

**COURSE Target: Professional Development and Enrichment Credits for Teachers**

**Instructor:**

**Mr. William Wahl, MS.**  
**Prep Lab Manager**  
**Wyoming Dinosaur Center**  
**110 Carter Ranch Rd.**  
**Thermopolis, WY 82443**  
**Contact: 307-864-2997-or 2979**

**Welcome:**

**Mr. Seth Chamberlain**  
**Administrator**  
**The Big Horn Basin Foundation**  
**Wyoming Dinosaur Center**  
**110 Carter Ranch Rd.**  
**P. O. Box 71**  
**Thermopolis, WY 82443**  
**Phone: 307-864-2997, ext. 223**

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**COURSE OBJECTIVES:**

The course objective is Teacher Enrichment in the general area of Earth Sciences. To attain the following objective in teacher development the natural surroundings found in northwestern Wyoming will be examined and explained. Teachers will obtain perspectives and hands on experience that they can in turn, use in physical labs and in lectures in the classroom for students all ages, K-12.

We will address the following four assumptions about the nature of professional development experiences and about the context within which they take place and frame the professional development standards:

- Professional development for a teacher of science is a continuous, lifelong process.
- The traditional distinctions between “targets,” “sources,” and “supporters” of teacher development activities are artificial constructs.
- The conventional view of professional development for teachers needs to shift from technical training for specific skills to opportunities for intellectual professional growth.
- The process of transforming schools requires that professional development opportunities be clearly and appropriately connected to teachers’ work in the context of the school.

GEOL 5959: *Snapshots in Time: Geology & Paleontology in Northwestern Wyoming*  
Course Outline & Objectives

DATES COURSE IS AVAILABLE:

July 30 – August 3

OUTLINE:

Wednesday Evening, July 30, 6 PM – 8 PM

- Arrive in time for an evening orientation and introduction to the geology, geologic timetable, and paleontology of the northwestern region of Wyoming. Workshop handouts at this time.

Thursday, July 31, 8 AM – 4 PM

- Field trips to the Wind River Canyon and the Hot Springs State Park. Geologists regularly deal with the abstract concepts such as deep time when interpreting Earth's history. A field trip through the Wind River Canyon and a cross-country transect of the Owl Creek Mountains will be the vehicle for participants to gain first-hand experience with geological time. Starting in the metasedimentary basement rocks, some of the oldest rocks in North America, participants will make their way through geological time studying rock outcrops and making observations. These observations will provide the foundation for an inquiry-based discussion to build the story of the regions geological past. Other topics will be discussed on the outcrop including: radiometric dating, stratigraphy, erosion and deposition, life through time, and the reconstruction of past environments. All of these topics will tie together participants' observations with the known geologic history of Central Wyoming. The field trip will end at the Hot Springs State Park where participants will tour the ancient and modern hot springs. Participants will discover how these natural hot springs are intimately tied to the geologic story they have just interpreted through their observations and discussions on the Owl Creek/Wind River Canyon tour.

Friday, August 1, 8 AM – 4 PM and 6:30 PM – 8 PM

- Field trips into the paleoecology of the Jurassic Sundance Formation and Cretaceous Mowry/Thermopolis Formations will permit participants to collect specimens (both invertebrate and geological) allowing the interpretation of ancient marine systems upon return to the classroom. These formations exhibit paleoecology of classic marine incursions into a basin interior seaway, and allow for collection of sedimentary feature, shells, ammonites and fish bones representing varied marine environments. Field trip by William R. Wahl, MS, paleontologist and preparation lab manager, Wyoming Dinosaur Center.
- Presentation and lecture by Scott Hartman, paleontologist, science director, Wyoming Dinosaur Center, on the dinosaurs of the upper Jurassic Morrison Formation.

Saturday, August 2, 8 AM – 2 PM and 2 PM – 4 PM and 6:30 PM – 8 PM

- Field trip to the Jurassic Morrison Formation dinosaur quarries, located near Thermopolis, Wyoming, on the Warm Springs Ranch will allow participants to discover, learn and study the paleoecology of the Morrison Formation, as well as the life and

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death of the dinosaurs they discover. Participants will also learn and understand scientific inquiry and methods through mapping and data collection.

- Dinosaur trackway demonstration/experiments
- Presentation and lecture by Dr. Marilyn Wegweiser, geologist, paleontologist, on Exceptional Preservation Environments and global Lagerstätte. Participants will compare fossilized specimens of the Bundenbach, Sohlenhoffen, and Holzmaden Lagerstätte, as well as discuss the preservation of dinosaur skin found across the Late Cretaceous. Examples of exceptional preservation of dinosaur specimens from Wyoming will be discussed and shown.

Sunday, August 3, 8 AM – 2 PM

- Field trip to the Jurassic Morrison Formation dinosaur quarries, located near Thermopolis, Wyoming, on the Warm Springs Ranch will allow participants to discover, learn and study the paleoecology of the Morrison Formation, as well as the life and death of the dinosaurs they discover. Participants will also learn and understand scientific inquiry and methods through mapping and data collection.

CREDIT HOURS:

- Two credit hours available through the University of Wyoming Outreach School at a cost of \$40 per credit hour, payable directly to the Outreach School.

ADDITIONAL COSTS:

- \$380.00 - This fee includes all transportation for the workshop, once participants arrive in Thermopolis, Wyoming. The fee also includes all printed material and all necessary tools and equipment. This fee includes all lunches but **does not** include lodging and all other meals which are up to each individual participant.