



# YELLOWSTONE FOREVER

## YELLOWSTONE'S GEOECOSYSTEM: THE GEOLOGY OF ECOLOGY

### Itinerary & Details

FIELD SEMINAR – SUMMER 2024

**INSTRUCTOR:** Paul Doss, Ph.D

**INSTRUCTOR BIOGRAPHY:** Dr. Paul K. Doss has conducted geological & paleoclimate research, taught field geology, & completed geologic mapping for nearly 40 years in the Rocky Mtn Region and on the Yellowstone Plateau. He also teaches courses on National Parks, Environmental Geology, Global Change, & Hydrogeology in the Department of Geology and Physics at the University of Southern Indiana. He served as the Chief Geologist for Yellowstone National Park from 2000–2001 and was the 1st NPS Coordinating Scientist for the Yellowstone Volcano Observatory. Doss has lead Yellowstone Association and Yellowstone Forever Field Seminars for over two decades, and he's still trying to learn how to successfully fly-fish on the Yellowstone Plateau.

**ACTIVITY LEVEL:** This course is activity **level 2** and students enrolled in this course are expected to be active participants. Be prepared to hike up to 3 miles per day, comfortably, with elevation gains up to 600 feet. Some off-trail hiking possible.

*\*All field activities will be conducted as a group. If participants cannot meet the activity level expectations during the program, they may be restricted from participation in daily outings. Program itineraries or activities will not be altered to accommodate participants who cannot meet the expectations of the stated activity level.*

**LOCATION:** Course begins at the Yellowstone Forever classrooms located in Gardiner, MT.

**PROGRAM DATES & TIMES:** The program begins at 7:00 p.m. on Thursday, July 4, 2024, and goes through Sunday, July 7, 2024, at 5:00 p.m.

**LODGING CHECK-IN & CHECK-OUT:** No lodging is provided for this course, however, there may be limited lodging available through Yellowstone Forever at the Yellowstone Field Overlook Campus. For more information, please contact the Institute at [institute@yellowstone.org](mailto:institute@yellowstone.org). You can also find more information on Gardiner based lodging here: [Gardiner, MT - Lodging.](#) (Yellowstone River Motel will grant you 10% off their rooms if you mention that you are taking a Yellowstone Forever Field Seminar.)

**MEALS:** This course is not catered. Participants will need to bring their own food; lunch should be able to travel in the field.

**For general information about the facilities, preparation for classes, what to expect, cancellation policies, and more, please see the [Gardiner Field Seminars - Summer General Information](#) document.**

## PROGRAM ITINERARY

Underlying geologic and climatic conditions form the foundation for every square inch of Earth's living space. In Yellowstone, that foundation is fertile and deadly...brutally cold and fatally hot...sweeping and green, and steep and rocky. In this seminar, you will illuminate the linkages among the solid, wet Earth, and the abundant, diverse life that not just lives in Yellowstone, but thrives in Yellowstone. In *The Geology of Ecology*, you get to see the magnificent, obvious, and inseparable ways that geology controls the biological elements of Yellowstone's ecosystem. Although every ecosystem on Earth is based upon a geological foundation, the tangible controls on biological diversity are magnificently displayed in Yellowstone National Park. From large landscapes to individual hot springs, from "Charismatic Megafauna" to microscopic plants and animals, the interplay among volcanic and hydrothermal processes, rock types, hydrogeology, and the distribution of plants and animals is intricate and remarkable.

The itinerary is designed to take advantage of the best opportunities in the park, but may be adjusted to adapt to weather conditions, wildlife activity, holidays, and road construction.

*The details and timing of the agenda are subject to change.*

### **Day 1**      **Welcome**

The program starts with an evening orientation. You will get to know one another and be introduced to the program. Throughout the evening, the itinerary and seminar key concepts will be discussed, as well as what to expect to pack for the field each day.

### **Day 2**      **In the Field**

The Big Picture: Yellowstone's Continental Hotspot Volcanism—the world's largest active volcano

The Big Picture: Landscapes and landforms, The Northern Range

Forest systems: Washburn Mountains

Glaciation in Yellowstone: Lamar Valley, Blacktail, Charismatic Megafauna

### **Day 3**      **In the Field**

The Big Picture: Landscapes and landforms, Gallatin Mountains

Forest systems: Central Plateau (Solfatara)

The Caldera and resurgent Domes

Canyon Area

Valleys and meadows: Hayden Valley, Charismatic Megafauna

Yellowstone Lake, Yellowstone River

### **Day 4**      **In the Field**

The Big Picture: Yellowstone Lake

Thermal Basins: Upper Geyser, Lower Geyser, Norris

## PROGRAM EQUIPMENT

For a full list of what is included in this course, in addition to recommended equipment check out the [Gardiner Field Seminars - Summer General Information](#) document.

### Required:

- Notebook and pencil for observations

### Optional:

- Magnifying glass or hand lens
- Camera
- Binoculars

## RECOMMENDED READING

No prior reading is required, but participants might enjoy the following publications, that complement the program.

- National Park Service. *2023 Resource and Issues Handbook*. NPS, 2023.
- Christiansen, Robert L. "The Quaternary and Pliocene Yellowstone Plateau Volcanic Field of Wyoming, Idaho, and Montana." Professional Paper, 2001, <https://doi.org/10.3133/pp729g>.
- Good, John M., and Kenneth Lee Pierce. *Interpreting the Landscape: Recent and Ongoing Geology of Grand Teton and Yellowstone National Parks*. Grand Teton Natural History, 1996.
- Fritz, William J., and Robert C. Thomas. *Roadside Geology of Yellowstone Country*. Mountain Press Pub. Co., 2011.
- Smith, Robert B., and Lee J. Siegel. *Windows into the Earth: The Geologic Story of Yellowstone and Grand Teton National Parks*. Oxford University Press, 2020.

## WHOM TO CONTACT

**For any questions, concerns, or additional information please contact the following:**

- Program itinerary, health forms, payment, and general program questions please contact Yellowstone Forever at [institute@yellowstone.org](mailto:institute@yellowstone.org) or 406-848-2400
- Road updates, park conditions, and general park information please contact Yellowstone National Park Service at <https://www.nps.gov/yell/contacts.htm>
- If running late for a program, please contact 406-848-2400.