Geomorphology and Geology of the US Basin and Range - Field School
APRIL / MAY 2016

1) Course objectives

This field course and the accompanying content courses will examine the geology and geomorphology in a continental rift setting (Basin and Range Region) in eastern California, Nevada and southern Utah. The high relief (~3 km) in the region allows for the examination of rocks and sediments ranging from pre-Cambrian (~500 Ma) to the present. We will expose students to some of the most stunning geomorphic processes and landscapes on Earth. The primary objective of these courses are to introduce students to semi-arid landscapes and processes in a field setting. Our courses will integrate a variety of hands-on activities (sample collection, mapping, and surveys) with classroom lectures to impart students with both theory and skills pertinent to applied geology and geomorphology.

2) Course details

Where:

UNBC – Prince George campus

Field - Death Valley (eastern California), Basin and Range (Utah) and Grand Canyon Region (Arizona)

When:

Lectures (last week of April)

Fieldwork (First 10-12 days of May)

Prerequisite undergraduate courses:

GEOG-210 or equivalent (introductory geomorphology course), or permission of instructors

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COURSES OFFERED:

GEOG-333/NRES-763 - Geography Field School

This course will provide an opportunity for students to apply their in-class theory to an in-field and applied situation. Students will record geologic and geomorphic observations in field notes and sketches; create maps and geologic cross sections; learn a variety of measurement techniques; and present summaries of field investigations. This field course will investigate both geomorphic and geological processes and landforms of the Basin and Range region. Students will also be required to register for at least one of the two additional courses (taken concurrently or immediately after the field school) which focus on interpreting and providing context for the information and data collected as part of the field school.

(Instructors: Brian Menounos and Alex koiter)

GEOG-498/NRES-798 – Special Topics: Fluvial geomorphology in semi-arid environments

(Taken concurrently or immediately after the field school)

This course will build upon the observations and data collected as part of the field school. Students will use this information to investigate fluvial processes and the formation of features including: gorges/canyons, alluvial fans, strath terraces and floodplains. Students will be guided through the processes of writing a research or technical report which will include: literature review, methods, results and discussion and conclusion sections.

(Instructor: Alex koiter)

GEOG-498/NRES-798 – Special Topics: Basin and Range development during the Cenozoic Era
(Taken concurrently or immediately after the field school)

This course will build upon the observations and data collected as part of the field school. Students will use this information to investigate the tectonic, faulting and volcanic processes that have resulted in the unique landscape of the Basin and Range region.

(Instructor: Brian Menounos)

Targeted students:

Undergraduate: Third and 4th year Physical Geography, Environmental Science and Engineering and Natural Resources Management students interested in geology and geomorphology, developing field skills and experiential learning.

Graduate: Students in Geography, Environmental Science and Engineering and related disciplines

3) Important dates:

- Application deadline: January 15, 2016
- If accepted, a $200.00 non-refundable deposit is required shortly afterward.

4) Instructors

Dr. Brian Menounos is a Professor of the Geography Program and a Canada Research Chair in Glacier Change. Brian's research interests include process geomorphology, paleo-environmental reconstruction, Quaternary and surficial geology and surface hydrology.

Alex Koiter is a lecturer in the Geography Program and a PhD candidate in the Natural Resources and Environmental Studies program at UNBC. Alex's research interests include soil erosion, sediment transport and storage, sediment management, fluvial geomorphology and water quality.

5) Specific course objectives

Students will:

- develop skills in recording geologic and geomorphic observations in field settings
- apply the scientific method to design and complete research projects
- collect and analyze geologic and geomorphic information in a field setting
- relate sedimentary features and structures to depositional environments and surface processes
- recognize the relations between tectonics and the landscape form
- develop and demonstrate leadership skills and the ability to work collaboratively

6) Field school tentative schedule

Early May – Intensive 5-day classroom-based seminar at the UNBC prince George campus

- Students will receive reading material and reading list approximately one month before the start date. The seminar portion will begin with the expectation that students have read the course material in advance.

Mid May – Pre-departure meeting at the UNBC prince George campus

- Facilitators and students will meet to discuss and finalize logistics (e.g., travel, equipment etc.)

Mid May – Departure

- Participants depart from Prince George to Las Vegas (direct flights available)

Day 1: Arrival in Las Vegas
Day 2 – 5: Alluvial fans
Day 6 – 9: Sedimentary structures and facies
Day 10 – 11: Faulting and folding
Day 12: Return to Prince George

7) Risks

Pre-departure meetings will involve frank discussions with students about potential risks related to participation in this field school: remote travel; severe weather; animal encounters; camping; and other hazards associated with working outdoors. Participants will be required to sign a waiver, accepting responsibility for what might happen during the field school.

8) Costs

Approximate cost based on 10 participants

Item	Cost per student
Food	$200.00
Accommodation	
Camping (6 days)	$50.00
Hotel (6 days)	$300.00
Travel	
Airfare (return)	$700.00
Van rental (10 days)	$80.00
Sub total	**$1,330.00**
UNBC tuition	$1,200.00
Total	**$2,530.00**