COURSE DESCRIPTIONS

GEOL 350A Geologic Research: Antelope Island 2 CREDITS
Geological research method courses combine abbreviated classroom time with extended day, weekend or semester break field excursions to allow students the opportunity to collect their own samples, make their own maps, or in other ways put into practice the concepts that they have learned in the classroom.

GEOL 440S Internship 1 to 8 CREDITS

GEOL 107 Geology of the American West 4 CREDITS
This class uses case studies in Western North America to introduce students to the field of geology. Through investigations of the Pacific Northwest, the Colorado Plateau, the Wyoming Craton, and the Wasatch Mountains, students will learn the theories and concepts that geologists use to understand our entire planet. Be warned: this class will change the way you see the world. (WCore: WCSAM, QE) Note: Students may get credit for GEOL 107 or GEOL 111, but not both.

GEOL 111 National Parks Geology 4 CREDITS
Many of America's National Parks were designated because of their geologic beauty and history. This course will examine geologic principles and concepts through the lens of National Park Service units, as they often represent the most exquisite examples of geologic phenomena. Geology within national parks tells a story of the evolution of North America, from mountain building, to volcanism, to historic inland seas and giant beasts of an earlier geologic age. (WCore: WCSAM, QE) Note: Students may get credit for GEOL 107 or GEOL 111, but not both.

GEOL 201 Earth Materials I: Mineralogy & Lab 4 CREDITS
In this integrated lecture-lab course, students learn how minerals are formed in various geologic environments, how to identify minerals using diagnostic properties, and how minerals are relevant to societal needs. Students will use chemical principles to understand mineral formation and appearance from the atomic to outcrop scales. Lab exercises allow students to practice identification skills of mineral samples and will allow students to explore the world of minerals using polarizing light microscopes.

GEOL 205 Climate Science and Solutions 4 CREDITS
A study of the earth as a dynamic system focusing on the human dimensions of global change. (WCore: EWRLD)

GEOL 210 Historical Geology 4 CREDITS
This course traces the history of the Earth from its fiery origins to its current state. Along the way students will learn about the major geological, environmental, and biological changes that have sculpted the planet we all know and love.

GEOL 214 Sedimentology and Stratigraphy 4 CREDITS
This course takes an in-depth look at how geologists use sedimentary rocks to interpret the changing nature of the earth's surficial environment. This class utilizes actualistic experiments and field studies in addition to traditional lectures and discussions. Topics include the physical nature of sediment and sedimentary environments (shelf, terrestrial, and carbonate); naming clastic and chemical sedimentary rocks; dating, correlation, and magnetostratigraphy; biostratigraphy and biogeography; and sequence stratigraphy. Includes a 2-hour weekly lab.

GEOL 230 Dinosaur Paleobiology 4 CREDITS
They say you can't get blood from a stone, but paleontologists often try to do exactly that. With nothing but a few fossilized fragments, paleontologists reconstruct not just the anatomy of extinct creatures, but also their physiology, behavior, ecology, and life histories. This class will use dinosaurs as an extended case study to explore how paleontologists make claims about the lives of long dead creatures, and about how understanding those creatures' lives can lead to additional insights about the history of the earth and the dynamics of evolution. (WCore: WCSAM)

GEOL 260 Geoliteracy 2 CREDITS
This course serves prospective geology majors and minors with an overview of the field from the perspective of working geologists. Topics to be covered will include, but not be limited to, an overview of geological subdisciplines, reading the scholarly literature, careers in geology, and communicating geological information to a variety of audiences.

GEOL 300 Special Topics in Geology 1 to 4 CREDITS
Topics of interest and importance not covered by regularly scheduled courses.

GEOL 301 Earth Materials II: Petrology 4 CREDITS
This integrated lecture-lab class serves as an introduction to the types of igneous and metamorphic rocks and the geologic processes that create them. Emphasis is placed on the identification of rocks from hand samples and thin sections. Students will explore rocks from world-class locations such as Yellowstone, providing opportunities to link observations and processes to the broader regional geology.

GEOL 310 Structural Geology and Tectonics 4 CREDITS
This course studies the fate and evolution of the solid parts of the earth after initial rock formation has occurred. Students in this class will learn about the forces that bend, break and shape rock as well as the origin of those forces from tectonic processes.

GEOL 311 Scientific Writing 2 CREDITS
Writing is a crucial skill in practicing science; the communication of data to other scientists in written form creates a reliable body of peer-reviewed literature that propels discovery. Students will practice good writing techniques and science-specific fundamentals in the format of a variety of outlets, including primary research reports, secondary literature reviews, and grant proposals. They will learn scientific citation and referencing skills that credit primary discoveries and recent innovations. This foundation will not only give students better communication skills, but it will also give them new insight into reading scientific studies. The course will also consider methods for effective communication of science to the public.

GEOL 315 Principles of Paleontology 4 CREDITS
This course introduces the organisms that compose the fossil record as well as the methods that paleontologists use to reconstruct the life of the past. Topics include modes of preservation, classification and the species problem, biases of the fossil record, phylogenetic reconstructions, functional morphology, paleoecology, morphometric analyses, evolutionary developmental biology, evolutionary trends, and critical intervals in the history of life.

GEOL 320 Volcanology 4 CREDITS
Volcanoes are one of Earth's most powerful geologic phenomena, causing disruption on local and global scales, with potentially cataclysmic consequences. This course will survey different eruption styles, magma production and differentiation, associated hazards, mitigation techniques, and volcanoes throughout our Solar System. Modern and historical case studies will be used to demonstrate successes and failures associated with geologic hazards.

GEOL 325 Oil and Water 4 CREDITS
This course focuses on natural resources within the state of Utah, and how these resources affect people and places locally, regionally, and globally. Four principle resources will be examined: oil, water, coal, and mineable resources (primarily uranium, copper, and silver). Students will learn the geology behind each resource, extraction and refining methods, laws and policies pertaining to resource development, and impacts (both positive and negative) of the resources on people, places, and the world. (WCore: EWRLD)

GEOL 350 Geological Research Methods 1 to 4 CREDITS
Geological research method courses combine abbreviated classroom time with extended day, weekend or semester break field excursions to allow students the opportunity to collect their own samples, make their own maps, or in other ways put into practice the concepts that they have learned in the classroom.

GEOL 360 Field Geology 6 CREDITS
This course, preferably taken in the summer before senior year, is the opportunity for students to put their skills into practice. After an initial week of in-class instruction on field methods, students will get in the vans for the ultimate in experiential learning. At various field locales around Utah and Colorado, students will gain experience mapping, measuring sections, and creating stratigraphic columns. (WCore: SC)

GEOL 401 Directed Studies 1 to 4 CREDITS
A student-driven research project on some aspect of geology. One credit hour equates to a minimum of four hours of research each week. Requires the consent of the instructor and school dean.

GEOL 402 Senior Seminar 3 CREDITS
This class will familiarize students with scholarly geological literature. Students will read and discuss contemporary geological research papers and will learn the process for writing research proposals and journal articles.

GEOL 405 Geochemistry 4 CREDITS
This class explores the chemical fundamentals of geologic processes. Students will explore how rocks and minerals record chemical variabilities within magma chambers, learn fundamentals of radio-isotopic dating, use tracer isotopes to explore the nature of the unseen mantle and crust, and use stable isotopes to examine climatic changes across geologic time. Real quantitative data will allow students to practice computational skills employed by scientists to understand the evolution of Earth.

GEOL 415 Geobiology 3 CREDITS
Geobiology uses the tools of biology and biochemistry to study the long term interactions between the Earth and life. Students will learn the significance and uses of global chemical cycles, the use of biomarkers in geology, mechanisms of biomineralization, how metabolism affects geochemistry, and will explore the history of the Earth from a completely new perspective.

GEOL 425 Geophysics 4 CREDITS
This class will act as a capstone class for students with a particular interest in the physical evolution of the earth. Topics to be covered may include the dynamics of the earth's interior, the generation and evolution of the earth's magnetic field, gravimetry as a tool for geologic exploration, rotation of the earth's core and the flow of heat in the mantle.

GEOL 430 Undergraduate Research 1 to 4 CREDITS
Students complete a research project and learn the process of scientific inquiry through hypothesis testing. One credit hour equates to a minimum of four hours of research each week. Requires consent of the instructor.

GEOL 440 Internship 1 to 8 CREDITS
Offers students the opportunity to integrate classroom knowledge with practical experience. Students will be graded on assigned coursework and evaluation by their site supervisor. Prerequisites: 60 college credits completed (for transfer students at least 15 hours competed at Westminster or permission of instructor), minimum 2.5 GPA, and consent of faculty advisor and Career Center internship coordinator. Interns will work for 42 hours per each registered credit. This course is repeatable for credit. Some majors limit how many internship credits may count towards the major, consult your faculty advisor. REGISTRATION NOTE: Registration for internships is initiated through the Career Center website and is finalized upon completion of required paperwork and approvals. More info: 801-832-2590 https://westminstercollege.edu/student-life/career -center/internships.html