

BIO 85.1 Course Outline as of Fall 2021**CATALOG INFORMATION**

Dept and Nbr: BIO 85.1 Title: PEPPERWOOD PHYSICAL ENVT

Full Title: Pepperwood Natural History: Physical Environment

Last Reviewed: 9/14/2020

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	1.50	17.5	Lecture Scheduled	26.25
Minimum	2.00	Lab Scheduled	1.50	8	Lab Scheduled	26.25
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 52.50

Total Student Learning Hours: 105.00

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As: ERTHS 85.1

Formerly:

Catalog Description:

A survey of the natural history of the Pepperwood Preserve, emphasizing earth sciences and native cultures (offered Fall semester only). Laboratory hours are primarily in the field and will include hiking over uneven terrain. This course (along with BIO/ERTHS 85.2) is a component of the Pepperwood Preserve Steward training program.

Prerequisites/Corequisites:**Recommended Preparation:**

Eligibility for ENGL 1A or equivalent or appropriate placement based on AB705 mandates

Limits on Enrollment:**Schedule of Classes Information:**

Description: A survey of the natural history of the Pepperwood Preserve, emphasizing earth sciences and native cultures (offered Fall semester only). Laboratory hours are primarily in the field and will include hiking over uneven terrain. This course (along with BIO/ERTHS 85.2) is a component of the Pepperwood Preserve Steward training program. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 1A or equivalent or appropriate placement based on AB705 mandates

Limits on Enrollment:

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area		Effective:	Inactive:
CSU GE:	Transfer Area		Effective:	Inactive:
IGETC:	Transfer Area		Effective:	Inactive:
CSU Transfer:	Transferable	Effective:	Fall 2009	Inactive:
UC Transfer:		Effective:		Inactive:

CID:

Certificate/Major Applicable:

Not Certificate/Major Applicable

COURSE CONTENT

Student Learning Outcomes:

At the conclusion of this course, the student should be able to:

1. Describe the role of science in understanding natural history.
2. Relate knowledge of natural history to becoming a naturalist, a nature preserve docent, and/or a Land Steward.
3. Integrate knowledge about the interconnectedness of abiotic and biotic factors (including human) and their influence on the natural history of Pepperwood Preserve.
4. Demonstrate skills in making and recording natural history observations in a field journal.

Objectives:

At the conclusion of this course, the student should be able to:

1. Explain the discipline and scope of natural history.
2. Interpret the land use and natural history of the Pepperwood Preserve.
3. Orient oneself to the geography of the Pepperwood Preserve.
4. Record field observations in a field journal.
5. Interpret the geologic history, including the formation of rocks and soil in the Pepperwood Preserve.
6. Identify common rocks at the Pepperwood Preserve.
7. Correlate climatic factors with local weather patterns.
8. Describe factors affecting water movement and accumulation in the landscape.
9. Describe the influence of abiotic and biotic factors on vegetation patterns and ecosystem processes.
10. Relate the influence of native cultures to the natural history of the Pepperwood Preserve.
11. Demonstrate naturalist and/or land steward skills.

Topics and Scope:

- I. Introduction to Natural History
 - A. The discipline of natural history and the scientific method
 - B. Natural history of Pepperwood
 - 1. Overview of regional and local natural history at Pepperwood
 - 2. Land use history at Pepperwood
 - 3. Orientation to the preserve
 - C. Field journal
- II. Geology
 - A. Overview of geology
 - 1. Plate tectonics
 - 2. The rock cycle and rock types at Pepperwood
 - B. Brief geologic history of California and Sonoma County
 - 1. Coastal ranges geologic setting
 - 2. Regional and local fault systems
 - C. Common igneous, sedimentary and metamorphic rocks at Pepperwood Preserve
- III. Weather and Climate
 - A. Insolation and temperature
 - B. Air pressure and wind
 - C. Atmospheric moisture
 - D. Regional climate and the microclimates of Pepperwood
- IV. Soils
 - A. Soil profiles and horizons
 - B. Soil properties
 - C. Soil formation
 - D. Sonoma County and Pepperwood soil regions
- V. Hydrology
 - A. Hydrologic cycle
 - B. Groundwater
 - 1. Groundwater movement
 - 2. Groundwater resources at Pepperwood
 - C. Surface water
 - 1. Surface water movement
 - 2. Surface water resources at Pepperwood
- VI. Vegetation and Ecosystem Ecology
 - A. Ecological determinants of vegetation patterns
 - B. Vegetation patterns in Sonoma County and at Pepperwood
 - C. Ecosystems processes
 - 1. Trophic levels and food webs
 - 2. Energy flow and nutrient cycles
- VII. Archaeology and Native American Culture
 - A. Ethnography of native peoples in Sonoma County
 - B. Traditional cultural uses of the Pepperwood biota
 - C. The Pepperwood collection of cultural resources and obsidian stone tool technology
 - D. Archeological field survey of the cultural resources of the Pepperwood Preserve
- VIII. Methods of Natural History Interpretation
 - A. Effective oral communication for target audience
 - B. Use of demonstration materials
 - C. Planning of interpretation event for target audience

All topics are covered in the lecture and lab portions of the course.

Assignment:

Lecture-Related Assignments:

1. Readings from selected journal papers and texts, 20-30 pages per week
2. Quizzes (3-5)
3. Final exam

Lab-Related Assignments:

1. Oral presentation demonstrating skills as a natural history interpreter

Lecture- and Lab-Related Assignments:

1. Completion of a field journal

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Field journal

Writing
20 - 40%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

None

Problem solving
0 - 0%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Oral presentation

Skill Demonstrations
10 - 20%

Exams: All forms of formal testing, other than skill performance exams.

Quizzes and final exam

Exams
40 - 50%

Other: Includes any assessment tools that do not logically fit into the above categories.

Participation and attendance

Other Category
10 - 20%

Representative Textbooks and Materials:

The Laws Guide to Nature Drawing and Journaling. Laws, John Muir. Heyday Publishers. 2018

The California Naturalist Handbook, de Nevers, Greg and Edelman, Deborah and Merenlender, Adina. University of California Press. 2013 (classic)

An Island called California, Bakker, Elna. University of California Press. 1984 (classic)

A Natural History of California. 2nd ed. Schoenherr, Allan. University of California Press. 2017

Roadside Geology of Northern and Central California. 2nd ed. Alt, David. and Hyndman, Donald and Baylor, Katherine. Mountain Press Publishing. 2016

Weather of the San Francisco Bay Region (California Natural History Guides, 63). 2nd ed. Gilliam, Harold. University of California Press. 2002 (classic)

Geology of the San Francisco Bay Region (California Natural History Guides, 79). Sloan, Doris. University of California Press. 2006 (classic)

Introduction to California Soils and Plants (California Natural History Guides, 86). Kruckeberg, Arthur. University of California Press. 2006 (classic)