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: https://catalog.colorado.edu/.

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

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**Arts & Sciences**

- **CHEM 4011 (3)** Modern Inorganic Chemistry
- **CHEM 3341 (1)** Lab in Organic Chemistry 2
- **CHEM 3331 (4)** Organic Chemistry 2
- **CHEM 3321 (1)** Lab in Organic Chemistry 1
- **CHEM 3311 (4)** Organic Chemistry 1
- **CHEM 4181 (4)** Instrumental Analysis Lab with Environ Emphasis
- **CHEM 4181 (4)** Instrumental Analysis Lab
- **CHEM 4171 (3)** Instrumental Analysis
- **CHEM 4271 (3)** Chemistry of Solar Energy
- **CHEM 4531 (3)** Physical Chemistry 2
- **CHEM 4591 (2)** Physical Chemistry Lab 1
- **CHEM 4611 (3)** Survey of Biochemistry
- **CHEM 4731 (3)** General Biochemistry 2
- **CHEM 4761 (4)** Biochemistry Laboratory

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

**CHEM 4261 (3)** Organic Materials: Structures and Functions
**CHEM 4731 (4)** General Biochemistry 2

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**ATOC 1070 (1)** Weather and the Atmosphere Lab *†
**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)** Biogeochmical Oceanography
**ATOC 4500 (1-3)** Special Topics in Atmospheric and Oceanic Sciences
**CHEM 3151/ATOC 3500 (3)** Air Chemistry and Pollution
**CHEM 3331 (4)** Organic Chemistry 2
**CHEM 3341 (1)** Lab in Organic Chemistry 2
**CHEM 4011 (3)** Modern Inorganic Chemistry

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New courses added in red

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**Arts & Sciences**

- **AIRR 3010 (3)** Air Force Leadership Studies I
- **APPM 3010 (3)** An Introduction to Nonlinear Systems: Chaos
- **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
- **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 1030 (4)** Accelerated Intro Astronomy 1
- **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)** Biogeochmical Oceanography
- **ATOC 4500 (1-3)** Special Topics in Atmospheric and Oceanic Sciences
- **CHEM 4181 (4)** Instrumental Analysis Lab with Environ Emphasis
- **CHEM 4181 (4)** Instrumental Analysis Lab
- **CHEM 4171 (3)** Instrumental Analysis
- **CHEM 4271 (3)** Chemistry of Solar Energy
- **CHEM 4531 (3)** Physical Chemistry 2
- **CHEM 4591 (2)** Physical Chemistry Lab 1
- **CHEM 4611 (3)** Survey of Biochemistry
- **CHEM 4731 (3)** General Biochemistry 2
- **CHEM 4761 (4)** Biochemistry Laboratory

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**EBIO 1030 (3)** Biology: A Human Approach 1
**EBIO 1040 (3)** Biology: A Human Approach 2
**EBIO 1050 (1)** Biology: A Human Approach Laboratory
**EBIO 1210 (3)** General Biology 1
**EBIO 1220 (3)** General Biology 2
**EBIO 1230 (1)** General Biology Laboratory 1
**EBIO 1240 (1)** General Biology Laboratory 2
**EBIO 1300 (1-3)** Topics in Biological Sciences
**EBIO 2010 (1-3)** Environmental Issues and Biology
**EBIO 2040 (4)** Principles of Ecology
**EBIO 2070 (4)** Genetics: Molecules to Populations
**EBIO-2090 (3)** Tropical Island and Marine Ecology
**EBIO-2091 (1)** Marine Ecology, Oceanography and Island Ecology

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**Field Studies**

- **EBIO 3010 (1-2)** Teaching Biology
- **EBIO 3040 (4)** Conservation Biology
- **EBIO 3080 (4)** Evolutionary Biology
- **EBIO 3180 (3)** Global Ecology
- **EBIO 3190 (3)** Tropical Marine Ecology
- **EBIO 3240 (4)** Animal Behavior
- **EBIO 4155 (3)** Ecosystem Ecology
- **EBIO 3850 (4)** Animal Diversity: Invertebrates
- **EBIO 4030 (3)** Limnology
- **EBIO 4060 (3)** Landscape Ecology
- **EBIO 4090 (2)** Coral Reef Ecology
- **EBIO 4100 (3)** Advanced Ecology
- **EBIO 4120 (2-4)** Advanced Ecology
- **EBIO 4140 (3)** Plant Ecology
- **EBIO 4290 (3)** Molecular Systematics and Evolution
- **EBIO 4410 (4)** Biometry
- **EBIO 4500 (4)** Plant Biodiversity and Evolution
- **EBIO 4510 (4)** Plant Anatomy and Development
- **EBIO 4520 (4)** Plant Systematics
- **EBIO 4640 (2-4)** Plant Field Studies
- **EBIO 4660 (4)** Insect Biology
- **EBIO 4750 (4)** Ornithology
- **EBIO 4760 (4)** Mammalogy

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**ENVS/PHYS 3070 (3)** Energy and the Environment
**ENVS/PHYS 3040 Conservation Biology
**ENVS/PHYS 3070 (3)** Energy and the Environment
ENVS 3520 (3) Energy and Climate Change: An Interdisciplinary Approach
ENVS 3022 (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) Environl Systems 1- Climate & Vegetation *
GEOL 1011 (4) Environl 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-4103 (4) Introduction to Geographic Information Science
GEOL 4110 (3) Sp.Topics: GIS in the Social and Natural Sciences
GEOL/ENVS 4201 (3) Biometeorology *
GEOL 4203 (4) Geographic Information Science: Modeling Applic
GEOL 4241 (4) Principles of Geomorphology *
GEOL 4303 (4) GIS: Programming for Spatial Analysis
GEOL 4311 (3) Watershed Biogeochemistry
GEOL 4321 (3-4) Snow Hydrology
GEOL 4371 (3) Forest Geography: Principles and Dynamics
GEOL 4401 (3) Soils Geography *
GEOL 4501 (3) Water Resources & Water Management of Western US
GEOL 4603 (3) GIS-Social and Natural Sciences
GEOL-4722 (3) Field Methods in Human Geography

GEOL 1010 (3) Introduction to Geology 1 *
GEOL 1020 (3) Introduction to Earth History*
GEOL 1030 (1) Introduction to Geology Laboratory 1  †
GEOL 1040 (3) Geology of Colorado *
GEOL 1060 (3) Global Change--an Earth Science Perspective *
GEOL 1150 (3) Water, Energy & Environment: An Intro To Earth Resources
GEOL-2001 (4) Planet Earth
GEOL-2005 (4) Introduction to Earth Materials
GEOL-2040 (3) The Search for Life in the Universe
GEOL 2100 (3) Environmental Geology *
GEOL 2700 (2) Introduction to Field Geology  †
GEOL 3010 (3) Introduction to Mineralogy  †
GEOL 3020 (3) Petrology*
GEOL 3030 (3) Introduction to Hydrogeology *
GEOL 3040 (3) Global Change: The Recent Geological Record *
GEOL 3050 (2) GIS for Geologists *
GEOL/ATOC 3070 (3) Introduction to Oceanography *
GEOL 3120 (4) Structural Geology *
GEOL 3320 (3) Introduction to Geochemistry *
GEOL 3410 (3) Paleobiology *
GEOL 3430 (4) Sedimentology and Stratigraphy *
GEOL 3520 (3) Energy and Climate Change: An Interdisciplinary Approach
GEOL 3720 (3) Evolution of Life: The Geological Record *
GEOL 3820 (3) The Fluid Earth *
GEOL 3950 (3) Natural Catastrophes & Geologic Hazards *
GEOL 4093 (4) Remote Sensing of the Environment
GEOL 4130 (3) Principals of Geophysics *

GEOL 4241 (4) Principles of Geomorphology *
GEOL 4270 (3) Marine Chemistry and Geochemistry
GEOL-4330 (3) Cosmochemistry
GEOL 4474 (4) Vertebrate Paleontology
GEOL 4670 (3) Isotope Geochemistry *
GEOL 4711 (2) Igneous and Metamorphic Field Geology *
GEOL 4712 (2) Structural Field Geology *
GEOL 4714 (2) Field Geophysics *
GEOL 4715 (2) Field Techniques in Hydrogeology *
GEOL 4716 (2) Environmental Field Geochemistry  †
GEOL 4717 (2) Field Seminar in Geology and Tectonics *
GEOL-4721 (2) Field Methods in Active Tectonics

IPHY 2420 (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 3110 (3) Introduction to Theory of Numbers
MATH-3120 (3) Functions and Modeling
MATH 3140 (3) Abstract Algebra 1
MATH 3170 (3) Combinatorics 1
MATH 3210 (3) Euclidean and Non-Euclidean Geometries
MATH 3450 (3) Partial Differential Equations 1
MATH 4000 (3) Foundations of Mathematics
MATH 4001 (3) Analysis II
MATH 4120 (3) Introduction to Operations Research
MATH 4140 (3) Abstract Algebra 2
MATH 4200 (3) Introduction to Topology
MATH 4230 (3) Geometry of Curves and Surfaces
MATH 4330 (3) Fourier Analysis
MATH 4440 (3) Mathematics of Coding and Cryptography
MATH 4450 (3) Introduction to Complex Variables
MATH 4510 (3) Introduction to Probability Theory
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) Introduction to Cell and Molecular Biology Lab
MCDB-1152 (1) Problem Solving Co-Seminar for Introduction to Molecular and Cellular Biology
MCDB 1161 (2) From Dirt to DNA: Phage Genomics Laboratory I
MCDB 2161 (2) From DNA to Genes, Phage Genomics Laboratory II
MCDB 2150 (3) Principles of Genetics
MCDB 2151 (1) Principles of Genetics Laboratory
MCDB 3135 (3) Molecular Cell Biology 1
MCDB 3140 (2) Cell Biology Laboratory
MCDB 3150 (3) Biology of the Cancer Cell
MCDB 3350 (3) Fertility, Sterility, and Early Mammalian Development
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**College of Engineering and Applied Science**

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CVEN 4838 (3) Sp Top: Sustainable Community Development
CVEN 4834 (3) Sp Top: Solid Waste & Resource Recovery
CVEN 4833 (3) Sp Top: Surface Water-Groundwater Exchanges
CVEN 4834 (3) Sp Top: Sustainable Potable Water Supply Systems
CVEN 4834 (3) Sp Top: Environmental Impact Assessment in Chile
CVEN 4834 (3) Sp Top: International Environmental Impact Assessment
CVEN 4838 (3) Sp Top: Environmental Impact Assessment
CVEN 4833 (3) Sp Top: Solid Waste & Resource Recovery
CVEN 4728 (3) Foundation Engineering
CVEN 4700 (3) Sustainability and the Built Environment
CVEN 4834 (3) Sp Top: Sustainable Potable Water Supply Systems
CVEN 4833 (3) Sp Top: Surface Water-Groundwater Exchanges
CVEN 4728 (3) Foundation Engineering
CVEN 4700 (3) Sustainability and the Built Environment
CVEN 4834 (3) Sp Top: Environmental Impact Assessment
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
CVEN 5544 (3) Solid Waste
CVEN 5833 (3) Sp Top: Surface Water-Groundwater Exchanges
CVEN 5834 (3) Sp Top: Environmental Impact Assessment
CVEN 5834 (3) Sp Top: Small System Water/Wastewater Treatment

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 4753 (3) Computer Performance Modeling
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
ECEN 3410 (3) Electromagnetic Waves and transmission
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 4583 (3) Fundamental of Systems Engineering
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 4400 (3) Quality Management for Engineers
EMEN 4405 (3) Fundamental of Systems Engineering
EMEN 4800 (3) Technology Ventures and Marketing
EMEN 4825 (3) Entrepreneurial Business Plan Preparation
EMEN 4830 (3) Entrepreneurial Management and Leadership
EMEN 4830 (3) Principles and Practices of the Sustainable Enterprise
EMEN 4830 (3) Resilience Engineering Management
EMEN 4600 (3) Energy Engineering Projects
EMEN 5830 (3) Principles and Practices for Sustainable Enterprise

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 4834 (3) International Environmental Impact Assessment
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) Mechatronics and Robotics I
MCEN 4117 (3) Anatomy and Physiology for Engineers
MCEN 4135 (3) Wind Energy and Wind Turbine Design
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
MCEN 4228/5228 (3 together) Sp Top: Project-Based Learning in Rural Schools
MCEN 4135 (3) Wind Energy and Wind Turbine Design