Systems Laboratory
ECEN 4652 (2) Communication Laboratory
ECEN 4797 (3) Introduction to Power Electronics
ECEN 4827 (3) Analog IC Design

EMEN 4030 (3) Project Management Systems
EMEN 4050 (3) Leadership and Professional Skills
EMEN 4200 (3) Technology and Entrepreneurship for the Developing World
EMEN 4800 (3) Technology Ventures and Marketing
EMEN 4825 (3) Entrepreneurial Business Plan Preparation
EMEN 4830 (3) Entrepreneurial Management and Leadership
ENEN 4600 (3) Energy Engineering Projects

EVEN 2840 (1-3) Independent Study
EVEN 4100 (3) Environmental Sampling and Analysis * †
EVEN 4696 (3) Water and Sanitation
EVEN 4830 (3) Environmental Engineering Process Modeling
EVEN-4830-002 (3) Cad/Gis
EVEN 4840 (1-3) Independent Study
EVEN 4980-4990 (6) Senior Thesis

GEEN 1017 (3) Cad course
GEEN 3400 (3) Invention and Innovation

MCEN 1025 (3) Computer-Aided Design and Fabrication
MCEN 2024 (3) Materials Science
MCEN 2063 (3) Mechanics of Solids
MCEN 3025 (3) Component Design
MCEN 3030 (3) Computational Methods
MCEN 4026 (3) Manufacturing Processes and Systems
MCEN 4115 (3) Mechantronics and Robotics I
MCEN 4117 (3) Anatomy and Physiology for Engineers
MCEN 4141 (3) Indoor Air Pollution
MCEN 4151 (3) Flow Visualization
MCEN 4152 (3) Introduction to Combustion
MCEN 4162 (3) Energy Conversion
MCEN 4173 (3) Finite Element Analysis
MCEN 4174 (3) Failure of Engineering Materials
MCEN 4183 (3) Mechanics of Composite Materials
MCEN 4228 (3) Sp Top: Energy Conservation and Storage
MCEN 4228 (3) Sp Top: Environmental Modeling
MCEN 4228 (3) Sp Top: Renewable and Sustainable Energy
MCEN 4228 (3) Sp Top: Wind Energy
MCEN 4228 (3) Sp Top: Air Measurement