FIELD BOTANY OF SAN DIEGO COUNTY
College of Extended Studies NC 0301, San Diego State University
Non-Credit Course
Saturdays - 20 Jan – 5 May, Spring 2018
Life Sciences South - Room LS 270
Revised 5 December 2017
Co-taught: Dr. Michael G. Simpson (coordinator), Scott McMillan, Margaret Mulligan, Tom Oberbauer, Dr. Jon Rebman, Dr. Sula Vanderplank

Registration: http://ces.sdsu.edu/Pages/FindCourse.aspx?id=1&subjectId=3&CourseInTermId=55382
(Code BIO17)
Course Web Site: <http://www.sci.sdsu.edu/plants/fieldbotany>
Plants of San Diego County: <http://www.sci.sdsu.edu/plants/sdpls>
(Contact: msimpson@mail.sdsu.edu)

NOTE: A parking permit for SDSU lots 3, 4, 6, or 7 (see https://sunspot.sdsu.edu/map/sdsu_map.pdf) will be provided for all students registered in the course.

Learning Outcomes:
This course is designed for the serious 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, 15-20 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.
7. Learn basic plant community surveying techniques.

General format of class:
The class will consist of fifteen modules, each held all day Saturday. It will involve a combination of short lectures/slide shows, field hikes and collecting, and lab time for identifying and processing plants. A general schedule is:

Saturday 8:30 AM - 11:30 AM Meet independently at a field site, ready to hike and collect. If a light rain, we go out; if a downpour, your instructor will have you meet in the classroom or possibly suggest a Sunday rain date.
11:30 AM - 1:00 PM Break for lunch; transit to next site.
1:00 - 1:50 PM Lecture: San Diego State University, Life Science South, Room 270
2:00 - 4:00 PM Lab: San Diego State University, Life Science South, Room 270: processing, dissection, identification of plants

NOTE: We may reverse this schedule, having you meet in the lab in the morning and field in the afternoon. There may be some sessions in which the entire day is in the lab or field. Please check the finalized syllabus carefully for the schedule.
**SCHEDULE 2018: Revised 5 Dec 2017**

(SDSU=San Diego State University; SDNHM=San Diego Natural History Museum)

**Sa 20 Jan**  
**Pre-assignment:** Chaparral/CSS-1: Spp. 1-6.  
Introduction to Taxonomy (Ch1); Plant Morphology-vegetative (Gen., roots, stems, leaves)  
M. Simpson  
8:30-11:30: Classroom (LS 270, SDSU)  
1:00-4:00: Classroom (LS 270, SDSU); **Assignment for next week:** Chaparral/CSS-1: Spp. 7-13; fill out Pl. Morph. Rev.: pp. 1-6

**Sa 27 Jan**  
Plant Morphology-General Terminology, Reproductive (Flowers)  
M. Simpson  
8:30-11:30: Classroom (LS 270, SDSU); **QUIZ:** Taxonomy, vegetative morphology  
1:00-4:00: Classroom (LS 270, SDSU); **Assignment for next week:** Chaparral/CSS-1: Spp. 14-20; Pl. Morph. Rev.: pp.7-9

**Sa 3 Feb**  
Coastal Sage Scrub and Chaparral Plants  
M. Simpson & M. Mulligan  
8:30-11:30: Field Trip: Mission Trails Regional Park-Cowles Mt.; **QUIZ:** Spp. 1-20.  
1:00-4:00: Classroom (LS 270, SDSU); **Assignment for next week:** Chaparral/CSS-2: Spp. 1-20

**Sa 10 Feb**  
Plant Identification; plant communities of San Diego County; plant collecting; **QUIZ:** general, flower morphology  
M. Simpson  
8:30-11:30: Classroom (LS 270, SDSU);  
1:00-4:00: Classroom (LS 270, SDSU); Plant Morphology- Inflorescences, Fruits; Plant family;  
**Assignment for next week:** Riparian: Spp. 1-4; Chaparral/CSS-2: 10-20.

**Sa 17 Feb**  
Riparian, woodland, and Chaparral Plants  
M. Simpson & M. Mulligan  
8:30-11:30: Field Trip: Mission Trails Regional Park-Old Mission Dam (Ft#2); **QUIZ:** Riparian 1-4; Chaparral/CSS-2 Spp. 1-20  
1:00-4:00: Classroom (LS 270, SDSU); **Assignment for next week:** Study Plant Collecting, Asteraceae

**Sa 24 Feb**  
Plant Collecting Expedition  
J. Rebman  
8:30-11:30: Local field trip to practice plant collecting;  
1:00-4:00: Classroom (LS 270, SDSU); **Assignment for next week:** Vernal Pool Spp. 1-11.

**Sa 3 Mar**  
Vernal Pool Plants  
S. McMillan  
8:30-11:30: Field Trip: Hard Pan Vernal Pools, Claremont Mesa Blvd.  
**Directions:** Take I-15 to Clairemont Blvd. Go east on Clairemont Blvd. for a block, and then there is a driveway to the south into a business park. Please park on the north end of the business park in parking spots that are not reserved.  
1:00-4:00: Classroom (LS 270, SDSU); Lamiales. **Assignment for next week:** Vernal Pool Spp. 12-22.

**Sa 10 Mar**  
Vernal Pool Plants  
S. McMillan  
8:30-11:30: Field Trip: Vernal Pools of Otay Mesa, Demery Canyon  
**Directions:** Take I-805 south to the SR-905 east. From SR-905 east, get off at Caliente Ave. and go north. From Caliente, take a right on Hidden Trails and then go about a block and park on the right (east) side of Hidden Trails near the access gate.  
1:00-4:00: Classroom (LS 270, SDSU); Isoetaceae, Marsileaceae; **Assignment for next week:** Study Field Transects

**Sa 17 Mar**  
Field transects/quadrats  
S. Vanderplank & M. Mulligan  
8:30-10:00: Classroom (LS 270, SDSU)  
10:30-4:00: Field trip to Mission Trails Regional Park (meet Old Mission Dam parking lot); field transects, plant collecting;  
**Assignment for next week:** Desert Plants, Pinyon Pine-Juniper Woodland, Desert Annuals.

**Sa 24 Mar**  
Desert Plant Adaptations; Herbarium Resources  
J. Rebman  
8:30-12:00: Meet at San Diego Natural History Museum at 8:30 AM. SDNHM classroom; Balboa Park; Cactaceae, Fouquieriaceae  
1:00-4:00: SDNHM herbarium; **Assignment for next week:** Desert Plants, Pinyon Pine-Juniper Woodland, Desert Annuals.

**Sa 31 Mar**  
Field Trip: Otay Valley Regional Park  
M. Mulligan  
**Assignment for next week:** Desert Plants, Pinyon Pine-Juniper Woodland, Desert Annuals.

**Sa 7 Apr**  
Desert Plants  
J. Rebman  
8:00-5:00: All day field trip, Anza Borrego Desert State Park;  
**Assignment for next week:** Study Succulent Maritime Scrub Spp. 1-15, Cyperaceae, Juncaceae, Poaceae

**Sa 14 Apr**  
Cyperaceae, Juncaceae, Poaceae  
S. Vanderplank  
8:30-11:30: Classroom (LS 270, SDSU); Lectures: Succulent Maritime Scrub, Dune Plants, Estuary Plants  
1:00-4:00: Classroom (LS 270, SDSU); Poaceae, Cyperaceae, Juncaceae; **Assignment for next week:** Salt Marsh Spp. 1-13; Freshwater Marsh Spp. 1-3, Coastal Dune: 1-4.

**Sa 21 Apr**  
Succulent Maritime Scrub, Dune Plants, Estuary Plants  
S. Vanderplank & M. Mulligan  
8:30-11:30: Field Trip: Border Field State Park; Meet HERE 8:30 AM: https://goo.gl/maps/wXjPnY4RMTL2  
1:00-4:00: Field trip to Tijuana Estuary; Meet HERE 1:00 PM: https://goo.gl/maps/g3wRFgLCN3K2  
Meet HERE ca. 3:00 pm: https://goo.gl/maps/FR4bD1HLNpr  
**Assignment for next week:** McGinty Mountain Species List Spp. 1-10

**Sa 28 Apr**  
Gabbro/Metavolcanic Associated Plants  
T. Oberbauer  
8:30-11:30: Field trip to McGinty Mountain. Meet at sight at 8:30 AM sharp.  
**Google Map Point: HERE:** https://goo.gl/maps/DkPqtreMZyV Directions: Take SR 94 east from I-5 or from 125 south from La Mesa. After passing through Spring Valley, and Rancho San Diego, it turns into Jamacha Road. Turn right on Willow Glen Drive right (after passing the major riparian area on the right). Take the first right on Steele Canyon Road. Then, take major left on Jamul Drive, which passes a residential area on the left and then goes into a canyon. After approximately 2.6 miles, and just after Loma Alta Lane on the left near where the road crosses the drainage, parking area is on the left.  
1:00-4:00: Classroom (LS 270, SDSU); montane plants lecture; plant family; **Assignment:** Cuyamaca and Laguna Species Lists
**Classroom and Lab Rules:**

Please arrive on time for class or field trip and stay for the full period of the class. In class (LS 270, SDSU) you may get a snack during a break, but unfortunately there is a "no eating in lab" rule.

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 ask everyone to stop talking and concentrate on an exercise. Please silence (completely) cell phones and close computers (unless we’re doing an exercise using computers) during class. No texting in class! (The latter can be very distracting. If you have to use your phone, please go outside.) Feel free to go to the restroom (very briefly) at any time; just avoid doing so during lecture and during the last half hour of lab. 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.

**Lecture and Labs:**

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

**Blackboard:**

Please log into Blackboard (http://blackboard.sdsu.edu) and select the Field Botany page. We will communicate to you this way and occasionally post hand-outs and up-dates.

**Learning Assessment:**

The course is offered as non-credit, so no formal learning assessments will be given. However, a quiz will be given every week, at some time during class (sometimes in the field). To get the most from the course, we recommend that you study for this quiz.

**Required supplies:**

Hand lens (10X - 14X): available in SDSU bookstore (have this with you at all times, in class and in the field!)

[I recommend a Bauch & Lomb Hastings Triplet 10x hand lens, if you wish to buy a high quality lens! It is available on Amazon.com]

**Optional Books:**

- Rebman, J. P. and M. G. Simpson. 2014. Checklist of the Vascular Plants of San Diego County, 5th edition. [Highly recommended. Available for purchase in class or at the San Diego Natural History bookstore.]
- Simpson, M. G. 2013. Plant Collection and Documentation Field Notebook. Rynchops Press. [Available for purchase in class; we will supply a smaller version of this.]
Herbarium Collection / Project:
A herbarium collection of 10 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:
I wish to emphasize photography, both in the lab and on field trips. Some of you may wish to photograph plants in the field or in the lab. I will ask that you download images to add to our web page. In addition, a color print makes a nice addition to an herbarium sheet. It is important to practice, in order to get good depth of field and crisp focus; a flash is often useful.

I 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! Participants must be in reasonable physical condition to take moderate hikes on required field trips. 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, 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 be taken into the field.)
Hand lens
The Jepson Manual (optional, but plan to generally carry only in vehicle)

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, to be transferred to a drier later.

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 areas where collection is allowed, be discrete about it.

Despite all of the above precautions and rules, you can 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: