

SYLLABUS
EES 341 LEHIGH FIELD CAMP (6 CREDITS)
SUMMER SEMESTER 2019
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 Bruce Idleman, Ph.D.,
Dr. David Anastasio, Ph.D. (on leave 2019).
- 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%

2019 Field Camp Schedule

T 28 May	Students Arrive, 4pm Camp meeting
W 29 May	Early start, Drive (590 mi), Southeast Michigan, Pickup at DTW(4pm). Ohio Valley mixed hardwood forest.
R 30 May	Drive (360 mi), Lunch Macinaw lighthouse/bridge, Camp Upper Peninsula Michigan UP shorelines, upper midwest mixed hardwood and conifer forest.
F 31 May	Drive (230 mi), Camp Trout Lake WI [3 nights] Beach and nearshore processes, Pictured Rocks NP Wisconsin Project 1 intro
S 1 Jun	Wisconsin project 2 , Peat bog coring
Su 2 Jun	Wisconsin project 3 , analysis and reporting, due PM.
M 3 Jun	Drive (460 mi) Luverne MN - Camp Blue Mounds state park Tall grass prairie, mollisol, ventifacts
T 4 Jun	Drive (350 mi), Camp Badlands NP [2 nights] Badlands project 1 , modern short grass prairie, Holocene sod tables, and Eocene paleosols.
W 5 Jun	Badlands project 2 , Cenozoic sedimentology and stratigraphy, Fossils in the Sharps Fm, Pig dig area for Brule and Chadron Fms. Yellow Mounds geologic map.
R 6 Jun	Drive (280 mi) to Devils Tower via Rapid City / Scenic, S.D. Mt. Rushmore, Lead Gold Mine, Devil's Tower NM – shallow volcanic intrusives; Ponderosa Pine forest ecosystem.
F 7 Jun	Drive (180 mi) Camp Willow Park NF. Lunch at Willow Park; Mesozoic stratigraphic section at Tensleep. Alpine Doug-Fir and Sub-Alpine Fir forest.
S 8 June	Drive (250 mi) Camp Ranger Creek [7 nights] Thermopolis, Wind River Paleozoic section, hot springs.
Su 9 June	Sheep Mtn Project 1
M 10 June	Sheep Mtn Project 2
T 11 June	Sheep Mtn Project 3
W 12 June	AM Office, Sheep Mtn Due, PM Sequence stratigraphy intro - mechanics of section measuring.
R 13 June	Sequence stratigraphy 2
F 14 June	AM Office, Seq Strat project Due,
S 15 June	Drive from Ranger Creek to Yellowstone, Old Faithful, Volcanic rocks at Tuff Cliffs and Firehole Canyon drive. Camp at Rock Creek outside of West Yellowstone. [2 nights]
Su 16 June	Yellowstone free day
M 17 June	Drive (280 mi) to Mackay, ID

T 18 June **Surface processes project Day 1** – terraces and paleohydrology

W 19 June **Surface Processes Project Day 2** – glacial deposits; Wildhorse and Anderson Canyon.

R 20 June **Surface Processes Project Day 3** – alluvial fans and fault scarp; evening in Mackay

F 21 June Surface Project Day 4, due midday. Evening: Intro to core complex project.

S 22 June **Core Complex project day 1.** Rock and mineral identification, identification of deformation fabrics; set-up of 3-D block diagram.

Su 23 June **Core Complex day 2 Boulder FW hike**

M 24 June **Core Complex day 3 Summit HW hike**

T 25 June **AM Core Complex office** morning; PM Students to Challis Hot spring

W 26 June Drive to Mackay. Craters of the Moon. Final party in Mackay.

R 27 June Break Camp, drive home, stay at Ogallala

F 28 June Drive Home, stay in South Bend area.

S 29 June Drive home, arrive Lehigh at 7:00 PM. Sleep on campus. If early arrival, OK to call for pickups.

Su 30 Jun Students depart