



CALIFORNIA NATURALIST
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UC Merced Natural Reserve System, Merced County UC Cooperative Extension, and the Upper Merced River Watershed Council

California Naturalist Certification Course
San Joaquin Valley & Central Sierra Nevada Foothills
Spring 2018

SYLLABUS AND INFORMATION

Course Instructors:

Monique Kolster, Director of the UC Merced Vernal Pools and Grassland Reserve
(mkolster@ucmerced.edu)

Sarah Abboud, Biology Lecturer, UC Merced

Meeting Days and Times: February 15 – April 26, 2018

- 10 Thursday evening classes (5:30-8:30pm), except March 29 (UC Merced's Spring Holiday)
- 3 Saturday field trips (9am-2pm): February 24, March 31, and April 14

Location: UC Merced, Classroom Office Building (COB 262)

Course Description: Welcome to the California Naturalist Training!

The California Naturalist Program seeks to foster a committed corps of volunteer naturalists and citizen scientists trained and ready to take an active role in local natural resource conservation, restoration, and environmental education. This ten-week California Naturalist training course will introduce you to the wonders of our local ecology and engage you in the stewardship of California's natural communities. The course will combine a science curriculum with guest

presenters, discussions, hands-on activities, field trips, and project-based learning to immerse you in the natural world of the San Joaquin Valley and central Sierra Nevada foothills. Participants earn the University of California's California Naturalist certificate for attending lectures, field trips, taking field notes, and completing a Capstone Project. Upon completing certification requirements, participants also are eligible for four academic credits through UC Davis Extension for an additional nominal fee.

Student Learning Outcomes:

By the end of this course, participants will be able to:

- 1) Relate knowledge of natural history by becoming a naturalist and a San Joaquin Valley and central Sierra Nevada foothills environmental steward.
- 2) Integrate knowledge about the interconnectedness of abiotic, biotic, and cultural factors and their influence on the natural history of the Central Valley and Sierra foothills.
- 3) Demonstrate skills in making and recording natural history observations in a field notebook and on iNaturalist.org
- 4) Demonstrate skills in communicating and interpreting natural resource information
- 5) Apply knowledge of the Central Valley and the Sierra foothills ecosystems to local and global environmental issues.
- 6) Understand and communicate the role of citizen science in informing local and regional natural resources management and decision-making processes.

To learn more about the California Naturalist course, please go to, <http://calnat.ucanr.edu/>.

Components of the Course:

Weekly Classes

Thursday evening classes will provide participants with exposure to many aspects of San Joaquin Valley and Sierra Foothill ecology, natural history and environmental science. Classes consist of lectures, presentations, in-class activities, and demonstrations. We plan to have lively discussions and relevant hands-on activities, so reading all assigned materials before each class is highly encouraged. UC Merced faculty and other regional experts present evening lectures.

Field Trips

Saturday field trips will take place in representative areas in the valley and the foothills where concepts learned in class and in the textbook will be reinforced by direct observation. We will meet at the different specified locations (see below for dates and locations). Directions will be given before the field trip. Carpooling is very much encouraged. Participants may not bring guests or children on any field trip.

Graduation Day

Graduation day will be on the last day of class (Thursday, April 26), following your Capstone Project presentations.

Attendance

One excused absence is allowable with the understanding that this absence will be made up in an approved manner. Please note that, while we understand that unexpected demands sometimes

arise, it is difficult to substitute a make-up activity for the depth of information and experience gained in the scheduled session or field trip. Therefore we ask that you make a commitment to attend all sessions when you enroll in the course.

Readings & Homework

Reading is assigned for each class meeting (check the class schedule below), based on the topic to be covered that day. Participants are expected to read the chapters assigned for that day before the class meeting times, so that materials are more relevant as they are presented. There will be homework assignments to reinforce materials in class.

Naturalist Field Notebook

Naturalists will document their field observations with notes and sketches in a field notebook. Keeping a field notebook is a course requirement. A detailed field notebook and a field journal are the best way to keep a permanent record of your observations for future reflection and for fostering continued learning and development as an experienced naturalist.

iNaturalist

Over the course of the class, each participant will be responsible for registering for an iNaturalist account (www.inaturalist.org/) and adding at least 3 observations to the established Vernal Pool and Grassland Reserve California Naturalist project. We will go over the iNaturalist web tool later in the course.

Capstone Project

Certification requires that each participant plan and complete a Capstone Project. The Capstone project provides an opportunity for participants to integrate the in-class material with an applied work project that is done in conjunction with a natural resource agency or organization. We will provide examples and guidance in developing your project. Participants may work individually or in teams to design and implement their project. During the final evenings of the course, students give a 5-15 minute oral presentation describing their Capstone Project. This could be an interpreter-style presentation similar to one given while leading a hike or a field service project, or it could be a formal presentation, similar to delivery at a public gathering. A short list of presentation sources must be provided to the course coordinator. You must submit the topic of your presentation by Week 5 for approval.

Volunteer Service & the Volunteer Management System (VMS)

After completing the California Naturalist training program, participants are expected and encouraged to complete 40 hours of volunteer service relating to California's natural history and conservation. Each activity should fit under one of these categories: stewardship, education/interpretation, citizen science or program support. Hours spent planning, developing and completing the Capstone Project count toward this 40-hour requirement. We will provide information on local opportunities, and students are encouraged to participate in and conduct activities with agencies and organizations in their own communities. Participants will be provided an on-line account to track their volunteer hours, including hours spent on their Capstone project. Tracking volunteer hours is an essential way to prove need and impact of a program like the California Naturalist Program.

A Certified California Naturalist will have done the following:

- Attended all class sessions and field days
- Completed a capstone project approved by the instructor
- Logged at least three observations in iNaturalist
- Read the entire book “The California Naturalist Handbook” and completed assigned homework
- Created a field notebook with entries from all field days and more
- Gone outside and observed nature
- Completed Post-Evaluation surveys
- Seriously considered and hopefully committed to volunteering at least 40 hours a year in environmental stewardship, education, or citizen science and recorded hours in the volunteer management system

Registration and Fees:

The course registration fee is \$350. Class size is limited to 25 participants. Fees include course instruction and field sessions, course textbooks, graduation certificate, California Naturalist registration, website support, and lapel pin. Students need to provide their own field notebook and nature journal. You may wish to purchase your nature journal after we discuss journaling in class.

On-line registration can be accessed at <http://cemerced.ucanr.edu>. For questions about registration, please contact Cathy Marks at the UC Cooperative Extension Merced Office (209-385-7403).

For an additional fee, four undergraduate academic credits are available through UC Davis Extension for participants who successfully complete the course. If you desire academic credits, please speak to the course coordinator.

Scholarships:

A limited number of need-based scholarships are available. Scholarship applications must be received by **Thursday, January 25, 2018**. Follow-up interviews may be required. Applicants will be notified of their scholarship status by January 31, 2018. If you are interested in a scholarship, please fill out the scholarship form (<http://cemerced.ucanr.edu>) and submit it with your registration form. For more information, please contact Monique Kolster (mkolster@ucmerced.edu).

Required Items (Both textbooks provided at no extra cost to students):

- *The California Naturalist Handbook*, by Greg de Nevers, Deborah Stanger Edelman and Adina Merenlender
- *Secrets of the Oak Woodlands: Plants and Animals Among California's Oaks*, by Kate Marianchild.
- An email account
- A field notebook for nature observations and drawings
- Pencils

Suggested, But Not Required Items:

- Binoculars
- Hand lens (10x)

TENTATIVE CLASS SCHEDULE

Weekly Classes: Course Topics and Guest Lecturers

Day One (February 15)

Welcome and Overview of California Ecosystems

Topics: An overview of the course structure and subjects, textbook and readings, field trips, and course requirements. We'll provide an introduction and overview of California ecosystems, a brief history of natural history and naturalists, scientific classification and the Linnaeus system.

Welcome: Monique Kolster, UC Merced, and Sarah Abboud, UC Merced

Lecturer: Dr. Jessica Blois, Assistant Professor, UC Merced

Reading: Chapter 1- *California Natural History and the Role of Naturalists*

Day Two (February 22)

Water and Aquatic Ecosystems; Description of Capstone Project

Topics: Water resources, the hydrological cycle, watershed concepts, social and ecological functions of water, water management, and water in California.

Lecturer: Dr. Joshua Viers, Assistant Professor, UC Merced

Reading: Chapter 3- *Water* and handouts

Day Three (March 1)

Interpretation, Nature Journaling, and Ecological History of California

Topics: Basic principles of nature interpretation, learning preferences, citizen science, communication techniques, how to keep a field notebook and nature journal.

Lecturers: Laura Cunningham, Naturalist, Artist, and Author of *A State of Change: Forgotten Landscapes of California*

Reading: Chapter 8- *Interpretation, Collaboration, and Citizen Science* and handouts

Day Four (March 8)

Soils of the Foothills and Central Valley

Topics: Geology, soils and climate of California and the local region, how geological history has created our current landscape, and nutrient cycles and soils.

Lecturer: Scott Stoddard, Director, UC Cooperative Extension, Merced

Reading: Chapter 2- *Geology, Climate, and Soils* and handouts

Day Five (March 15)

Plants

Topics: Parts of a plant, how plants function, reproduce and adapt to their environment, characters used for plant identification, non-native vs native plants, and human and natural impacts to vegetative communities.

Lecturer: Monique Kolster, UC Merced

Reading: Chapter 4- *Plants* and handouts

Day Six (March 22)

Forest Ecology

Topics: Ecological and economic value of forests, forest structure, the role of fire in California's forests and grasslands, value of forests to society, common trees of the Sierra foothills and Central Valley.

Lecturer: Jeff Lauder, PhD student in Quantitative and Systems Biology, UC Merced

Reading: Chapter 5- *Forest, Woodland, and Range Resources and Management* and handouts

March 29: SPRING BREAK (No Class)

Day Seven (April 5)

Rangeland Ecology

Topics: Ecological and economic value of rangelands, the role of fire in California's grasslands, value of grasslands to society, common grasses of the Central Valley.

Lecturer: Fadzayi Mashiri, County Director and the Livestock & Natural Resources Farm Advisor, UC Cooperative Extension, Mariposa

Reading: Chapter 5- *Forest, Woodland, and Range Resources and Management* and handouts

Day Eight (April 12)

Birds

Topics: Characteristics and identification of birds, role of birds in the environment, evolutionary relations and adaptations, life cycles, migration and habitat use, economic role of birds in the Central Valley and Sierra foothills.

Lecturer: Pete Devine, Naturalist, Yosemite Conservancy

Reading: Chapter 6- *Animals* and handouts

Day Nine (April 19)

Climate Change

Topics: Sources of energy, how plants and animals use energy, natural resources, global climate change

Lecturer: Dr. Tapan Pathak, Assistant Research Professor and Cooperative Extension Specialist in Climate Adaptation, Sierra Nevada Research Institute, UC Merced

Reading: Chapter 7- *Energy and Global Environmental Issues* and handouts

Day Ten (April 26)

Graduation and Student Presentations of Capstone Projects

Saturday Field Trips: 9:00 am to 2:00 pm

Birds and Migration; Ecology of Vernal Pools (February 24): Merced National Wildlife Refuge and UC Merced Vernal Pools and Grassland Reserve

Instructors: Karyn “Kestrel” O’Hearn, Yosemite National Park Ranger Naturalist, and Monique Kolster, Director of the UC Merced Vernal Pools and Grassland Reserve

Water, Irrigation, and Water Transport in California (March 31): Merced Irrigation District canals, Merced River, McClure Reservoir

Instructor: Vicki Espinoza, PhD student in the Environmental Systems Program, UC Merced

Wildflowers and Forest Ecology (April 14): Striped Rock Ranch, Mariposa

Instructor: Wendy Fisher, Senior Project Manager, Senior Biologist (Plant/Wetland Ecologist), and Certified Arborist with Live Oak Associates, Inc. and Wildflower Docent with Sierra Foothill Conservancy

Optional/Make-up Field Trip (March 3): Field Journaling on the Merced Vernal Pools and Grassland Reserve

Instructors: Tom Hothem, Associate Director of the Karen Merritt Writing Program, UC Merced, and Laura Cunningham, Naturalist, Artist, and Author of *A State of Change: Forgotten Landscapes of California*