LEARNING TO READ THE EARTH
WYOMING FIELD STUDIES
WITH THE
UNIVERSITY OF PITTSBURGH
HONORS COLLEGE
The Wyoming Field Studies Program introduces the fundamental practices of geology, paleontology, ecology, and archaeology. Students are given the opportunity to unlock a natural time capsule teeming with remnants of life that date back 150 million years.

A generous donation of land to the University of Pittsburgh by rancher Allen Cook affords the University of Pittsburgh Honors College stewardship of the Allen L. Cook Spring Creek Preserve. This bountiful 6000-acre tract embraces pristine dinosaur-bone-bearing beds, Native American archaeology spanning 9,000 years, indigenous prairie ecology, and a section of the original grade of the 1869 trans-continental railroad. Located near Rock River, Wyoming, the Spring Creek Preserve includes prominent outcroppings of the Jurassic Morrison Formation, a geological formation that contains some of the most famous dinosaurs known to North America. In fact, the first example of the famous *Diplodocus carnegii*, whose skeleton lives across the street from the Honors College in the Carnegie Museum of Natural History, was unearthed nearby in the very same formation! Unlike the *Diplodocus*’s excavation site, the Spring Creek Preserve was left untouched during the Western US excavations of the late 19th and early 20th centuries; as such, students explore the concepts and methods of paleoecology in a pristine environment.
This course is a one-of-a-kind introduction to geology, paleontology, ecology, and archaeology, with a strong emphasis on field techniques. The experience is further broadened by intersecting topics with fictional and nonfictional literature set in the area, historical accounts of the Laramie region, and discussions of the political and ethical issues surrounding land use in the West.

The intellectual objective of the class, broadly speaking, is to develop in students an understanding of the complex geological, biological, and historical processes that have shaped the Wyoming landscape and constrain its future. Students learn that both sweeping forces (the uplift and erosion of mountain chains, the inundation and retreat of inland seas) and subtle ones (a small change in topography collects snow drifts in the winter, retaining more moisture and allowing sagebrush to grow in that location and not another) must all be taken into account to understand the present distribution and interactions of plants and animals, including humans, in the Laramie Basin or the world at large.
Dr. Steven Latta leads students in the classic techniques of a long-term monitoring study in a riparian (wetlands next to streams) sector of the property where a fence has been erected to prevent grazing by cattle (but not by the native pronghorn “antelope”). Results each year are entered into a computer-based module developed by a prior year’s student that permits a year-to-year comparison of outcomes for ecological analysis and will provide valuable information on the impact of cattle grazing on riparian habitats.
Students and staff divide their time between a home base of lodging and food services in Laramie where they live together in a UW residence hall, and several days each week residing under the stars in tents on the Preserve. Extended fieldwork frequently requires a means other than tents to endure strong prairie winds and thunderstorms. Steel cargo containers outfitted with bunks and storage compartments provide a safe and durable shelter that can withstand even the most severe weather.
Collaboration with the University of Wyoming provides additional rich educational opportunities and research resources for the course. The occasional traditional classroom presentation complements the rugged fieldwork.
The Spring Creek Preserve lies on the western flanks of the Laramie Mountains and the adjacent eastern margin of the Laramie Basin, just twenty miles north of the snow-capped Medicine Bow Mountains. The grassy landscape is structurally underlain by layered rocks that are thrown into a series of five anticlinal folds developed through contractional stresses that broadly affected western North America roughly 50 million years ago. The class ranges widely through this and neighboring regions uncovering evidence of the geological mechanisms that shaped our planet over billions of years. Here in details at every turn lie unique opportunities for student engagement in learning and research on the scale of a continent.
The cold, windswept prairies of the Laramie Basin looked very different 150 million years ago, when herds of dinosaurs moved through a semitropical, forested landscape populated by a diverse fauna of insects, lizards, and even small mammals. How do we know this? The Jurassic Morrison Formation, home to some of the most famous dinosaurs known from North America, preserves fossils of a diverse and fascinating biota. Join us as we explore the concepts and methods of paleoecology to better understand not only these captivating dinosaurs but also their contemporaries, along with the climates, landscapes, and floras and faunas of other Mesozoic terrestrial and marine deposits exposed on the Allen L. Cook Spring Creek Preserve. Our time traveling will also extend to local and regional evidence for biotic and environmental change leading to the present day ecosystem, along the way hunting for signs of human use of the pre-historical and historical landscape.
Throughout the Preserve there is evidence of a continuous presence of Native Americans extending back approximately 12,000 years. These include teepee rings and fire pits, stone points dating from the Pleistocene, and within several miles radius, remnants of stone dwellings and a forest wickiup. Each summer, students learn about aspects of Native American culture first hand by conducting an archaeological survey of a portion of the Preserve, eating wild foods, learning to flint knap and carve soapstone, and hurling spears with an atlatl.
Students connect a strong understanding of the Preserve’s deep past to a series of activities evaluating its present condition and biodiversity and its possible future trajectories. Starting with field lectures by prominent regional ecologists, the class then learns to identify key species of the local and regional fauna and flora and to investigate their ecological roles in the Rocky Mountain West. A series of exercises on the Preserve and in nearby mountain habitats highlight key scientific questions for western ecologists and their methods of data collection. Activities include estimating the biodiversity of landscapes, characterizing avian communities, exploring macroinvertebrate life in streams, quantifying habitat degradation, and investigating prairie dogs as potential keystone species.
Instructors of the field course include experts from the University of Pittsburgh, the University of Wyoming, the Carnegie Museum of Natural History (CMNH), and other institutions.

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Students embark on frequent excursions into the nearby Laramie Mountains that bound the prairie to the east and north, and into the Medicine Bow Mountains to the south, which rise to lakes and snow-capped peaks at 12,000 feet. The landscapes visited during these spectacular forays stimulate diverse topics of study for the class including subsistence practices of Native American cultures of the region and the history of the settlement of the west by colonists of the new United States. This settlement brought wagon trains, railroad lines, irrigation practices, agriculture, extractive industries, and ascending values in privatization of property versus public land reserves. Historical site visits include the Virginian Hotel in Medicine Bow that commemorates America’s first western novel, and the new Wyoming Territorial Prison Museum in Laramie that chronicles life and justice in the frontier west. Hiking and camping trips into dramatic locales provide broader contexts for learning as the class investigates off-reserve geological, ecological and historical sites in southeast Wyoming. In a separate optional excursion, students can explore the varied geology, paleontology, archaeology, and ecology of the state of Wyoming by way of visits to Yellowstone National Park, Grand Teton National Park, Thermopolis hot springs, the Green River Formation fossil collecting sites, and the Killpecker Dune Field.
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The occasions provided through this course to gain new perspectives on the earth represent unparalleled opportunities. The same can be said of the close mentoring situations by experienced faculty in the course, both educational and inspirational. Yet it is the relationships between the students, forged from shared discovery and challenge in awesome settings, that may contribute more than anything to the life-changing experience of the course.

INTERESTED?

Learning to Read the Earth:
Wyoming Field Studies in Ecology and Paleontology
Six credits :: Summer Term :: Late June through Early August
www.honorscollege.pitt.edu/wyoming-field-studies

The team of core faculty from geology, ecology, and anthropology will deliver an exceptional hands-on experience in learning by integrating content and field methods instruction. Centered on the Allen L. Cook Spring Creek Preserve in Wyoming at a modest cost of around $4000 including tuition, room, board, and equipment, the program is open to all majors. You will explore prairie basins and the ecosystems leading up to the snowfields of the Medicine Bow Mountains; study mammals, birds, insects, and stream ecosystems using binoculars, live trapping, and remote cameras; excavate dinosaurs and survey Native American hearths; reconstruct ancient environments revealed by rock outcrops and their fossils; enrich your understanding of water rights, cattle grazing, and economic development of the American west; and experience a spectacular array of natural wonders in other areas of Wyoming including Yellowstone and the Tetons. Insights gleaned from the course will form a foundation for students to recognize and understand the local and regional impacts of human activities on the planet’s values, no matter where life’s journey takes them.

BEGIN YOUR JOURNEY
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