Prerequisites: One semester of college-level biology and an ecology course (can be met via BIOE 342 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.

AACU-LEAP Essential Learning Outcomes (ELOs):
Beginning in school, and continuing at successively higher levels across their college studies, students should prepare for twenty-first-century challenges by gaining intellectual and practical skills, practiced extensively, across the curriculum, in the context of progressively more challenging problems, projects, and standards for performance including:

ELO-2: Inquiry and analysis (IA)
ELO-4: Critical thinking (CIT)
ELO-10: Problem solving (PS)

Student Learning Objectives:
1. Describe and apply the fundamental concepts and theories in community ecology and the integrative, multidisciplinary approaches used to study ecological communities (ELO 4).
2. Be able to read, evaluate, interpret, and discuss primary literature and reflect on its scientific impact (ELO 4).
3. Demonstrate the ability to conduct research in community ecology, keep a field/lab notebook, and write a scientific report (ELO 2, 4 &10).

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*
- Dissecting kit*
- Hand lens (Loop)*
- Hot/cold mug*
- Packable water bottles (total capacity at least 2 quarts)*
- Lunch pack-up container (resealable)*
- Mess kit
- Bear spray*
- Personal first aid kit
- Binoculars
- Headlamp and batteries
- Camera (optional, but great scenery in this class)
- Laptop computer with MS Excel & MS Word
- Rain gear
- Wading shoes or sandals

- Required Overnight Field Gear and Other Items to Bring Checklists: [http://flbs.umt.edu/urls/lists](http://flbs.umt.edu/urls/lists)

Evaluation and Grading:
A written exam, a scientific paper produced from class projects in Glacier National Park, a corresponding power point presentation, plus active 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 paper 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:
Students will adhere to University of Montana Student Conduct Code and Discrimination, Harassment, Sexual Misconduct, Stalking, and Retaliation Policy (policy website: [http://www.umt.edu/safety/policies/](http://www.umt.edu/safety/policies/)) and to the Biological Station Code of Conduct form signed during student registration. Students must also follow FLBS Rules and Regulations and abide by the Safety Orientation Checklist. Students who have not already completed the University of Montana PETSA training may access the Moodle module at this link: [http://www.umt.edu/petsa/](http://www.umt.edu/petsa/).

Schedule: The schedule below is subject to change.
Note: Make sure you pack your brown bag lunch each day at breakfast!

<table>
<thead>
<tr>
<th>Date</th>
<th>Lectures – Labs – Field Work</th>
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<tbody>
<tr>
<td>23-Jul-18 (M)</td>
<td>Introduction, alpine climate, morphological and physiological adaptations to the alpine climate, community ecology of alpine environment, alpine plant ID lab</td>
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<tr>
<td>24-Jul-18 (T)</td>
<td>Field Trip to Glacier National Park: Lunch Creek (alpine community ecology) overnight at Many Glacier group campground</td>
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<tr>
<td>25-Jul-18 (W)</td>
<td>Grinnell Glacier (glacial succession) overnight at Many Glacier group campground</td>
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<tr>
<td>26-Jul-18(Th)</td>
<td>Arrive back at FLBS late morning; afternoon written exam</td>
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<tr>
<td>27-Jul-18 (F)</td>
<td>Writing: scientific paper proposal &amp; draft introduction due</td>
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<tr>
<td>30-Jul-18 (M)</td>
<td>Field trip, Glacier National Park: Scenic Point; (data collection -community interactions) overnight at Two Medicine group campground</td>
</tr>
<tr>
<td>31-Jul-18 (T)</td>
<td>Scenic Point; (data collection -community interactions) overnight at Two Medicine group campground</td>
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<tr>
<td>Date</td>
<td>Activity</td>
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<tr>
<td>1-Aug-18 (W)</td>
<td>Triple Divide Pass or Dawson-Pitamakin Loop; overnight at Two Medicine group campground</td>
</tr>
<tr>
<td>2-Aug-18 (Th)</td>
<td>Arrive back at FLBS late morning; work on scientific paper</td>
</tr>
<tr>
<td>3-Aug-18 (F)</td>
<td>Final presentations and final draft of paper due</td>
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</tbody>
</table>

Students with disabilities may request reasonable modifications by contacting the instructor. The University of Montana assures equal access to instruction for students with disabilities in collaboration with instructors and Disability Services for Students (406.243.2243, [http://www.umt.edu/dss/default.php](http://www.umt.edu/dss/default.php)). The University does not permit fundamental alterations of academic standards or retroactive modifications.