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## Yellowstone Summer Field Course

Ed McCord, Bud Rollins, and Paul Beauvais

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BIOSC 0740 3 CREDITS  
SUMMER 4 WEEK FIELD COURSE  
M, T, W, H, F, S 8:00 AM to 5:00 PM

<http://www.honorscollege.pitt.edu/academics/yellowstone.html>

**Session 1-** June 23 to July 22  
**Session 2-** July 22 to August 20

### ***PROGRAM DESCRIPTION-***

The University of Pittsburgh Honors College (UHC) provides a one-of-a-kind intellectual adventure for 20 students each summer in magnificent Yellowstone National Park and its stunning surroundings. Geological, ecological and cultural dimensions of Yellowstone and environs make this 30-day course an incomparable educational experience. Geology: Yellowstone is the world's largest active volcano and its largest geothermal basin. With remnants of glaciation and the grand tectonic mountain-building of the Rocky Mountains alongside, it is the world's premier site for geological research and training stations. Ecology: The Greater Yellowstone Ecosystem presents an extraordinary laboratory for ecological studies ranging widely from wolf predation and forest fires to the biology of thermophilic bacteria. Culture: Yellowstone is the world's first national park and today encounters profound legal, political, economic and philosophical challenges to natural resources in American culture and the American West in particular.



Intellectual adventures through these realms of geology, ecology and culture move apace with excursions to world-class museums and the rodeo in Cody, Wyoming, and vigorous daily treks in Yellowstone National Park, the Absaroka and Beartooth Mountains, the Valley of the Clark's Fork of the Yellowstone River and Sunlight Basin.

### ***GENERAL INFORMATION***

#### **Director:**

Edward McCord, Ph.D., J.D.  
University Honors College  
University of Pittsburgh  
Pittsburgh, PA 15260  
412-624-6886

#### **Call for more information**

#### **Location:**

[K-Z Guest Ranch](#) (pronounced 'K bar Z')  
P.O. Box 2167  
Cody, WY 82414  
307-587-4410

#### **Teaching Faculty:**

#### **Steven Anderson, Ph.D.**

Professor of Geology and Planetary Science  
College of Arts and Sciences  
Black Hills State University  
Spearfish, SD 57799-9102

#### **Gary Beauvais, Ph.D.**

Director, Wyoming Natural Diversity Database  
216 Old Biochemistry  
University of Wyoming  
Laramie, WY 82071-3381  
412-624-4581

#### **Edward McCord, Ph.D., J.D.**

University Honors College  
Affiliate Professor, Philosophy  
3500 Cathedral of Learning  
University of Pittsburgh  
Pittsburgh, PA 15260

## **WHERE**

The field program is held at the [K-Z Ranch](#), located on the Chief Joseph Scenic Highway (S.R. 296) that follows the Clark's Fork Yellowstone River, Wyoming's only National Wild and Scenic River. The northeast entrance of Yellowstone National Park is only 25 miles away. The ranch offers excellent living accommodations and is perfectly situated to provide a starting point for the program's field trips to Yellowstone, the Beartooth Mountains, Sunlight Basin, the Clark's Fork Canyon, and other destinations.



## **COURSE DESCRIPTION**

This course is team taught by three consecutive faculty members. Classes meet six days a week (Monday through Saturday), beginning immediately after breakfast and ending at dinner. There is ample free time for recreation and contemplation, and this course is designed to provide students with profound aesthetic, physical and spiritual as well as intellectual adventures. Field studies are emphasized and comprise at least 50% of the student contact hours. These field experiences include part-day and full-day trips by van, overnight backpacking trips, and part-day horse trips to higher elevations. There is extensive hiking, often strenuous and at altitudes above 10,000 feet.

## **COURSE CONTENT**

The three consecutive faculty members of this course cover three subjects: (1) the physical origins of the Yellowstone National Park region, (2) the organization and function of the major Yellowstone ecosystems, and (3) philosophical, economic, political, and legal issues that arise in contemplating the future of the Yellowstone region.

## **FIELD TRIPS**

Students are expected to attend all field trips. At least 50% of the course time is spent in the field, i.e., areas within or adjacent to Yellowstone National Park. Field trips consist of visits to prepared exhibits within and outside the Park, to museums within and outside the Park, to the Yellowstone Institute in the Lamar Valley, and to events such as the Cody Rodeo. Field trips also include hiking, often strenuous, at altitudes above 10,000 feet. Students are expected to fully appreciate both the physical and the intellectual dimensions of this course should be physically prepared for these types of challenging activities.



## **STUDENTS**

This course should appeal to a wide range of able and motivated students. Future politicians, historians, writers and philosophers as well as biologists, geologists and anthropologists would benefit from this interdisciplinary exploration of a region having unparalleled environmental interest and significance.



### ***PREREQUISITES***

Because students from many different departments are encouraged to take this course, there are no prerequisites. It is anticipated that capable students will rapidly acquire the limited amount of background knowledge needed in the course.

### ***COST***

In addition to the cost of tuition (4 credits), a further fee of \$2050 covers all room, board, books, ground transportation, and park and event fees for the month. There is also an additional charge of airfare to and from Billings, Montana. We make the 4-hour round trip to and from the Billings airport once to gather students on the date of class arrival and once to deliver students on the date of class departure.

### ***CLASS SIZE***

10 students per section; 2 sections per summer (June-July and July-August)

### ***TEXTS***

Each of the three sections of this field course requires you to read specific background material. The texts will be distributed to you at least six weeks prior to the start of your session. It is imperative that you read the material before your session begins. Most of your course time will be spent either in the field or discussing the application of the basic material to your observations. A small library of readings is available at the [K-Z Ranch](#), which can be used to expand your understanding of course topics beyond the basic level presented in your assigned readings.



### ***EXAMS/GRADING:***

There will be three examinations given at the end of each of the three sections of the course. The first exam will focus primarily upon the geology of the greater Yellowstone region. The second exam will test your knowledge of the Greater Yellowstone Ecosystem. The third exam will focus upon your understanding of a range of prominent philosophical, legal, political and economic issues that have arisen for environmentalism in the Yellowstone area. The ecology and geology exams may involve oral or written field practica. The issues exam will involve written essays.

## Yellowstone Field Course - Session 1 Syllabus

### Texts-

**Geology:** to be announced

### Biology:

Keiter, Robert and Mark Boyce (eds.). *The Greater Yellowstone Ecosystem* (Yale Univ. Press, 1991). [Chapters 1 - 3, 6, 8, 10, 11, 13, 14, 16 - 24.]

### Issues:

Schullery, Paul. *Searching for Yellowstone* (New York: Houghton Mifflin Co., 1997).

Hess Jr., Karl and John Baden, *Writers on the Range*. (Univ. Press of Colorado, 1998). [Chapters 1 - 3, 5, 10, 12 - 16, 18 - 21, Epilogue.]

Lect No.	Day/Date	Lecture Topic	Evening Events
1	W June 23	<b>Students arrive - General Meeting at 8:00 PM.</b>	
2	H June 24	G1:Geologic History of Yellowstone/Mineralization and Mountain Building. [Cooke City Area].	Discussion: Igneous Activity.
3	F June 25	G2: Older Volcanism. [Mt. Washburn Area].	Video: In the Path of a Killer Volcano.
4	Sa June 26	G3: Older and recent Volcanism. [Tower and Specimen Ridge areas].	<b>OPEN</b>
5	Su June 27	<b>OPEN</b>	<b>OPEN</b>
6	M June 28	G4: Recent Seismic and Volcanic Activity. [Mammoth and Norris Areas].	Discussion: Hydrology and Glaciology Basics.
7	T June 28	G5: Hydrology and Glaciology of Yellowstone. [Yellowstone Lake and Yellowstone River].	Discussion: Geothermal Basics
8	W June 30	G6: Geothermal Processes in Yellowstone. [Mammoth and Norris Geyser Basin].	Work on Hydrologic projects.
9	H July 1	G7: Geothermal Processes. [Grand Canyon of the Yellowstone].	<b>OPEN</b> Study for Exam.
10	F July 2	G8: ***** <b>Examination 1</b> ***** [Field Examination]	<b>OPEN</b>
11	Sa July 3	E1: [AM] K-Z: Ecology concepts and terms. Acquisition of ADAPTATIONS. [PM] Crazy Creek Trail [Montane life zone--Species types and numbers.]	Discussion with USFS representative
12	Su July 4	<b>OPEN</b>	<b>OPEN</b>
13	M July 5	E2: [AM] Confluence: Causes of Biogeography. [PM] Observation of Species Distribution on Beartooth Highway. [Montane, Subalpine and Alpine life zones].	<b>OPEN</b>

14	T July 6	E3: [AM] Barn: COMMUNITY: Populations and mechanisms of growth rate regulation. [PM] Clark's Fork Hwy [Lower to middle Montane life zone]. Old Growth Forest.	Grizzly movie & discussion.
15	W July 7	E4: [AM] Bison issue [John Mack]. [PM] Yellowstone Wolf project [Doug Smith].	Wolf movie & discussion.
16	H July 8	E5: [AM/PM] Exit of Clark's Fork into Big Horn basin. Grass/shrub life zone. ECOSYSTEMS: Organization, Energy flow and Nutrient cycles.	<b>OPEN</b>
17	F July 9	E6: [AM/PM] Reef Creek hike. Causes and consequences of ecosystem disruption. Evidence for historical and contemporary succession.	Fire movie & discussion.
18	Sa July 10	E7: [AM/PM] Island Lake hike. Comparative observations of the Subalpine and Alpine Life Zones. Review Mechanisms and Consequences of energy flow in ecosystems. Ecosystem stability and future prospects.	<b>OPEN</b> Study for Exam
19	Su July 11	<b>OPEN</b>	<b>OPEN</b>
20	M July 12	E8: ***** <b>Examination 2</b> ***** [Field Examination]	<b>OPEN</b>
21	T July 13	P1: [AM/PM] History of Settlement of the West and associated Natural Resources Law.	<b>OPEN?</b>
22	W July 14	P2: [AM/PM] History of Settlement of the West and associated Law.	<b>OPEN?</b>
23	H July 15	P3: [AM/PM] "Man and Nature," Environmental Values, Conflicting Demands on Public Lands.	<b>OPEN?</b>
24	F July 16	P4: [AM/PM] Visit museums in Cody. Continued Historical and Legal Discussions.	Rodeo in Cody
25	Sa July 17	P5: Western Economic Values and Environmentalism.	<b>OPEN?</b>
26	Su July 18	<b>OPEN</b>	<b>OPEN</b>
27	M July 19	P6: [AM/PM] Controversies about Environmentalism and the Law.	<b>OPEN?</b>
28	T July 20	P7: [AM/PM] Controversies about Environmentalism and the Law.	<b>OPEN</b> Study for Exam.
29	W July 21	P8: ***** <b>Examination 3</b> ***** [3-hour written essay exam]	<b>OPEN</b>
30	H July 22	<b>Students Depart.</b>	

## Yellowstone Field Course - Session 2 Syllabus

### Texts-

**Geology:** to be announced

### Biology:

Keiter, Robert and Mark Boyce (eds.). *The Greater Yellowstone Ecosystem* (Yale Univ. Press, 1991). [Chapters 1 - 3, 6, 8, 10, 11, 13, 14, 16 - 24.]

### Issues:

Schullery, Paul. *Searching for Yellowstone* (New York: Houghton Mifflin Co., 1997)

Hess Jr., Karl and John Baden, *Writers on the Range* (Univ. Press of Colorado, 1998). [Chapters 1 - 3, 5, 10, 12 - 16, 18 - 21, Epilogue.]

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3	Sa July 24	G2: Older Volcanism. [Mt. Washburn Area].	Video: In the Path of a Killer Volcano.
4	Su July 25	<b>OPEN</b>	<b>OPEN</b>
5	M July 26	G3: Older and recent Volcanism. [Tower and Specimen Ridge areas].	<b>OPEN</b>
6	T July 27	G4: Recent Seismic and Volcanic Activity. [Mammoth and Norris Areas].	Discussion: Hydrology and Glaciology Basics.
7	W July 28	G5: Hydrology and Glaciology of Yellowstone. [Yellowstone Lake and Yellowstone River].	Discussion: Geothermal Basics
8	H July 29	G6: Geothermal Processes in Yellowstone. [Mammoth and Norris Geyser Basin].	Work on Hydrologic projects.
9	F July 30	G7: Geothermal Processes. [Grand Canyon of the Yellowstone].	<b>OPEN</b> Study for Exam.
10	Sa July 31	G8 ***** <b>Examination 1</b> ***** [Field Examination]	<b>OPEN</b>
11	Su Aug 1	<b>OPEN</b>	<b>OPEN</b>
12	M Aug 2	E1: [AM] K-Z: Ecology concepts and terms. Acquisition of ADAPTATIONS. [PM] Crazy Creek Trail [Montane life zone--Species types and numbers.]	Discussion with USFS representative
13	T Aug 3	E2: [AM] Confluence: Causes of Biogeography. [PM] Observation of Species Distribution on Beartooth Highway.	<b>OPEN</b>

		[Montane, Subalpine and Alpine life zones].	
14	W Aug 4	E3: [AM] Barn: COMMUNITY: Populations and mechanisms of growth rate regulation. [PM] Clark's Fork Hwy [Lower to middle Montane life zone]. Old Growth Forest.	Grizzly movie & discussion.
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18	Su Aug 8	<b>OPEN</b>	<b>OPEN</b>
19	M Aug 9	E7: [AM/PM] Island Lake hike. Comparative observations of the Subalpine and Alpine Life Zones. Review Mechanisms and Consequences of energy flow in ecosystems. Ecosystem stability and future prospects.	<b>OPEN</b> Study for Exam.
20	T Aug 10	E8: ***** <b>Examination 2</b> ***** [Field Examination]	<b>OPEN</b>
21	W Aug 11	P1: [AM/PM] History of Settlement of the West and associated Natural Resources Law.	<b>OPEN?</b>
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24	Sa Aug 14	P4: [AM/PM] Continued Historical and Policy Discussions.	<b>OPEN?</b>
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28	W Aug 18	P7: [AM/PM] Controversies about Environmentalism and the Law.	<b>OPEN</b> Study for Exam.
29	H Aug 19	P8: ***** <b>Examination 3</b> ***** [3 hour written essay exam]	<b>OPEN</b>
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