Course Overview
This course is taught in concurrence with two other field-based courses as part of the program “Natural History Field Studies: The Ecosystems of California”. This field-based course is composed of extended field trips to seven regions of California and various ecosystems therein. During each trip, we will focus on the aspects of natural history that are unique to that specific region.

Learning Objectives
1) To learn plant taxonomy and morphology.
2) To use dichotomous keys to make field identifications of flowering plants.
3) To know the characteristics of the important California plant families.
4) To understand individual plants and species within the larger ecological context that shapes them.
5) To learn about and witness some of the current ecological threats to California vegetation.
6) To become especially familiar with the dominant plants of the seven California regions visited during this program.

Course Outline
During this field-based study of the flora of California, emphasis will be placed on field identification of species and vegetation types. The course includes use of taxonomic keys, recognition and description of major plant families and dominant plant communities, influence of climate and geology on California vegetation, and general evolution and adaptation of species and ecosystems. The focus will be on learning to identify vascular plants and plant communities. The identification of bryophyte, lichen, and fungi and concepts of ecology will also be introduced.

Students will maintain a thorough field journal of their observations and experiences at each site, and will prepare and present short talks to introduce key topics at each field site.

Schedule

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<th>Location/Topic</th>
<th>Assignments</th>
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| **Granite Mountains (Mojave Desert) - 17 hours** | **Field Journal:** Students will keep a field journal beginning on the desert trip and continuing through the entire course. Field notes will be taken every day and will be evaluated at the end of each trip and returned. Field notes will start with natural history observations, but will include all broader topics we are learning, including contemporary environmental issues.  
**Botanical Research Project:** Students will select a plant species, genus or family of their choice to study throughout the quarter. Students will present their botanical taxa at the end of the quarter and will submit a synopsis of their research and observational findings. |
| - Plant taxonomy, morphology and the introduction to important California plant families  
  ○ Vegetation of the Mojave Desert  
  ○ Identification of flowering plants  
  ○ Origins and evolution of modern flora  
- Ecology of California vegetation  
- Current issues affecting vegetation in the Mojave Desert |
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<tr>
<th>Location</th>
<th>Duration</th>
<th>Content</th>
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<tr>
<td><strong>Carrizo Plain (San Joaquin Valley) - 6 hours</strong></td>
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| - Important California plant families found in the Carrizo Plain  
  - Wetland ecology  
  - Current issues affecting vegetation in the Carrizo Plain and San Joaquin Valley | Field Journal: Continued | Quiz: California plant families |
| **Big Sur and Carmel Valley (Central Coast) - 11 hours** | | |
| - Important California plant families of the Central Coast  
  - Vegetation community relationships with fire and grazing  
  - Current issues affecting vegetation of the Central Coast | Field Journal: Continued | Quiz: Grass identification |
| **Mendocino (North Coast) - 8 hours** | | |
| - Important California plant families found at the Angelo Coast Reserve  
  - Vegetation ecology and successional position of forests and meadows  
  - Lichen, fungi and bryophyte ecology and identification  
  - Current issues affecting vegetation of the North Coast | Field Journal: Continued, including longer, more detailed observations. | Quiz: Tree identification |
| **Klamath Range, Lava Beds National Monument (Northern CA: Cascades, Great Basin) - 9 hours** | | |
| - Important California plant families found in the Klamath Range, Cascades Range and Great Basin  
  - Vegetation ecology of montane forests, lakes/wetlands and deserts  
  - Plant diversity, rarity and endemism | Field Journal: Continued, including longer observations concerning bioregion and environmental issues comparisons. | |
| **Owens Valley and Yosemite National Park (Great Basin and E & W Sierra Nevada Mountains) - 9 hours** | | |
| - Important California plant families found in the Owens Valley and Sierra Nevada mountains  
  - Vegetation ecology of desert, montane, sub-alpine and alpine zones  
  - Current issues affecting vegetation of the Owens Valley and Sierra Nevada mountains | Field Journal: Continued, including longer observations concerning bioregion and environmental issues comparisons. | Botanical Research Project: Students will present and submit their projects. |

**TOTAL HOURS: 60**
**Required Readings**


Found in course reader and additional references:


Smith, S. Flora of Lava Beds National Monument. unpublished.


**Assessment**

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<th>Component</th>
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<tr>
<td>Participation in discussions</td>
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<td>Quality of written assignments</td>
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<tr>
<td>Field research projects</td>
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<td>Oral reports</td>
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<td>Examinations</td>
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