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.
Texts:	Optional: Geological field techniques, Coe, ISBN: 978-1-4443-3062-5 Paperback 336 pages, November 2010, Wiley-Blackwell. US $59.95.
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