



Summer Session 2017

BIOE 416 Alpine Ecology

3 credits; Lectures, Labs, Field Work

Course dates: July 24–August 4, 2017

Instructor: Dr. Wendy Ridenour

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<http://www.umwestern.edu/academics/biology>

Prerequisites: One semester of college-level biology and an ecology course (can be met via BIOE342 Field Ecology at FLBS) or equivalents; or consent of instructor.

Course Description:

Exploration of the distribution, abundance and biotic interactions of plants and animals and their unique ecophysiological adaptations to life in the rigorous environments of high mountains above the timberline, with emphasis on the Crown of the Continent area. Students learn about the distributions of plants and animals and study the processes and interactions that are the foundation to ecology in alpine environments. Emphasis is placed on the processes that organize communities including drivers of global climate, and the complex interrelationships of biotic and abiotic interactions, including natural and human components as modifiers of system dynamics, and how those processes affect alpine systems. The class is organized around field trips and data intensive class projects that underscore major concepts and allow training in data collection, analysis, presentation and interpretation by students.

VERY IMPORTANT NOTE—To enjoy this course and to learn the content fully, you must be in good physical condition, able to hike up to 10+ miles a day in strenuous conditions at altitude and properly equipped for a great deal of hiking.

Required Text: Kershaw, L., A. MacKinnon and J. Pojar. 1998. Plants of the Rocky Mountains. Lone Pine Field Guide. Lone Pine Publishing, Renton, WA. ISBN 155105088-9 (available for purchase at the Biological Station Bookstore). Electronic copies of supplementary material will also be provided by the professor.

Course and Field Supplies/Equipment (*available for purchase at the FLBS Bookstore)

- Rite in the Rain field notebook*
 - Permanent ink pens and a few pencils*
 - Hot/cold mug*
 - Water bottle*
 - Lunch pack-up container (resealable)*
 - Mess kit
 - Bear spray*
 - Wading shoes or sandal
 - Required Overnight Field Gear and Other Items to Bring Checklists: [\(Click to view\)](#)
- Binoculars
 - Flashlight and batteries
 - Camera (optional, but great scenery in this class)
 - Laptop computer with MS Excel & MS Word
 - Personal First Aid Kit

Student Learning Outcomes:

Evaluation and Grading:

A scientific paper produced from class projects in Glacier National Park, a corresponding power point presentation, plus participation in all activities are the basis of your grade and evaluation. You will be required to complete a first draft of the paper in a timely manner, turn the first draft in to me, and I will return an edited version to you soon afterwards. Your grade will be based on the final draft you produce from my edits. This provides an excellent opportunity to learn how to write scientific papers.

Course Policies:

Schedule: (Tentative to be revised late Spring 2017.)

Date	Lectures – Labs – Field Work
24-Jul-17	Introduction, general global climate, alpine climate, morphological and physiological adaptations to the alpine climate, community ecology of alpine environment, plant ID lab
25-Jul-17	Field Trip to Glacier National Park: Siyeh Pass (plant interactions)
26-Jul-17	Grinnell Glacier (glacial succession)
27-Jul-17	Iceburg Lake
28-Jul-17	Written exam; work on 1 st draft of scientific paper
31-Jul-17	Field trip, Glacier National Park: Avalanche Lake (biomes)
1-Aug-17	Scenic Point; (community interactions)
2-Aug-17	Dawson-Pitamakin Loop
3-Aug-17	Work on scientific paper
4-Aug-17	Final presentations and final draft of paper due