I. CATALOG INFORMATION

A. Discipline: BIOLOGY

B. Subject Code and Number: BIOL M05

C. Course Title: Field Biology - A Natural History of California

D. Credit Course units:

Units: 4

Lecture Hours per week: 3

Lab Hours per week : 3

Variable Units : No

E. Student Learning Hours:

Lecture Hours:

Classroom hours: 52.5 - 52.5

Laboratory/Activity Hours:

Laboratory/Activity Hours 52.5 - 52.5

Total Combined Hours in a 17.5 week term: 105 - 105

F. Non-Credit Course hours per week

G. May be taken a total of: [X] 1 [ ] 2 [ ] 3 [ ] 4 time(s) for credit

H. Is the course co-designated (same as) another course: No [X] Yes [ ]
If YES, designate course Subject Code & Number:

I. Course Description:

Introduces the ecology, taxonomy, and natural history of plant life in the diverse ecosystems of California. Uses the principles of evolution, ecology, and geology to illustrate the structure of plant communities that form the basis of ecosystems. Includes identification of dominant plant species in each community and visits to desert, salt and fresh water wetlands, chaparral, and mountain habitats to explore plant, animal, and environmental interactions and the impact of humans on these environments.

J. Entrance Skills

*Prerequisite: No [X] Yes [ ] Course(s)

*Corequisite: No [X] Yes [ ] Course(s)

Limitation on Enrollment: No [X] Yes [ ]

Recommended Preparation: No [X] Yes [ ] Course(s)

Other: No [X] Yes [ ]

K. Other Catalog Information:

Field trips required.

II. COURSE OBJECTIVES

Upon successful completion of the course, a student will be able to:

		Methods of evaluation will be consistent with, but not limited by, the following types or examples.
1	describe the pertinent and diverse features of California's landscape and climate.	Examination, quizzes, papers, and presentations
2	describe soil formation, characteristics that distinguish soils, and the biotic factors associated with soils.	Examination, quizzes, papers, and presentations
3	apply techniques for studying organisms in the wild, and methods of recording field data.	keeping field notebooks and journaling participating as a citizen scientist and recording observations with iNaturalist
4	relate ecological principles to the field study of a plant community.	Examination, quizzes, papers, and presentations
5	apply basic principles of geography and geology to field conditions.	Examination, quizzes, papers, and presentations, lab practical
6	identify plants by using key out and commonly accepted manuals.	Lab practical
7	identify California conifers and oaks on sight.	Quiz, lab practical keeping field notebooks and journaling
8	recognize the dominant plants in the major plant communities in California and discuss adaptations to their habitat.	Lab practical keeping field notebooks and journaling
9	identify the animals in the dominant plant communities in California and discuss adaptations to their habitat.	Quiz, lab practical keeping field notebooks and journaling

10	identify the animals in the dominant plant communities in California and discuss adaptations to their habitat.	Examination, quizzes, papers, and presentations, and lab practical
11	discuss the relationships between organisms in a community and the factors necessary to maintain a stable community.	Examination, quizzes, papers, and presentations
12	explain the basis of inheritance from both classical and molecular perspectives.	Examination, quizzes, papers, and presentations
13	relate evolutionary principles to the adaptations organisms exhibit in given environments.	Examination, quizzes, papers, and presentations keeping field notebooks and journaling
14	discuss factors that determine the distribution and abundance of the different plant communities throughout the state.	Examination, quizzes, papers, and presentations keeping field notebooks and journaling
15	discuss human impact on the major plant communities and the potential and factors necessary for recovery.	Examination, quizzes, papers, and presentations

III. COURSE CONTENT

Estimated %	Topic	Learning Outcomes
Lecture (must total 100%)		
3.00%	Scientific method	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
6.00%	California climate and geography	1, 2, 5, 14
6.00%	Nutrient cycling, photosynthesis and cellular respiration	3, 14
3.00%	Basic geological principles	5
6.00%	Hard – soft chaparral communities	1, 6, 7, 8, 9, 10, 11, 14, 15
6.00%	Plant life cycles, mitosis and meiosis, genetics	3, 12
6.00%	Riparian woodland communities	1, 6, 7, 8, 9, 10, 11, 14, 15
		1, 4, 6, 7,

6.00%	California oaks ecology	8, 9, 10, 14, 15
6.00%	Coastal strand communities	1, 6, 7, 8, 9, 10, 11, 14, 15
6.00%	Forest communities North coastal forest Mixed evergreen forest Closed cone pine forest	1, 6, 7, 8, 9, 10, 11, 14, 15
6.00%	Wetland communities Saltwater Freshwater	1, 6, 7, 8, 9, 10, 11, 14, 15
6.00%	Desert communities Low desert High desert	1, 6, 7, 8, 9, 10, 11, 14, 15
6.00%	Mountain communities Sierra Nevada High mountain – sub-alpine, alpine	1, 6, 7, 8, 9, 10, 11, 14, 15
6.00%	Soils and nutrients	2, 14
12.00%	Basic ecological principles, ecosystems, food chains, succession, demography, and biomes	4, 6, 7, 8, 10, 11, 14, 15
10.00%	Evolutionary principles, genetic variation, and natural selection	11, 12, 13, 14, 15
Lab (must total 100%)		
6.00%	Flower and Leaf Structure	3, 6, 7, 8, 13
6.00%	Field Data Recording and Reporting	1, 3, 4, 6, 8, 9, 11, 12, 13
8.00%	Taxonomy and Plant Dicotomous Keys	6
4.00%	Geology	2, 5
8.00%	Ecological Principles	4, 8, 9, 10, 11, 14, 15
8.00%	Evolutionary Concepts	12
3.00%	Photosynthesis and Respiration	4, 11, 14
6.00%	Rocks and Soil	1, 2, 5
8.00%	Low Desert Field Trip	1, 4, 5, 9, 10, 11, 14, 15
8.00%	Saltwater Marsh and North Coastal Field Trip	1, 4, 9, 10, 11, 14, 15
6.00%	Chaparral Field Trip	1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 13,

		14, 15
6.00%	Structure and Anatomy of Conifers and Lifecycle	3, 6, 7
6.00%	Ecology of California Oaks	4, 7, 9, 10, 11
6.00%	Conifer Lifecycle (mitosis and meiosis)	3, 4, 7, 12
8.00%	Sierra Nevada Transect Field Trip	1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15
3.00%	Inter-tidal and Coastal Strand Field Trip	1, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15

IV. TYPICAL ASSIGNMENTS

A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:	
1	write essays on assigned topics such as the role of fire in California ecosystems.
2	review lay scientific literature related to specific desert communities.

B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	record observations on iNaturalist
2	read articles from scientific literature on California native communities of: deserts, wetlands, mountains, and forests.
3	prepare for group oral presentations on specific ecological communities.

C. Critical thinking assignments

Critical thinking assignments are required. Possible assignments may include, but are not limited to:	
1	evaluation of the role of fire in mechanism of distribution of many of the chaparral plants.
2	discussion of the impact of geology on California field biology.
3	comparison of the type of plants in each ecological community.
4	comparison of the differences in the ecosystems of California's high and low deserts.

V. METHODS OF INSTRUCTION

Methods of instruction may include, but are not limited to:

☐ Distance Education – When any portion of class contact hours is replaced by distance education delivery mode (Complete DE Addendum, Section XV)

☒ Lecture/Discussion

☒ Laboratory/Activity

[X] Other (Specify) Audiovisuals

[ ] Optional Field Trips

[X] Required Field Trips

VI. METHODS OF EVALUATION

Methods of evaluation may include, but are not limited to:

[X] Essay Exam	[X] Classroom Discussion	[X] Skill Demonstration
[X] Problem Solving Exam	[X] Reports/Papers/ Journals	[ ] Participation
[X] Objective Exams	[ ] Projects	[X] Other (specify)

Correct identification of plant and animal species on field trips
Identification of native tree species during field trips and lab practical
Record observations on iNaturalist
Maintain a field notebook and/or field journal

VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS

de Nevers, Greg, et al. The California Naturalist Handbook. University of California, 2013.

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

Stuart, John D., and John O. Sawyer. Trees and Shrubs of California. University of California, 2001.

VIII. STUDENT MATERIALS FEES

[X] No [ ] Yes

IX. PARALLEL COURSES

College	*Course Number*	*Course Title*	*Units*
Shasta College	BIOL 12	Field Biology	3
Diablo Valley College	BIOSC 126	Nature Study and Conservation	4
Fresno City College	BIOL 7	Field Biology	5
College of the Marin	BIOL 101	Field Biology	4
Pasadena City College	BIOL 14	Field Biology	4

X. MINIMUM QUALIFICATIONS

Courses Requiring a Masters Degree:
Master's degree in any biological science OR bachelor's degree in any biological science AND master's degree in biochemistry, biophysics, or marine science OR the equivalent.

XI. ARTICULATION INFORMATION

A. Title V Course Classification:

1. This course is designed to be taken either:

   ☐ Pass/No Pass only (no letter grade possible); or
   ☒ Letter grade (P/NP possible at student option)

2. Degree status:
   Either ☒ Associate Degree Applicable; or ☐ Non-associate Degree Applicable

B. Moorpark College General Education:

1. Do you recommend this course for inclusion on the Associate Degree General Education list?
   Yes: ☒ No: ☐ If YES, what section(s)?

   ☒ A1 - Natural Sciences - Biological Science
   ☐ A2 - Natural Sciences - Physical Science
   ☐ B1 - Social and Behavioral Sciences - American History/Institutions
   ☐ B2 - Social and Behavioral Sciences - Other Social Behavioral Science
   ☐ C1 - Humanities - Fine or Performing Arts
   ☐ C2 - Humanities - Other Humanities
   ☐ D1 - Language and Rationality - English Composition
   ☐ D2 - Language and Rationality - Communication and Analytical Thinking
   ☐ E1 - Health/Physical Education
   ☐ E2 - PE or Dance
   ☐ F - Ethnic/Gender Studies

C. California State University(CSU) Articulation:

1. Do you recommend this course for transfer credit to CSU? Yes: ☒ No: ☐

2. If YES do you recommend this course for inclusion on the CSU General Education list?
   Yes: ☒ No: ☐ If YES, which area(s)?

   A1 ☐ A2 ☐ A3 ☐ B1 ☐ B2 ☒ B3 ☒ B4 ☐

   C1 ☐ C2 ☐ D1 ☐ D2 ☐ D3 ☐ D4 ☐ D5 ☐

   D6 ☐ D7 ☐ D8 ☐ D9 ☐ D10 ☐ E ☐

D. University of California (UC) Articulation:

1. Do you recommend this course for transfer to the UC? Yes: ☒ No: ☐

2. If YES do you recommend this course for the Intersegmental General Education Transfer Curriculum (IGETC)? Yes: ☒ No: ☐

   IGETC Area 1: English Communication

- [ ] English Composition
- [ ] Critical Thinking-English Composition
- [ ] Oral Communication

IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

- [ ] Mathematical Concepts

IGETC Area 3: Arts and Humanities

- [ ] Arts
- [ ] Humanities

IGETC Area 4: Social and Behavioral Sciences

- [ ] Anthropology and Archaeology
- [ ] Economics
- [ ] Ethnic Studies
- [ ] Gender Studies
- [ ] Geography
- [ ] History
- [ ] Interdisciplinary, Social & Behavioral Sciences
- [ ] Political Science, Government & Legal Institutions
- [ ] Psychology
- [ ] Sociology & Criminology

IGETC Area 5: Physical and Biological Sciences (mark all that apply)

- [ ] Physical Science Lab or Physical Science Lab only (none-sequence)
- [ ] Physical Science Lecture only (non-sequence)
- [X] Biological Science
- [ ] Physical Science Courses
- [ ] Physical Science Lab or Biological Science Lab Only (non-sequence)
- [ ] Biological Science Courses
- [ ] Biological Science Lab course
- [ ] First Science course in a Special sequence
- [ ] Second Science course in a Special Sequence
- [X] Laboratory Activity
- [ ] Physical Sciences

IGETC Area 6: Language other than English

- [ ] Languages other than English (UC Requirement Only)
- [ ] U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)
- [ ] U.S. History, Constitution, and American Ideals (CSU

Requirement ONLY)

XII. REVIEW OF LIBRARY RESOURCES

A. What planned assignment(s) will require library resources and use?

The following assignments require library resources:
Utilize the Library's print and online resources for researching paper topics such as the benefits of fire in numerous ecosystems in California and the ramifications of its prevention.

B. Are the currently held library resources sufficient to support the course assignment?

YES: [X] NO: [ ]

If NO, please list additional library resources needed to support this course.

XIII. PREREQUISITE AND/OR COREQUISITE JUSTIFICATION

BIOL M05: Not Applicable

XIV. WORKPLACE PREPARATION

BIOL M05: Not Applicable

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

BIOL M05: Not Applicable

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

General Education Division of Learning [check all applicable boxes]:

- [X] Natural Sciences
  - [X] Biological Science
  - [ ] Physical Science
- [ ] Social and Behavioral Sciences
  - [ ] American History/Institutions
  - [ ] Other Social Science
- [ ] Humanities
  - [ ] Fine or Performing Arts
  - [ ] Other Humanities
- [ ] Language and Rationality
  - [ ] English Composition
  - [ ] Communication and Analytical Thinking
- [ ] Health/Physical Education
- [ ] Ethnic/Women's Studies

Check either Option 1 or Option 2

[X] **OPTION #1:** Moorpark College has already received approval from the

CSU and/or UC systems for this course to fulfill a GE requirement. Note: This option applies only to technical revisions and updated courses.

☐ **OPTION #2:** Moorpark College has not received approval from the CSU and/or UC systems for this course to fulfill a GE requirement. This option applies to all new and substantively revised courses.

XVII. STUDENT MATERIALS FEE ADDENDUM

BIOL M05: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

BIOL M05: Not Applicable

XIX. CURRICULUM APPROVAL

Course Information:

Discipline: BIOLOGY

Discipline Code and Number: BIOL M05

Course Revision Category: Outline Update

Course Proposed By:

Originating Faculty Ana Barcenas 09/12/2018

Faculty Peer: Paul Kores 09/13/2018

Curriculum Rep: Beth Miller 09/12/2018

Department Chair: Audrey Chen 09/12/2018

Division Dean: Carol Higashida 09/13/2018

Approved By:

Curriculum Chair: Jerry Mansfield 02/08/2019

Executive Vice President: _____

Articulation Officer: Letrisha Mai 02/06/2019

Librarian: Mary LaBarge 02/04/2019

Implementation Term and Year: Fall 2019

Approval Dates:

Approved by Moorpark College Curriculum Committee: 02/19/2019

Approved by Board of Trustees (if applicable): _____

Approved by State (if applicable): 02/27/2019