SYLLABUS
EES 341 LEHIGH FIELD CAMP (6 CREDITS)
SUMMER SEMESTER 2023
30 MAY – 1 JULY

Director: Dr. Stephen Peters, Ph.D.; Department of Earth and Environmental Sciences
144 STEPS, Phone: 610-758-3660; scp2@lehigh.edu.

Instructors: Dr. Frank J. Pazzaglia, Ph.D., Dr. David Anastasio, Ph.D.

Staff: Four Teaching Assistants

Prerequisites: Introduction or gateway course to Earth and Environmental Sciences (Physical
Geology, Intro to Environmental Science or equivalent), Earth Materials
(Mineralogy, Petrology), Structural Geology, Sedimentology-Stratigraphy,
Hydrogeology, or equivalents. Deficiencies handled by petition.


Scope: Synoptic, capstone field experience for geology and Earth science majors.
Instruction on how to make, read, and interpret geologic maps and how to
envision field problems and collect data. Using of the field, field geologic
relationships, and the concepts of geological mapping as the vehicle towards
development of a professional earth scientist.

Format: Several multi-day, multi-partner field mapping projects, instructed by one or
more faculty, and one or more staff. Projects contain an in the field group
component, and a map drafting and writing individual component.

Grading: Grades are based on the quality of projects produced during all of the exercises.
Students are evaluated based on their own individual work. The breakdown is:

Cross country trip, landscape evolution, notebook, class participation (first half) 10%
Geologic mapping and Mesozoic stratigraphy (Badlands) 10%
Paleozoic stratigraphy and structure mapping (Bighorn Mtns) 20%
Sequence stratigraphy (Bighorn Mtns) 15%
Volcanic rocks and active tectonics (Yellowstone), notebook, class participation (second half) 5%
Active tectonics, glacial, alluvial, and fluvial landforms, large scale temporal integration 20%
Metamorphic core complex, large scale spatial integration 15%
Tetons, wrap up 5%
2023 Camp Schedule (updated November 1, 2023)

T 30 May  Students Arrive, 4pm Camp meeting

W 31 May  Drive (470 mi) West from Bethlehem, PA to *East Harbor State Park*
Pickups at:
12:00 PM Truckworld, Hubbard, OH (I-80, PA/OH State line)
or a location along I-80 in PA pre-arranged with the camp director during the registration process

R 1 June  Drive (475 mi), *Camp Baraboo*
Pickup at Chicago Airport
Baraboo Syncline, Great Unconformity

F 2 June  Van Hise Rock, Ablemans Quarry
Drive (380 mi), *Camp Blue Mounds State Park*
Quartzite discussion, tall grass prairie, buffalo range management

S 3 June  Drive (350 mi), Arrive Badlands NP, *Camp Cedar Pass CG [3 nights]. Staff to resupply food in Mitchell.*

Su 4 June  Badlands – K – Cenozoic sedimentology and stratigraphy, Geologic map and cross section at Yellow Mounds focusing on topography and contacts/faults. *Wall Drug in the afternoon*

M 5 June  Badlands – Fossils in the Sharps, Brule and Chadron Fms

T 6 June  Drive to Devils Tower (~200 mi) via Rapid City, Scenic, S.D.
*Resupply food and laundry in Rapid City.* Mt. Rushmore, Lead Gold Mine, Devil’s Tower NM – shallow volcanic intrusives; Ponderosa Pine forest ecosystem.

W 7 June  Drive (180 mi), *Willow Park Campsite. [2 nights]*
Lunch at Willow Park; Afternoon on Tensleep Section – familiarize with the Mesozoic stratigraphic section. Willow Park for the evening. Alpine Doug-Fir and Sub-Alpine Fir forest.

R 8 June  Morning on Tensleep Section – Finalize cross section and maps.
Wind River Paleozoic Section, Hot Springs, Laundry.

F 9 June  Break camp, Drive Greybull, Sheep Mtn. *Camp Ranger Creek. [7 nights]*

S 10 June  Sheep Mtn 1

Su 11 June  Sheep Mtn 2

M 12 June  Sheep Mtn 3

T 13 June  Sheep Mtn wrap up

W 14 June  Sequence stratigraphy 1 - introduction and mechanics of section measuring.

R 15 June  Sequence stratigraphy 2 – Interpretation and writeup

F 16 June  Break camp, drive to Cody, PM off, *Laundry, town night in Cody, Staff resupplies in Cody*

S 17 June  East entrance Yellowstone (138 miles, 3.5 hours)
East entrance of Yellowstone, to Old Faithful, Volcanic rocks at Tuff Cliffs and Firehole Canyon drive.
Setup camp at *Cabin Creek campground* in afternoon [2 nights]

**Su 18 June**  
Student inquiry at Yellowstone

**M 19 June**  
Drive (280 mi) to Mackay. *Wildhorse Campground* [8 nights]
Hebgen Lake Fault scarp. *Staff resupplies in Mackay*, students to camp by 4:00 PM.

**T 20 June**  
Surface processes project Day 1 – terraces and paleohydrology

**W 21 June**  
Surface Processes Project Day 2 – glacial deposits; Wildhorse and Anderson Canyon.

**R 22 June**  
Surface Processes Project Day 3 – alluvial fans and fault scarp;

**F 23 June**  
Surface Processes wrap up;

**S 24 June**  
Core Complex project 1 – in camp. Rock and mineral identification, identification of deformation fabrics; set-up of 3-D block diagram.

**Su 25 June**  
Core Complex 2 Boulder FW hike

**M 26 June**  
Core Complex 3 Summit HW hike

**T 27 June**  
Core complex deliverables at Noon,  
Break camp Drive to Tetons

**W 28 June**  
Tetons

**R 29 June**  
Drop students at Jackson Hole Airport  
Driving Day 1

**F 30 June**  
Driving Day 2.

**S 1 July**  
Driving Day 3, Arrive Lehigh