

Denver Museum of Nature & Science

PALEONTOLOGY CERTIFICATION PROGRAM



2009 COURSE DESCRIPTIONS

Paleontology 101

Lou Taylor, PhD, research associate, Earth Sciences Department

Explore basic concepts of paleontology and geology. Following an introduction on the history of life on Earth, learn how fossils are formed, their scientific value, and the basics of collection and data recovery, curation, and study.

Reading Colorado: An Introduction to the Geology of Colorado

Bob Reynolds, PhD, research associate, Earth Sciences Department

Discover geology fundamentals as applied to the fossil record. Learn the basics of stratigraphy, sedimentology, geological mapping, and dating techniques, and complete a field report. Course includes two full day field trips: one to introduce you to the Denver Basin and to Front Range structure and stratigraphy, while the second will highlight specific sites in central Colorado that are discussed in the classroom.

Curation of Fossils

Logan Ivy, PhD, collections manager, Earth Sciences Department

Learn the basics involved in the identification of fossils: accessioning, cataloging, and documenting locality information.

Paleontology of the Western Interior

Kirk Johnson, PhD, vice president and chief curator, Research & Collections Division

The Western Interior of North America preserves one of the most complete sequences of fossil-rich rock in the world. Explore the fossil treasures of the Rocky Mountain states.

Evolution

Richard Stucky, PhD, curator of paleoecology and evolution, Earth Sciences Department

Evolution is the most important scientific principle in modern science. From understanding the development of the universe to understanding the world's diversity, to understanding human physical and cultural change over time, evolution explains, through the scientific process, how change takes place in the fossil and archaeological record. Examine millions of years of changes in the history of life and how evolution explains them. Begin with the definition of science and why explanations that deny evolution are not compatible with the scientific method.

Vertebrate Paleontology I: Fishes to Birds

Bryan Small, preparator, Earth Sciences Department

Investigate the origin and evolution of vertebrates excluding mammals and their ancestors. Focus on major evolutionary events and the origins of the major vertebrate groups. Course includes lecture and hands-on lab sessions.

Vertebrate Paleontology II: Mammals

Lou Taylor, PhD, research associate, Earth Sciences Department

Examine the origin and evolution of mammals from the Mesozoic to today. Learn who evolved when and where, and who survived. Course includes lecture/lab sessions plus exams.

Invertebrate Paleontology I: Precambrian & Paleozoic

Emmett Eyanoff, PhD, research associate, Earth Sciences Department

The early stage in the history of invertebrates is represented by the late Precambrian and the Paleozoic, ending with the Permian-Triassic extinction. Trilobites, brachiopods, and crinoids were especially abundant. Examine the fossil groups that were most important during this early stage. Four lecture/lab sessions plus a final exam.

Denver Museum of Nature & Science

PALEONTOLOGY CERTIFICATION PROGRAM



Invertebrate Paleontology II: Mesozoic & Cenozoic

Emmett Evanoff, PhD, research associate, Earth Sciences Department

The modern groups of abundant invertebrates arose from the ashes of the Permian-Triassic extinction. Groups such as mollusks, crustaceans, and echinoids became dominant, and remain so to the present. Examine the fossil groups that are most important during this second stage of invertebrate history. The course includes a one-hour lecture and a two-hour lab each night.

Paleobotany

Ian Miller, PhD, curator of paleobotany, Earth Sciences Department

Nearly 300,000 species of plants live on Earth today. This lively course starts with the first land plants and moves through the 400 million-year history of plant evolution on Earth. Learn the major groups of plants and how fossils allow paleobotanists to reconstruct ancient environments and climates. A field trip to Denver Botanic Gardens provides an opportunity to look at modern plants from the perspective of their ancient history.

Research Methods and Report Writing

Learn the basics of scientific writing for field, laboratory, and scientific projects in paleontology. Attendance for each session is mandatory. Students write a research proposal and a report on a project of their choice.

Lab Methods in Paleontology

Virginia Tidwell, assistant preparator, Earth Sciences Department

Learn and practice the techniques of fossil preparation; preservation, and conservation in the hand-on course. Students who successfully complete this course are eligible to volunteer in the lab and assist in cleaning and preparing fossils collected by Museum researchers and volunteers. Students must be 17 years of age or older.

Sedimentology & Stratigraphy

Ian Miller, PhD, curator of paleobotany, Earth Sciences Department

Learn the principles and practices of interpreting sedimentary rocks and stratigraphic sequences. This course also includes practical experience reading maps, measuring stratigraphic sections, and using geologic field equipment. Sedimentology & Stratigraphy is the prerequisite course for Field Methods in Paleontology.

Field Methods in Paleontology

Ian Miller, PhD, curator of paleontology; Bob Reynolds, PhD, research associate and geologist; and Richard Stucky, PhD, curator of paleoecology and evolution

Here is your chance to take part in field research and explore the floras, faunas, and geology of the Rocky Mountain Interior with three of the Museum's scientists! This year's field school will be in the Wind River Basin, Wyoming. Surrounded by mountain ranges of Precambrian to Paleocene rocks that arose during the Eocene Epoch, the Wind River Basin is an area rich with fossil vertebrates and fossil plants from 52 to 40 million years ago. Ancient river channels and flood plain sediment have preserved tropical rainforest mammals, reptiles, and plants. This course includes instruction on the techniques of fossil collection and geological field methods with a focus on understanding the relationship between geology and paleontology.

Prerequisites include the following three Paleontology Certification Program courses: Paleontology 101, Reading Colorado: An Introduction to Geology, and Sedimentology and Stratigraphy. Prior experience in geology may serve as a substitute for the prerequisites.

Don't miss this opportunity for hands-on instruction and learning in this uniquely rich landscape with three experienced and charismatic guides!