



**Office of Extended Education • Humboldt State University**

**NATURAL HISTORY AND ENVIRONMENTAL STUDIES OF ALASKA**

Environmental Sciences (ENVS 480)

3 semester units/4.5 quarter units

Instructor: Karen Allen

**BRIEF COURSE DESCRIPTION**

Field investigation of natural history and conservation issues of Alaska's ecosystems. Emphasis on the physical and biological characteristics and processes that shape the land to provide the scientific foundation for understanding current conservation issues. Field investigations will emphasize natural history observation skills, use of the field journal, experimental design, and field techniques in the physical and biological sciences. Analysis of the conservation of species and ecosystems, including land management and conservation strategies, policies, current issues, and subsistence living.

Course includes lectures, seminar discussions, and extensive supervised field study and research. Students are required to keep a comprehensive field journal including daily assignments, directed field observations and exercises.

Prerequisites: An introductory course in Environmental Science, biology, or physical geography is encouraged but not required. The material will be taught at an introductory level.

**LEARNING OBJECTIVES**

The primary objectives of the course are for students to gain a solid understanding of the following:

- Physical and biological characteristics and processes
- Natural history observation skills
- Use of Field Journal as a tool for understanding and inquiring more deeply
- Relevant field techniques in physical and biological sciences
- Inquiry process (experimental design)
- Current Conservation strategies, policies, and issues

**COURSE OUTLINE**

I. Physical Geography of Alaska

- A. Coast Range
- B. Alaska Range
- C. Brooks Range
- D. Arctic Plain
- E. Marine

II. Geology and Geomorphic Processes

- A. Rock types
- B. Tectonics and major fault systems
- C. Mountain Building Processes
- D. Climate and climate change
- E. Glacial processes and landforms
- F. Fluvial processes and landforms

- III. Biogeography of Alaska
  - A. Biogeographic zones
  - B. Biomes
  - C. Major Ecosystems (with in-depth investigations of species composition and interactions, biodiversity, structure and function)
    - 1. Northern Boreal Forest (Taiga)
    - 2. Coastal Temperate Rainforest
    - 3. Tundra
    - 4. Riparian
    - 5. Marine
- IV. Conservation of Species and Ecosystems
  - A. Land Management and Conservation Strategies
  - B. Major Alaskan Conservation Policies
  - C. Current conservation issues
  - D. Conservation and Subsistence Living
- V. Natural History Skills
  - A. Natural History Observation Techniques
  - B. Use of Field Journal
- C. Taxonomy and Identification
  - D. Experimental Design
  - E. Field Research Techniques
- VI. Natural History of Taxonomic Groups
  - A. Plant life
  - B. Animal life
    - 1. Birds
    - 2. Mammals
    - 3. Fish
    - 4. Insects
- VII. Cultural History and its environmental effects
  - A. Subsistence Living
  - B. Cultural history of local area
  - C. Environmental Effects of cultural history

**REQUIRED TEXTS**

Pielou, E. C. 1994. A Naturalist's Guide to the Arctic. University of Chicago Press.

Course Reader: instructor-compiled selection of readings from a variety of books and journals (available at cost from instructor once accepted to the program)

**EVALUATION**

Students will be evaluated according to the following requirements: midterm (20%), final (20%), field exercises and oral presentations (20%), quality of field journal (20%), and participation in class discussions and course overall (20%).

The grades used in this course will be as follows:

A+	98-100	C+	77-79	
A	93-97	C	73-76	F Below 60
A-	90-92	C-	70-72	
B+	87-89	D+	67-69	
B	83-86	D	63-66	
B-	80-82	D-	60-62	

**COURSE SCHEDULE**

The following table indicates the planned class meetings for this course throughout the program:

date	day	morning	afternoon	evening	hours
6-Jul	Sun		meet in Anchorage, 2 pm; to REI for nec. Gear		

7-Jul	Mon	Travel day to McCarthy. Talk by Wrangell-St. Elias NP resource manager	Kenny Lake: Wrangell Institute for Science Education: Alaska Wildlife	settle into basecamp in McCarthy	2
8-Jul	Tues		Reading: Pielou Ch. 1; class: Physical Geogrpahy of Alaska	Reading: Geologic Guide to the Wrangell-St. Elias NR.	2
9-Jul	Wed	class: Guest Lecture: Geology - rock types, tectonics, mountain building processes; Wrangell Mountains geology	Guided Hike: exploration of geology in vicinity of McCarthy	readings: Pielou Ch. 3: glacial processes	6
10-Jul	Thurs	class: Lecture: Glacial Process and landforms (2 hour);		eve - free; explore historic mining town of McCarthy	2
11-Jul	Fri	class: Lecture: Fluvial Process and landforms		Field Exercise: reading the landscape; mapping terraces, floodplain of McCarthy Ck.	4
12-Jul	Sat	Pack, depart on 3 day backpacking trip	guided natural history hike (glacial landforms, forest ecology)		2
13-Jul	Sun	pack up; hike		reading: Pielou Ch. 2; hike; set up camp. Class: Climate	2
14-Jul	Mon	pack up; hike	return to Basecamp; clean up	class: Subsistence Living;	1
15-Jul	Tues	Class: full day Inquiry Process; Experimental Design. Am: intro, question development, hypothesis	Field Research Techniques; data collection, analysis, conclusions	Full day experimental design; inquiry project. Eve: student presentations.	6
16-Jul	Wed		Class: Mammals - taxonomy, tracks, ID	reading: Lopez, The Naturalist; class/Discussion: The Naturalist; Conservation of Species and Ecosystems	3
17-Jul	Thurs	day off	day off (backpack preparations)	day off	
18-Jul	Fri	depart on 5-day backpack; guided tour of Kennicott: cultural history of local area	class & guided hike: Plant life; flora of Wrangells: taxonomy and ID	set up camp.	4
19-Jul	Sat	pack up and hike	Directed Exercise: plant community characteristics		2
20-Jul	Sun	pack up and hike	hike, set up camp; Class: rock glaciers	eve off	1
21-Jul	Mon		pm to self; Reading: Matsuoka (reader)	Reading: Masuoka; Discussion: Breeding birds and changes in Alaska Boreal Forest	1
22-Jul	Tues	pack up and hike	return to Basecamp; clean up	eve off	
23-Jul	Wed	am to self	Guest Lecture: Alaska Conservation Policy		2
24-Jul	Thurs	class: Copper River Watershed	prep for raft trip; pm to self.		2
25-Jul	Fri	start Copper River Raft trip from McCarthy to Cordova (180 miles)		set up camp; river camping etiquette and camp logistics, duties.	
26-Jul	Sat	pack up; raft		set up; Human Use Survey for Copper River Watershed Project: every eve of raft trip	
27-Jul	Sun	pack up; raft	raft; field observations, discussions.		

28-Jul	Mon	layover: Class: Nelson Landslide; geomorphic processes; vegetative response			2
29-Jul	Tues	Class: Chugach Range geology; natural history		eve off; camp chores	1
30-Jul	Wed	NHES midterm review			1
31-Jul	Thurs	study, raft. Midcourse Evaluations	NHES midterm		2
1-Aug	Fri	raft; day off of academics	raft; day off of academics	eve off	
2-Aug	Sat	class: Biogeography of Alaska: zones, biomes, major ecosystems; raft	raft; directed field observation, assignment on biogeography		2
3-Aug	Sun	class: Biogeography of Alaska: riparian habitats; raft	raft; directed field observation/exercise: riparian habitat of Copper River		3
4-Aug	Mon	raft to Child's Glacier class: glacial history of Childs glacier	take-out upstream from Cordova. Unload. Pick up van	settle into lodge; clean up; dinner out.	1
5-Aug	Tues	day in town; laundry, communications, logistics	day in town; laundry, communications, logistics	day in town; laundry, communications, logistics; stay in lodge	
6-Aug	Wed	Class: Coastal Temperate Rainforest (lecture by USFS botanist)	Guided Hike: Heney Ridge - coastal temperate rainforest; plant/animal ID	move to campground. Settle in	3
7-Aug	Thurs	prep and leave for Powers Ck. Backpack trip. Safety talk.	hike		
8-Aug	Fri		hike	set up camp. Eve off	
9-Aug	Sat	hike		mid-course evaluations: one-on-one.	
10-Aug	Sun		hike out. Settle in to campground.		
11-Aug	Mon	Lecture: Puget Sound/ subsistence fisheries; salmon lifecycle (USFS Fisheries biologist)	Exploration of Puget Sound; class: Current Conservation Issues	Reading: Dr. Ricki Ott. Exxon Valdex. Discussion: cultural history, effects on envt, alternative economies.	4
12-Aug	Tues	Water quality monitoring on Alaganick Slough with Copper River Watershed Project (CRWP).	Class: Copper River Delta water quality, biodiversity and conservation	eve off; instructor reviews field journals.	2
13-Aug	Wed	Stream restoration work party; project of CRWP; class: Principles of stream restoration; fluvial processes	Stream restoration work party; project of CRWP	class: oral presentations on NHES topics/issues	3
14-Aug	Thurs	Hike to Sheridan Glacier	NHES Final		2
15-Aug	Fri	travel on ferry to Whittier	shuttle Whittier to Anchorage	dinner out; celebration of course closure.	
16-Aug	Sat	course ends at 9 am.			
				<b>Total class hours</b>	<b>68</b>