FIELD BOTANY OF SAN DIEGO COUNTY

SDSU Global Campus NC 0301, San Diego State University, Non-Credit Course
Saturdays - 24 Jan – 16 May, Spring 2026
Classroom: Life Sciences South - Room LS 269
(Version 2025-08-04)

Co-taught by: Brenda McMillan; Scott McMillan; Tom Oberbauer; Margaret Mulligan; Jon Rebman; Michael G. Simpson; Jessie Vinje.
Assistants: Andria Califf; Daniel Donovan; Ryan Meszaros.

NOTE: We will use Canvas to communicate and upload course materials:
https://sdsu.instructure.com/courses
Plants of San Diego County: https://plants.sdsu.edu/sdpls
(Contact: msimpson@sdsu.edu for questions)

Parking: Please plan ahead! We recommend that you arrive on campus by 8:00 am, to give plenty of time to park and get to the classroom. Off campus parking is limited. For parking on campus, we recommend the **PayByPhone** Parking app. It allows you to pay for a certain time period; you are contacted as the parking is about to expire, allowing you to add more time. Here is a **map** showing Pay by Phone parking lots. There are also **Pay Stations**, if you prefer. There are some lots on campus that cost $4.75 for all day (**P3**, **P4**, **P15**, and **P17**); see **SDSU Parking**.

CNPS Scholarships:

The San Diego Chapter of the California Native Plant Society is generously providing up to five scholarships to pay for the course registration fee. To apply: https://cnpssd.org/ (due date to be announced).

Illness Policy:

If any student is ill, especially with a fever, please **do not** attend class, and let the instructor know. You will be able to make up materials if you do so. If you have any kind of cough, please consider not attending, but at a minimum **wear a mask in class** to inhibit spreading to others.

Field Trips:

Note that this course includes several field trips to native habitats (see below). **Participants must be in reasonable physical condition to take strenuous hikes on these required field trips.**

Learning Outcomes:

This course is designed for the serious student, amateur botanist, environmental consultant, or employee of environmental governmental organizations to acquire the basic knowledge and skills of plant taxonomy, native plant identification, and plant community assessment.

The primary objectives of this course are both to learn the native and naturalized vascular plant species of our area (primarily our county) and to learn how to know these plants. Thus, the basic training will go beyond simply memorizing names and will encompass the four components of taxonomy: description, identification, nomenclature, and classification. After taking this course, students should be able to:

1. **Identify on-sight (scientific names, correctly spelled)** many of the common, native and naturalized plants of our area, primarily San Diego County but possibly beyond.
2. **Identify an unknown taxon** using a taxonomic key and specimen comparisons.
3. Identify, on-sight or using a hand-lens or dissecting scope, ca. 12 **angiosperm families**.
4. Learn how to properly collect, document, and process (press, dry, label, mount) a plant from the field. Toward this, each of you will prepare a **collection of plants**, pressed, dried, labeled, and mounted.
5. Properly **use the collections of the herbarium**.
6. Learn the major **plant communities/vegetation regions** of our area.

Important Web Links:

Plants of San Diego County: https://plants.sdsu.edu/sdpls/
San Diego Plant Atlas: https://sdplantatlas.org
Jepson eFlora: https://ucjeps.berkeley.edu/eflora
CCH2 (Consortium of California Herbaria 2): https://cch2.org/portal/index.php
SEINet: https://swbiodiversity.org/seinet/collections/index.php

Letter of Completion for Field Botany of San Diego County:

A Letter of Completion of this course from Global Campus will be sent to those enrollees who meet the following: 1. Attend a minimum of 12 sessions, both morning and afternoon; 2. Receive an average of 70% or more on class quizzes; 3. Prepare a plant collection, with proper collection label information, of at least two plants (not incl. practice ex.).

General format of class:

The class will consist of **16 sessions**, plus an optional session, each held Saturday, 8:30 AM (8:00 for some field trips)-4:00 PM. It will involve a combination of short lectures/slide shows, field hikes and collecting, and lab time for identifying and processing plants.

SCHEDULE 2026

(**FIELD**=Meet in field; **SDSU**=San Diego State University; **SDNHM**=San Diego Natural History Museum)

Sa 24 Jan **SESSION 1: SDSU: Plant Systematics, Plant Diversity** M. Simpson, L. Flores-Rentería, M. Mulligan; A. Califf
8:30-9:00: Safety and etiquette in the class; Review of course objectives. Introductions.
9:00-9:50: Taxonomy and Systematics; Botanical Names
9:50-10:00: Quick Break.
10:00-10:45: What is a plant? Plant diversity.
10:45-12:00: Bryophytes, Lycophytes, Equisetophytes, & Ophioglossoid Ferns in San Diego County.
12:00-1:00: Lunch break.
1:00-2:15: Leptosporangiate Fern Morphology, Diversity in San Diego County.
2:15-2:30: Break;
2:30-3:45: Gymnosperms in San Diego County.
3:45-4:00: Review of website (https://plants.sdsu.edu/sdpls); how to learn the names of plants
Assignment for next week: Online quiz on plant systematics, non-angiosperms. Study Chaparral/CSS-1: Spp. 1-10.

Sa 31 Jan **SESSION 2: SDSU: General Terminology, Vegetative Morphology** M. Simpson, M. Mulligan; A. Califf
8:30-8:40: Self quiz on spp. 1-10.
8:40-9:10: Morphological Terminology: Jepson eFlora terminology vs. specialized/professional terminology;
9:10-11:10: Vegetative morphology exercise: Roots, stems, leaves, incl. **10 minute break**
11:10-12:00: Review
12:00-1:00: Lunch break.
1:00-1:15: Surface/Vestiture
1:15-2:30: Leaf description (classroom); vestiture exercise (slides).
2:30-2:45: Break
2:45-3:45: Shoot/leaf review (outside).
3:45-4:00: Field trip details
Assignment for next week: Online quiz on general/vegetative terminology. Study Chaparral/CSS-1: Spp. 1-20 for field quiz next Sat.

Sa 7 Feb **SESSION 3: Field Trip: CSS & Chaparral Plants; SDSU: Nomenclature; Flower Morphology** M. Simpson, M. Mulligan; A. Califf
8:30-11:30: FIELD: Mission Trails Regional Park-Cowles Mtn.; Meet **8:30 AM**: **https://goo.gl/maps/CxznP5E863bpBeeU6**
QUIZ (in field): Spp. 1-20.
11:30-1:00: Leave field; lunch break, back to SDSU.
1:00-4:00 SDSU: Classroom (LS 269, SDSU).
1:00-1:50: Flower morphology.
1:50-2:00: Break.
2:00-3:50: Flower dissection: Families dependent on available material.
Assignment for next week: iNaturalist account; online quiz on flowers/inflor; study Riparian spp. & Chaparral/CSS-2 spp.

Sa 14 Feb **SESSION 4: SDSU: Plant Collecting, Inflorescence & Fruit Morphology** M. Simpson; R. Meszaros
8:30-8:40: Self quiz on next Sat's species;
8:40-9:10: Nomenclature.
9:10-9:30: Plant collecting, CCH2, field images/iNaturalist (MGS); assign collecting bags, notebooks;
9:30-9:40: Break.
9:40-10:40: Plant collecting exercise, outside.
10:40-11:10: Transfer to plant presses; review collection data.
11:10-12:00: CCH2 Data entry
1:00-2:20: Inflorescence Morphology.
2:20-2:30: Break.
2:30-4:00: Fruit morphology.
Assignment for next week: Online quiz on fruits; Enter collection data; Study for FT#2: Ripar:Spp. 1-4; Chap./CSS-2: 1-21.

Sa 21 Feb **SESSION 5: Field Trip: Riparian, Woodland, Chaparral Plants/SDSU; Herbaria, Terminology Review** M. Simpson, M. Mulligan
8:30-11:30 FIELD: Mission Trails Park-Old Mission Dam (FT#2); Meet **HERE** 8:30 AM: **https://goo.gl/maps/YpGf2ytJmrN2**
QUIZ (in field): Riparian1-4, Chaparral/CSS-2 Spp.1-21.
11:30-1:00: Leave field; lunch break, back to SDSU.
1:00-4:00 SDSU: Classroom (LS 269, SDSU);
1:00-1:20: Herbaria
1:20-2:20: Plant collections/database/process specimens; CCH2 checklists; tour of herbarium.
2:20-2:40: Break
2:40-3:30: Review of terminology (outside, Mediterranean Garden)
3:30-4:00: Scavenger Hunt (outside)
Assignment for next week: Study Cactaceae & Fouquieriaceae.

Sa 28 Feb **SESSION 6: SDNHM: Herbarium and Database Resources** J. Rebman
8:30-11:30: Lectures: Herbaria and Database resources; Healthy Canyons Initiative; plant families: **Cactaceae & Fouquieriaceae**
11:30-12:30: Lunch, Balboa Park
12:30-3:30: SD Herbarium tour; meet at San Diego Natural History Museum
QUIZ (take home): Herbarium and taxonomic web resources.
Assignment for next week: Study Vernal Pool Spp. 1-11; **study** Lamiaceae

Sa 7 Mar **SESSION 7: Vernal Pool Plants 1** S. McMillan & B. McMillan
8:30-11:30 FIELD: Hard Pan Vernal Pools, Miramar Mounds National Natural Landmark, Convoy Street
Meet **HERE** 8:30 AM: **https://goo.gl/maps/nRHLP5oeFDQ1yBB59**
1:00-4:00 SDSU: Classroom (LS 269, SDSU); Plant family: **Lamiaceae**;
QUIZ (take home): Lamiaceae & Vernal Pool plants
Assignment for next week: Study Desert Plants

Sa 14 Mar **SESSION 8: Desert Plants, Desert Plant Adaptations** J. Rebman; D. Donovan
8:30-5:00 FIELD: All day field trip, Anza Borrego Desert State Park
Meet here at 8:30 am sharp: **https://maps.app.goo.gl/JMG7DTA4KKsDujyW9**
Gas, food market, restrooms are available at meeting place, but plan to arrive earlier if you need any of these. We want to drive right after meeting. Carpooling encouraged.
QUIZ (in field): 28 common desert species; desert adaptations; iNaturalist
Assignment for next week: Study Graminoids.

Sa 21 Mar **SESSION 9: Field Trip/SDSU: Graminoids: Cyperaceae, Juncaceae, Poaceae** M. Mulligan, J. Rebman; R. Meszaros
8:30-4:00 FIELD: Adobe Falls Ecological Reserve (tentative). Meet **HERE** at 8:30 AM**: https://goo.gl/maps/cFWxuTStcU7p4H3u6**
Observe/review structures of grasses, sedges, and rushes
1:00-4:00 SDSU: Classroom (LS 269, SDSU): Lecture on/practice keying grasses, sedges, and rushes
QUIZ (take home): Poaceae, Cyperaceae, Juncaceae.
Assignment for next week: Study Boraginales.

Sat 28 Mar **SESSION 10: SDSU: Boraginales** M. Simpson; B. McMillan, A. Califf
8:30-4:00 SDSU:
Observe/review Boraginales: Boraginaceae (*Cryptantha* and relatives), Ehretiaceae (*Tiqulia* & *Pholisma*) Hydrophyllaceae (*Phacelia* and relatives.
1:00-4:00 SDSU: Classroom (LS 269, SDSU): Practice keying borages
QUIZ (take home): Boraginales.
Assignment for next week: Study Vernal Pool Plants 2.

Sa 4 Apr **SESSION 11: Vernal Pool Plants 2** S. McMillan, B. McMillan
8:30-11:30 FIELD: Vernal Pools of Otay Mesa, Dennery Canyon;
Meet **HERE** 8:30 AM: **https://goo.gl/maps/BNMyAX9KdpfZ2jKAA**
QUIZ (in field): 5 vernal pool plants.
12:30-ca. 3:00 FIELD: Additional field sites; Families: **Alliaceae, Themidaceae**
Assignment for next week: Study Asteraceae, Fabaceae.

Sa 11 Apr **SESSION 12: Plant Family and Keying Exercises: Asteraceae & Fabaceae; SDSU** J. Rebman, M. Mulligan
8:30-12:00: Classroom (LS 269, SDSU); Plant family & keying exemplars: **Asteraceae**
1:00-4:00: Classroom (LS 269, SDSU); Plant family & keying exemplars: **Fabaceae**
QUIZ (take home)
Assignment for next week: Study Succulent Maritime Scrub Spp. 1-14, Salt Marsh Spp. 1-13; Coastal Dune: 1-4.

Sa 18 Apr **SESSION 13 FIELD: Succulent Maritime Scrub, Estuary Plants** M. Mulligan, J. Vinje
Bring your lunch and plenty to drink!
8:30-11:30: First Site: Field Trip: Border Field State Park: Meet **HERE** 8:30 AM: **https://goo.gl/maps/5ejNeKbaeV2K8STD8**
Second Site (Time to be determined): Tijuana River Valley Park. Meet **HERE**: **https://goo.gl/maps/LnJEMtzKvJTgTv349**
Return to our cars at Border Field State Park
Third Site (Time to be determined): Tijuana Slough. Meet **HERE**: **https://maps.app.goo.gl/K7hBF4RfRTyg2u7M7**
QUIZ (in field): Estuary plants: Study Succulent Maritime Scrub Spp. 1-14, Salt Marsh Spp. 1-13**;** ; Coastal Dune: 1-4
Assignment for next week: Study Torrey Pines Species List Spp. 1-26.

Sa 25 Apr **SESSION 14 FIELD: Torrey Pines State Park** M. Mulligan, J. Rebman, M. Simpson
Bring your lunch and plenty to drink!
8:00-11:30: First Site: Park early, either free along N Torrey Pines Road along here: https://maps.app.goo.gl/rQ2aKmiUCoSDqnzr8
or pay at the Torrey Pines South Beach Parking lot here: https://maps.app.goo.gl/34ig8whvrFyVYupN6
We will meet at the south end of the Torrey Pines South Beach Parking lot (just west of the restrooms, near the stairs to the beach) at **8:15 AM**. We will divide into groups and hike from there up the park road, observing plants along the way, then circuit (counter-clockwise) the Guy Fleming Trail. We will have a quiz near the end of this hike. After the quiz we hike back down to the parking lot and perhaps have an early lunch along the beach (near the restrooms). **At ca. 12:30-4:00:** Following the Guy Fleming Trail hike, Jon and Margie will lead us to the Los Penasquitos Lagoon area across the street to see additional plant species in the park. Jon and Margie have been doing surveys here and are familiar with the area.
Assignment for next week: Study McGinty Mtn. species.

Sa 2 May **SESSION 15: FIELD: McGinty Mtn.: Gabbro/Metavolcanic Associated Plants: Optional** Tom Oberbauer; J. Vinje
8:30-4:00 Field trip to McGinty Mountain. Meet **HERE** 8:30 AM: **https://goo.gl/maps/DkPqrtsMZvy.**
You will be in the field the entire time, so be sure to bring a lunch and plenty of water.
QUIZ (in field): 5-10 montane species from McGinty Mountain Species List Spp. 1-16. **Assignment for next week:** Study Cuyamaca and Laguna Species Lists; Study Solanaceae.

Sa 9 May **SESSION 16 FIELD: Montane Plants: Cuyamaca Mtns.** T. Oberbauer; J. Vinje
Bring your lunch and plenty to drink!
8:00-4:00: All day field trip, Cuyamaca Mountains; Meet at **Park and Ride** off Hwy 79, just north of I-8 on the left side at 8:00 AM sharp. Directions from SDSU: Take I-8 east ca. 25 miles. Exit at Hwy 79 and turn left. Park and Ride is on the north side of the Freeway on the left side. Meet at **8:00 A.M. sharp**. (Please time your travel; don't be late or you may be left behind.) If you think that you might have a problem and be a little late, please text 619 993 0788. From there, we will car pool into Cuyamaca Rancho State Park.
QUIZ (in field): some common montane species from required 1-17 list on website.

Sa 16 May **Mounting Party**: Optional All available instructors
9:00-12:00. SDSU: Classroom (LS 269, SDSU)

Classroom and Lab Rules:

Please arrive on time for class or field trip and stay for the full period of the class. Attendance will be taken in the morning and afternoon. In class (LS 269, SDSU) you may get a snack during a break, but unfortunately there is a "no eating in lab" rule because of the possibility of hazardous chemicals in the environment. Please eat or drink in the hallway or just outside in the Mediterranean Garden.

During class and in the field, we always expect you to respond to the instructors and other students in a positive, respectful, and civil manner. We encourage discussion of course-related topics, but keep personal conversation to a minimum. There will be some "quiet times" when we might ask everyone to stop talking and concentrate on an exercise. Please silence (completely) cell phones and gen. close computers (unless we're doing an exercise using computers) during class. No texting in class please! (The latter can be very distracting. If you have to use your phone, please do so in the hallway or just outside.) Feel free to go to the restroom at any time you need to; just try to avoid doing so during lecture and during the last half hour of lab. The restrooms are in the adjacent building, LS-North, for which we have an exterior key. Please clean up your area completely at the end of class; use the hand brush (cabinet to right of front sink) as needed.

Due to liability concerns, no friends, relatives, or pets can go on class fieldtrips. No smoking on campus (SDSU is smoke free) or on any field trips; it is both discourteous to others and a potential fire hazard in the field.

Lecture and Labs:

Due to the cumulative nature of this course, ***We will not enroll anyone after the beginning of the second Saturday class.***

Canvas:

Upon registering, you should have been given a unique SDSU email address and access to our online teaching tool, Canvas. Please log into Canvas for course communication and resources. We will communicate to you this way, so be sure to check your SDSU email address regularly. We will post hand-outs and up-dates on Canvas.

Learning Assessment:

Weekly quizzes are given. An herbarium collection of 2-5 plants is required. See requirements for a Letter of Completion, registered student units, and CEU units.

Required supplies:

Hand lens (10X - 14X): Some are available in the SDSU bookstore; have this with you at all times, in class and in the field! A Bauch & Lomb Hastings Triplet 10x hand lens, is recommended. It is available on Amazon.com.

Optional Books:

Allen, R. L. and F. M. Roberts, Jr. 2013. Wildflowers of Orange County and the Santa Ana Mountains. Laguna Wilderness Press, Laguna Beach, California. [Perhaps the best color picture guide to plants of our region; although of Orange Co., almost all the species also occur in San Diego Co.]

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti (eds). 2012. *The Jepson Manual: Vascular Plants of California. Second Edition.* Berkeley: University of California Press. [Note: We will have three hard copies of the book in class. However, taxonomic keys and descriptions are available on-line, at Jepson eFlora: *http://ucjeps.berkeley.edu/IJM.html*]

Lightner, James. 2011. San Diego County Native Plants, 3rd edition. San Diego Flora, San Diego. [Highly recommended; best color photo book of our plants.]

Rebman, J. P. and M. G. Simpson. 2014. Checklist of the Vascular Plants of San Diego County, 5th edition. [Available as a PDF at: https://sdplantatlas.org/pdffiles/SDCoChecklist5ed2014.pdf. May be revised 2024]

Simpson, M. G. 2019. Plant Systematics. 3rd edition. Elsevier-Academic Press. [For more in-depth, comprehensive coverage of the principles and content of plant systematics]

Simpson, M. G. 2013. Plant Collection and Documentation Field Notebook. 4th edition. Rynchops Press. [Available for purchase in class; we will supply an abbreviated version of this.]

Herbarium Collection / Project:

A herbarium collection of 2–5 (or more) specimens will be required of all enrolled students. Generally, students will collect with the instructor on one of a few independent trips to a specific region (to be determined). Additional specimens may be collected as part of a project, e.g., a floristic survey of a general region (such as a small region in San Diego County), in which all plants in the area are collected, with documentation (to be discussed). Alternatively, extra projects, for the interested/advanced student might involve a taxonomic problem, such as evaluating the validity of a subspecies versus a species or annotating our specimens of a particular group (e.g., a family or genus).

Photography:

We will be teaching, and encouraging, the use of iNaturalist this term. Learning to use iNaturalist will be a class assignment. Images from personal cameras or from iNaturalist observations may be linked to herbarium collections.

We will also encourage high magnification shots (e. g., of small flowers or flower parts) using the photo-dissecting microscope in the lab.

Field Trips:

This is largely a field course. Thus, scheduled field trips are extremely important. Please do everything you can to attend them all. You will be responsible for your own transportation to field trip sites.

Be field hardy! Wear appropriate clothing: light-weight boots or tennis shoes (with good tread); pants and shirt you don't mind getting dirty or scratched up; hat, jacket, sunblock, sunglasses, etc. as appropriate. **If rain is even a remote possibility, bring a rain jacket; we won't let a little drizzle stop us!** Be ready to go in the field as soon as we arrive at a sight. You should plan to bring water and a snack on all field trips. Bring a lunch and drinks for the all-day field trips; you might bring a small ice chest in your car, or share with someone else.

Bring the following to the field:

If collecting: Portable Plant Press; Plant Collection and Documentation Field Notebook; pencil; GPS unit if you have one (we will supply some)

Checklist of the Vascular Plants of San Diego County (optional)

Class Species List (I suggest making copies of appropriate pages to take into the field, or pre-load on your phone)

Hand lens

Cell phone or tablet, to access the *Jepson eFlora* or *iNaturalist.*

If collecting, we will always press plants in the field using the portable plant presses and will try to transfer to a regular plant press at the car(s), to be placed on a drier at the end of the day.

In the field, don't wander off alone or far away from the bulk of the class. Be cautious and use common sense. **Watch out for snakes!** Don't reach for a plant without looking over the area. Even though we will always collect in regions where collection is allowed, a good rule of thumb is to always be discrete when collecting plants.

Despite all of the above precautions and rules, you can (and should) still have fun. We will be visiting some beautiful areas, so enjoy the wildlife and your time in the field.

Other Books on Plants of California and Adjacent Regions:

Belzer, T. J. 1984. Roadside Plants of Southern California. Mountain Press Publishing Co., Missoula. [NOTE: A good, inexpensive assemblage of color photographs of common plants in our area. Recommended!]

Dale, Nancy. 1986. Flowering Plants: the Santa Monica Mountains, Coastal & Chaparral Regions of Southern California. Capra Press, Santa Barbara. In cooperation with California Native Plant Society.

Ornduff, R. 1974. Introduction to California Plant Life. University of California Press, Berkeley. [Excellent reference to plant communities of California.]

Rebman, J. P. and N. C. Roberts. 2012. Baja California Plant Field Guide. San Diego Natural History Museum w/ Sunbelt Publications, San Diego, California.