

## **Black Hills – Mammoths, Monuments, Wagons and Wars**

July 7-11, 2021

Colorado School of Mines 2 graduate credits

Cost: \$420. With tuition. \$325 without tuition. (Does not include lodging.)

Day 1: Meet at Scotts Bluff, Nebraska at the Oregon Trail Museum and Visitors Center, at 8:00 a.m. Hike Oregon Trail Pathway along deep wagon wheel ruts along the Oregon Trail, while viewing replicates of many covered wagons that made the trek westward. Drive the historic Summit Road, which is the oldest paved road in Nebraska. Tour the Museum and Visitors Center to learn more about the people, the passions and the trials of the Oregon Trail. Scotts Bluff is the second most written about landmark in the numerous journals of the pioneer who followed the trail between 1841 and 1869.

Continue our journey on the Oregon Trail to Chimney Rock, Jailhouse Rock and Courthouse Rock, which were all welcomed pinnacle landmarks along the trail through the wilderness of Nebraska.

Travel back in time to the Miocene Geologic Epoch to Agate Fossils National Monument. Tour the fascinating visitor's center to see dramatic displays of the ancient gigantic mammals that roamed the plains 23 to 5.3 million years ago. The Miocene is when two major ecosystems first appeared on Planet Earth, the kelp forest and the rolling grasslands. Hike a one mile Daemonelix Trail through ancient sand dunes to view fascinating petrified spiral burrows. What are the "Devils Corkscrews" that so baffled early paleontologists? Were they created by spiraling tree roots or the shape claws of an extinct mammal? The visitor's center also contains an extensive collection of Oglala Lakota Sioux artifacts, especially articles owned by Red Cloud, one of the major Sioux chiefs.

Slip across the border into South Dakota and explore The Mammoth Site at Hot Springs. Imagine yourself in the midst of the last Ice Age where giant ground sloths, cave bears, mammoths and saber toothed cats roam the Great Plains. Imagine a 60 foot karst sinkhole collapsing before your eyes. Move forward in time a few years until the sink hole has filled with water and lush green grasses. Watch with horror as adolescent mammoths slide down the mud to drink the delicious water and munch on the grasses, only to discover in horror that their rounded hooves cannot secure enough footing to climb back out. The sinkhole is a death trap. Why are only adolescent mammoth bones found in the pit and why are every single one of the mammoths male? See 120 mammoth tusks and complete mammoth skeletons lying where they fell 26,000 years ago. This is one of the most studied mammoth sites in the world, where bones, teeth and even footprints have been preserved

Soak your cares away in the delightful pools of Hot Springs, South Dakota and learn the geology and locations of western hot springs. Sleep in Hot Springs, SD

Day 2: We are off to explore Custer State Park and to photograph one of the last remaining wild bison herds in North America. Drive carefully through the park to avoid hitting the curious wild burros who will come to your car window. These are the descendants of escaped mining burros of yesteryear. This intact short grass prairie is a lovely ecosystem, complete with hundreds of species of wildflowers,

mammals and birds. "Custer State Park is a world class wildlife refuge. Watchable wildlife in the park includes bison, whitetail and mule deer, antelope, mountain goats, elk, coyotes, burros, bighorn sheep, birds, wild turkeys and prairie dogs." [www.blackhillsbadlands.com](http://www.blackhillsbadlands.com)

**Caves:** "Those who believe that the frontier has vanished have only to look beneath their feet! Circling the Black Hills like a racetrack, a belt of Paha Sapa limestone laced with underground caverns comprises the second-longest cave system in the world. Of the 72 known calcite crystal caves in the world, 68 of them are right here in the Black Hills." [www.blackhillsbadlands.com](http://www.blackhillsbadlands.com)

Our next tour will be deep underground into the magic of Jewel Cave the 3<sup>rd</sup> longest cave in the world. Learn the geology and wonder of the world of stalactites and stalagmites.

Stare in amazement at the chiseled faces of 4 of our most beloved United States presidents at Mt. Rushmore and then hear the sad history of the broken promises made to the Native Americans at Crazy Horse Memorial "As long as the grass shall grow and the rivers flow . . ." In the Treaty of Fort Laramie in 1868, the Black Hills were protected forever from white settlement. Forever, meant until 1874 when General Custer and his army entered the Black Hills and publically announced the discovery of gold. The mining camps of Deadwood, Lead, and Central City were established in 1875. Sleep at historic Walls, South Dakota.

Day 3: Breakfast in the fascinating Wall Drug Store, which is partially a museum, partially an art gallery, and partially a wonderful restaurant. Then spend a few minutes shopping for Black Hills Gold or souvenirs in the numerous shops in Wall.

Spend the morning hiking and exploring the Badlands National Park, 240,000 acres of geologic wonder of eroded buttes, pinnacles, and spires, as well as a large mammal fossil mecca of extinct camels, horses, rhinos, turtles, saber toothed cats, and crocodiles from the late Eocene and early Oligocene, 35-45 million years ago. Yes, rhinos and camels here in North America. A massive section of the Badlands has been set aside as wilderness and is the home of recently reintroduced Black Footed Ferrets, the most endangered mammal in the world. Get cameras ready for Desert Bighorn Sheep and eerie landforms.

At the Wounded Knee Massacre Museum, we will solemnly commemorate and recount the history of the Native Americans in South Dakota and last battle fought and over 300 men, women and children were massacred by the 7<sup>th</sup> United States Cavalry.

Day 4: Drive to Deadwood City and learn about the history of the gold rush in the Black Hills, how hordes of miners swamped to the Black Hills, and how the US government reversed its treaty with the Sioux Native Americans. The mining camps of Deadwood, Lead, and Central City were established in 1875. We will tour the Mount Moriah Cemetery to see graves and learn the history of Wild Bill Hickok, Calamity Jane and other famous outlaws.

Over the border into Wyoming, our next stop will be the archeological dig of a Native American bison kill cliff. View hundreds of butchered out bison bones and learn how the natives stampeded the bison over a cliff face and to their deaths.

We will journey to Devil's Tower National Monument in Wyoming where we will spend the night.

Day 5: For a decade, 1880 – 1890, the Old Texas Trail was the largest trail for herds of cattle and sheep in the United States and crossed the nearby Belle Fourche River near Devil's Tower. We will take a historic detour into the days of cattle trails as we learn more about the Old Texas Trail.

Devil's Tower, the first national monument in the United States, was issued into being by Theodore Roosevelt in 1906 and is a monolithic igneous intrusion with classic columnar jointing. In other words, it is the core of an ancient volcanic magma chamber that has been exposed by erosion. Rising 1267 feet above the valley floor, Devil's Tower is an impressive sight from many miles away. We will explore the geology of the site and hike the perimeter while viewing much more of the prairie ecosystem.