

**SYLLABUS**  
**EES 341 LEHIGH FIELD CAMP (6 CREDITS)**  
**SUMMER SEMESTER 2020**  
**28 MAY – 30 JUNE**

- 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 Robert Booth, Ph.D., Dr. David Anastasio,  
Ph.D. (on leave 2019/20).
- 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%
Holocene and Pleistocene shorelines, lake processes, and paleoecology (Michigan/Wisconsin)	15%
Geologic mapping and Mesozoic stratigraphy (Badlands)	10%
Paleozoic stratigraphy and structure mapping (Bighorn Mtns)	15%
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	15%
Metamorphic core complex, large scale spatial integration	15%

## 2020 Tentative Camp Schedule

R 28 May	Students Arrive, 4pm Camp meeting
F 29 May	Drive (470 mi) West from Bethlehem, PA to <i>Camp Island Lake</i> , Brighton, MI Pickups at: 12:00 PM Truckworld, Hubbard, OH (I-80, PA/OH State line) 4:00 PM Detroit Airport (DTW) or a location along I-80 in PA pre-arranged with the camp director during the registration process
S 30 May	Drive (470 mi), <i>Camp Muskallonge Lake</i> Upper midwest mixed hardwood and conifer forest.
Su 31 May	<i>Camp Firefly Lake</i> (3 nights) UP shorelines, pictured rocks, intro to project
M 1 June	Wisconsin project 1 - Fallison Bog Coring Data collection and analysis
T 2 June	Wisconsin project 2 - Share findings and reporting results. Correlations of stratigraphic sections
W 3 June	Break camp, Drive Luverne - <i>Blue Mounds SP, Group Area</i> Describe modern mollisol and ecosystem of tall grass prairie
R 4 June	Drive (350 mi), Arrive Badlands NP, <i>Camp Cedar Pass CG</i> . <i>Staff to resupply food in Mitchell.</i>
F 5 June	Badlands NP 2 – K – Cenozoic sedimentology and stratigraphy, Fossils in the Sharps, Brule and Chadron Fms.– Geologic map and cross section at Yellow Mounds focusing on topography and contacts/faults. <i>Wall Drug in the afternoon.</i>
S 6 June	Badlands NP 3 - Ecology and paleoecology of the modern short grass prairie, Holocene sod tables, and Eocene paleosols.
Su 7 June	Drive to <i>Devils Tower</i> via Rapid City, Scenic, S.D. <i>Resupply food and laundry in Rapid City.</i> Mt. Rushmore, Lead Gold Mine, Devil's Tower NM – shallow volcanic intrusives; Ponderosa Pine forest ecosystem.
M 8 June	<i>Devils Tower</i> , Drive (180 mi), <i>Willow Park Campsite</i> . [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.
T 9 June	Morning on Tensleep Section – Finalize cross section and maps. Wind River Paleozoic Section, Hot Springs, Laundry. <i>Willow Park or Boysen Reservoir</i>
W 10 June	Break camp, Drive Greybull, Sheep Mtn 1- Intro, walk through section. Camp Ranger Creek. [6 nights]
R 11 June	Sheep Mtn 2
F 12 June	Sheep Mtn 3.
S 13 June	AM Office, Sheep Mtn Due, Sequence stratigraphy intro
Su 14 June	Sequence stratigraphy 1 - introduction and mechanics of section measuring. [Overlap day. All Faculty present]

M 15 June Break camp, drive to Cody, PM off, *Laundry, town night in Cody, Staff resupplies in Cody.*

T 16 June East entrance Yellowstone to Jackson Lake (138 miles, 3.5 hours)  
Camp at *Gros Ventre campground*

W 17 June Tetons Project - Gros Ventre campground

R 18 June Drive from Gros Ventre to Yellowstone, (80 miles, ~4 hours) *Grant Village Campground (2 nights)*  
East entrance of Yellowstone, to Old Faithful, Volcanic rocks at Tuff Cliffs and Firehole Canyon drive.

F 19 June Yellowstone project - Grant Village Campground

S 20 June Drive (280 mi) to Mackay. *Wildhorse Campground*  
Hebgen Lake Fault scarp. *Staff resupplies in Mackay*, students to camp by 4:00 PM.

Su 21 June Core Complex project 1 – in camp. Rock and mineral identification, identification of deformation fabrics; set-up of 3-D block diagram.

M 22 June Core Complex 2 Boulder FW hike

T 23 June Core Complex 3 Summit HW hike

W 24 June Core complex deliverables at Noon. PM Students to Challis Hot spring. 8PM Intro to surface processes project.

R 25 June Surface processes project Day 1 – terraces and paleohydrology

F 26 June Surface Processes Project Day 2 – glacial deposits; Wildhorse and Anderson Canyon.

Sa 27 June Surface Processes Project Day 3 – alluvial fans and fault scarp;

Su 28 June AM Surface Processes office morning;  
Prepare one Penske for return home. (teaching materials & kitchen)  
Load only airport bags into the other Penske.

M 29 June Drive Mackay, Camp High School. Craters of the Moon trip  
Dinner party in Mackay.

Tu 30 June Break camp Mackay, Airport drop-offs at:  
9:00 AM Idaho Falls (IDA)  
1:00 PM Salt Lake City (SLC)