

BOTANY 123: FIELD BOTANY

This course: 1) does satisfy SBCC IGETC transfer requirement for the Biol. Sciences (p.98 2013-14 SBCC Catalog); 2) is transferable to UC & CSU, but not as a GE lab science course; 3) does not satisfy the SBCC GE requirement in Natural Sciences (p.82 2013-14 SBCC Catalog); 4) does not apply toward SBCC bio. major.

Instructor: Dr. Matt Kay

Email: mckay@pipeline.sbcc.edu; **Phone:** (805) 730-5172

Office hours: M, W 12:30-2:30; T 9:30-10:30 in EBS 307; or email for appointment

Lecture and lab (CRN 36799): Friday 9:30-2:20; EBS 201, and many field trips (some of which span multiple days and/or depart at irregular hours), see course schedule of this syllabus

Welcome to Field Botany!

In this course we will get outside and explore many of the native plant communities that grace the California landscape. California is a remarkably diverse region, and we are therefore set for quite an adventure! On our frequent field trips, we'll find ourselves in/on creeks, deserts, beaches, dunes, woodlands, valleys, and mountain tops. You will learn to identify >100 species of dominant native plants, and recognize the community(-ies) to which they belong. In the context of natural selection, we'll discuss how these plants are adapted to climate (and microclimate), weather, disturbance, soil, and other ecological factors that shape the distribution and appearance of the plant communities in which they occur. You will also learn how to recognize 1-2⁺ dozen common plant families, and how to collect and prepare plant specimens for preservation in an herbarium. This is going to be very fun!

Textbook (highly recommended):

- Ornduff, R, Faber, PM, and T Keeler-Wolf (2003). Introduction to California Plant Life (revised Edition). UC Press, Berkeley CA, 341pp.

Supplemental books (also highly recommended!):

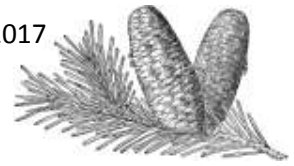
- Laws, JM (2007). The Laws Field Guide to the Sierra Nevada. Heyday Books, Berkeley, CA. 366pp.
- Borror DJ (1960/1988). Dictionary of Root Words and Combining Forms. Mayfield Publishing Company, Mountain View CA. 134pp.

Your attitude (positive, required): If you wish to sit passively and collect a grade, you are in the wrong class. I expect students to be prompt, courteous, and engaged...and have FUN!

Pipeline: I will use Pipeline to communicate with you via email, so you should check Pipeline regularly for updates, reminders, or schedule changes. To log into Pipeline: Go to the SBCC homepage (www.sbcc.edu) and click on "Pipeline". If you have difficulty using Pipeline, support is available at <http://www.sbcc.edu/support/contact/> or (805 965-0581 x2949).

Class website: Course-related documents, including the syllabus, lecture outlines, species lists, and field trip information will be posted on my course website at:

<http://www.biosbcc.net/kay/> This will be an indispensable resource for you during this course – visit it frequently!!



Attendance

You are required to enroll in *and attend* both the “lecture” and “lab” portions of this course to receive course credit (note – there is one CRN for this class: 36799). Most days, the lecture and lab components will be indistinguishable. If you have a habit of skipping class or “spacing out” during activities you will NOT enjoy or succeed in this course. I expect you to be mentally and physically present at all lectures and labs. If you cannot attend a lecture or lab, it is your responsibility to seek out a fellow student (or me) and get notes or other materials.

Your absence during field trips is simply not an option – if you have an unexpected conflict contact me ASAP. If you miss a field trip, you will still need to complete the material covered – doing so will be extremely difficult for most field trips, and this will only be allowed with an excused absence due to illness, family emergency, or circumstances cleared in advance with me.

Disruptive behavior will not be tolerated. I expect you to behave as an adult – if that is confusing here are some firm ground rules:

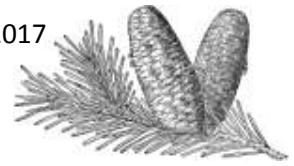
- No cell phones, ipods...ipads...or whatever new electronic device will be invented and mass marketed to you between now and the end of the semester. Whatever it is, turn it off (unless taking notes on a laptop, or using a smartphone in the field for data...).
- Do not talk while the instructor or other presenters (it will be you at some point this semester...) are addressing the class...unless of course you have a question for the class.
- If you think you might be behaving disruptively, you probably are.
- Be kind and support each other – life’s much more enjoyable in a supportive community

Field trips

The core component of this class is a series of field trips, some of which are multiple overnight camping expeditions (e.g., Thursday or Friday - Sunday) or day trips that depart at irregular hours. The transportation mode varies from trip to trip – be sure to pay close attention to the course schedule in this syllabus to ensure that you are aware of what we are up to! We will discuss the academic and logistical details of each field the week prior to departure.

During field trips, students will be required to keep a field notebook as described below. Biological fieldwork requires alertness, tenacity, and organization, as well as responsible behavior to avoid accidents and personal injury. Here is a table of “do’s” and “don’ts”:

Field trip “Do’s”	Field trip “Don’ts”
Arrive on time for field trips (some leave early!!!)	Be late – you will be left behind...
Come prepared for working, walking, and camping outside (bring sun/heat/cold protection, drinking water, appropriate clothing, etc .)	Arrive unprepared – we’ll prepare as a group to ensure that everybody has the gear they need and is aware of the elements we’ll enter
Plan carpools, camp groups, and gear-sharing...	Assume that someone else will “do it for you”
Be alert and careful in the field! Watch for common hazards: poison oak, ticks, rattlesnakes, uneven terrain, Sasquatch, etc.	Be careless or take risks that lead to personal injury or detract from the experience of others...your actions could ruin the entire trip
Stay with the main group – or with permission splinter off in groups of at least 3 or more	Wander off alone...
Stay hydrated and bring snacks	NO drugs or alcohol at any time!!!
Work diligently on your field notebook IN THE FIELD – especially on the bus and during other “down time”	Procrastinate and assume that you’ll be able to complete your field notebook “later” – stay active on the field trips, draw on the bus!
Help others, ask questions, crack a joke...	Don’t be aloof – we will thrive as a community
Use common sense and HAVE FUN!	Be a knucklehead or a Debbie Downer...



ASSIGNMENTS AND GRADING

Assignments, points, and % of final grade				
Activity	Points	% of final grade	Comments	
Lecture (100 pts)				
Plant presses / herbarium specimens	10	10%	Due Friday, October 13. Labels to be completed outside of class (see details on page 3)	
Final exam:				
Dominant species ID	10	10%	}	All three elements of the final exam will be administered on Friday, October 20
Slideshow	10	10%		
Short answer	10	10%		
Lecture/Lab (100 pts)				
Field notebook	60	60%	Due Friday, October 20	
Totals	100	100%		

Final grades for semester:

≥92% A; 91-89% A-; 88-87% B+; 86-84% B; 83-80% B-; 79-77% C+; 76-70% C; 69-60% D; ≤59% F

GRADED ACTIVITIES

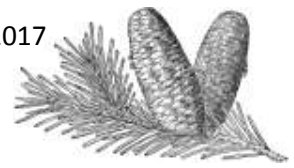
Plant presses / herbarium specimens

Students will self-organize into groups of 3-4 and collectively maintain plant presses of material collected from a plant community(-ies) to which they are assigned. Students will properly collect, press, mount, and label plant material as though collecting professionally for an herbarium. Each 3-4 student group will be responsible for collecting 5-6 dominant species (or perhaps a few really cool species!) from the plant community they are assigned.

Collected specimens will be labelled in detail, and typically labels will be prepared outside of class (so take thorough notes in the field!). Labels must be printed from a program such as Microsoft excel or word. Here is a list of information that should appear on your label (* = items often absent, but useful), and a picture of a thorough label (yours should resemble this):

- Institution/project header
- Scientific name and authorship (use TJM2)
- Family name
- Location: be as specific as possible, include county and nearest town, map directions to location, location details, etc. (Include GPS!)
- Elevation*
- Description of habitat and community type, dominant species (abundance of specimen*)
- Other ecological information*
- Plant habit/condition*
- Soil type if noteworthy (do your best...)*
- Date
- Name of collector (and others present*)
- A collection number, which corresponds to your notes in field notebook
- We'll somehow reference large cones that we collect but do not 'press'...stay tuned.
- Final label dimensions should be approximately 3" tall x 4" wide

Santa Barbara City College Herbarium Botany 123 (Kay) Student Collection
<i>Quercus agrifolia</i> (Née), Coast live oak Fagaceae
Santa Barbara County, Arroyo Burro Creek immediately south of Las Positas Road/Cliff Dr. intersection, along restoration area path at base of north-facing slope of Wilcox property. 34.404601N; 119.739513W (WGS83) Elevation: 40ft
Large mature tree in closed-canopy <i>Q. agrifolia</i> woodland, bordering riparian corridor. <i>Salix</i> sp., <i>Rhus integrifolia</i> . Neighboring conspecifics with CA oak moth damage
Matt Kay, 5 Sept 2014



Botany 123, Kay

Each group will put the finishing touches on their collection (i.e., glue plant specimens and printed labels to herbarium paper) and verbally present their collection (i.e., no *Powerpoint* presentations etc. required) to the entire class on Friday, October 13 in class. Presentations need to include the following information (not necessarily in this sequence):

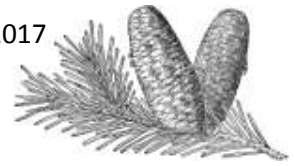
1. Name of plant community surveyed
2. Locations (field trips) where we encountered this community throughout the semester
3. Important climate, weather, abiotic, and biotic factors to which plants are adapted
4. Common important adaptations of dominant species
5. Presentation to class (show your fellow students!) the pressings you made, with special attention to diagnostic features (i.e., how to accurately ID each plant and how to differentiate from closely related/similar species), the location of collection, and other dominant species present (all information that will be included on your herbarium label).
6. As pressings are presented to the class, provide the correct taxonomic information for dominant species: scientific names, family level taxonomy (the family to which each species belongs), common name(s). This should be easy because it is included with your mounted pressing.

The accuracy and completeness of the pressed collection and presentation will be graded. Presentations will be graded based upon completeness of the information above. If you take thorough field notes, are engaged during the class time allocated to collection maintenance, and if you maintain a tidy collection, this will be a relatively straightforward (but rewarding) activity. This activity will also directly serve as a study session for the “dominant species ID” and “slideshow” portions of the final exam. After all student groups have presented, we will proceed with the Final Exam review session and course review.

Final exam

The final exam will be comprised of three portions: 1) dominant species ID; 2) a slideshow, and; 3) short answer. All three portions will be administered during class (see schedule), beginning immediately after the pressed plant presentations. ARRIVE ON TIME!!! The content and work flow for each of these will be as follows:

- 1) Dominant species ID. I will array 14-18 plants around the room (EBS 201) and students will be given 20-30 minutes to provide the correct scientific (genus and species), common, and/or family name for each, or identify labeled structural features of each plant. Open notebook.
How to study: This will be based off of student presentation the week prior, lists of dominant species that I post online after each field trip, field lectures, and your field notebook.
- 2) Slideshow. Upon completing the “Dominant species ID” assessment, students will be shown a sequence of photographs from the field sites we visit. Students will be asked pertinent questions about each plant’s resident community (i.e., name of community, general distribution, climate and microclimate characteristics, etc.), important adaptations, and specific ecological factors (biotic and abiotic factors) to which the plants are adapted.
How to study: The slideshow will be based off of ‘in-class’ and ‘in-the-field’ lectures, as well as lectures and noteworthy observations/discussions from the field (these should be contained in your field notebook). A study guide will be provided.
- 3) Short answer. The third portion of the final exam is a written exam with questions that are structured in an orthodox written exam format (i.e., short answer, essay, fill-in-the blank, etc.).
How to study: This will be based off of in-class and ‘in-the-field’ lectures and material that should be in your notebook. A study guide will be provided.

**Field notebook**

This is a focal element of your work in this class, and it is the beginning (or continuation) of an important reference that you will utilize as a field botanist or for planning future excursions. At each location we visit during field trips, you should note the information listed above for the herbarium labels. You will then provide the identity of plants we discuss, and draw as many as possible!

You will not be able to draw all the plant species that we discuss on field trips, but if you work diligently on the bus/van, and in the evenings at camp, you should be able to draw many of the plants we study. The exact number depends upon the detail of your drawings and your tenacity, but 6-10 detailed drawings/day is not an unreasonable expectation. I recommend investing in a mechanical pencil and an eraser (colored pencils can be very useful).

Your notebooks will also include lists of species observed, and any other information you wish to include. Remember that this is your personal record of your observations, which you will reference and enjoy throughout your life and career. I will grade notebooks for completeness of the coverage for the communities and species we encounter – I will not deduct for artistic inability (I myself am “artistically challenged”!) but I can detect lack of effort like a dog can detect fear!

Significant lecture material will be delivered in the field. This information should be contained in your field notebook. You may use your field notebook as your primary notebook for the course (i.e., it may contain information presented during in-class lectures), or you may opt to maintain two separate notebooks.

Academic Honesty

Academic dishonesty will not be tolerated in this course. SBCC has a strict policy on academic honesty and I have zero tolerance for any act of academic dishonesty. Academic dishonesty includes but is not limited to: (1) Cheating on an exam or quiz (e.g. looking at or copying from somebody else’s exam, talking during an exam, using cell phones or texting, bringing prepared “cheat sheets”, using translators or dictionaries); (2) Copying someone else’s work or answers on any assignment; (3) Plagiarism (failing to properly cite material produced by others, or intentionally turning in work that is characterized as one’s own).

DSPS Students

SBCC students with disabilities who are requesting accommodations for classes, college activities or tests should use the following SBCC procedure. (NOTE: This procedure also includes student requests to bring into classes personal service attendants who are not SBCC employees. This procedure also includes student requests to bring service animals into classes.)

Step 1: Obtain documentation of your disability from a licensed professional. You may use the “Disability Verification Form” found at www.sbcc.edu/dsps.

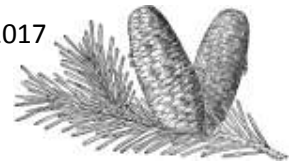
Step 2: Make an appointment to meet with a DSPS Specialist to review your documentation and discuss reasonable accommodations. To schedule a meeting, please call DSPS at (805) 730-4164.

Step 3: Bring your disability documentation to your DSPS appointment. The DSPS office is located in room 160 of the Student Services building.

Step 4: *Each semester*, reach written accommodation agreement with the DSPS Specialist and your instructor.

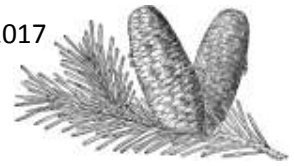
Please complete this process in a timely manner to allow adequate time to provide accommodation.

DSPS office: (805) 965-0581 x 2364, SS Building, room 160, dsps@sbcc.edu


COURSE SCHEDULE (changes in red – Aug 31)

	Date	Activity	Meeting place/time	Plant communities
1	Aug 25	<u>Lecture</u> : Course introduction, core concepts, CA geography, plant communities I	EBS 201 (9:30-2:20)	
2	Sept 1	<u>Lecture</u> : Plant communities II; introduction to dunes and chaparral. Field trip planning/preparation	EBS 201 (9:30-2:20)	
3	Sept 8-10	<u>Field Trips</u> : Gibraltar Rd & La Cumbre Peak (Sept 8) Guadalupe Dunes (Sept 9) Paradise Rd (Sept 10) - CANCELLED	Friday: Depart SBCC 7:30am; Return SBCC ~3:00pm Saturday Depart SBCC 7:30am; Return SBCC ~4:00pm	<ul style="list-style-type: none"> ○ Dunes & beach (coastal strand) ○ Freshwater marshes and lacustrine (lakes) ○ Coastal sage scrub ○ Chaparral ○ Riparian ○ Montane mixed CF ○ Oak woodland
4	Sept 16, 17	<u>Lecture</u> : Field trip review/preview	EBS 201 (9:30-2:20)	
5	Sept 21-24	<u>Field trip</u> : Sierra Nevada Mtns, CA Central Valley, Yosemite National Park, Owens Valley, White Mountains	Depart SBCC 7:00am Thursday 9/21; Return SBCC ~6:30pm Sunday 9/24	<ul style="list-style-type: none"> ○ Chaparral ○ Riparian ○ Oak woodland/savannah ○ Montane mixed CF ○ Subalpine forests ○ Desert scrub ○ Bristlecone pine forests
6	Sept 29	<u>Lecture</u> : Field trip review; movie day (!); work on herbarium specimens	EBS 201 (9:30-2:20)	
7	Oct 6	<u>Lecture</u> : Fire in California plant communities; work on herbarium specimens	EBS 201 (9:30-2:20)	
8	Oct 13	1) Complete herbarium specimens, student presentations to class 2) Final exam review 3) Slide show and course review	EBS 201 (9:30-2:20)	
9	Oct 20	1) Final exam 2) Notebooks due (final mandatory meeting of course)	EBS 201 (9:30-2:20)	
10	Oct 27	<u>No class</u>		
11	Nov 3	<u>No class</u>		
12	Nov 10	<u>No class</u> (BTW: Veteran's Day Holiday)		
13	Nov 17	<u>No class</u>		
14	Nov 24	<u>No class</u> (BTW: Thanksgiving weekend)		
15	Dec 1	<u>No class</u>		

Final exam meeting (Friday, Dec. 8; 8:00am–10:00am) is optional, no exam will be issued



Official SBCC course content and objectives for Botany 123

Course Objectives:

Demonstrate the techniques used in the observation and interpretation of natural flora and vegetation.

Describe the basic principles operating in natural areas.

Record scientific observations of and demonstrate familiarity with the major ecological features of the area(s) visited.

Student Learning Outcomes:

BOT123 SLO1 - Describe relevant factors that cause plant distribution in southern California.

BO123 SLO2 - Record data and observations in a scientifically precise way in a field notebook.

Course content and Scope:

Floristic regions	Structure, diversity
floral affinities	habitat characteristics
diversity	Ecological principles
history of the flora	succession
techniques of identification	soils
Vegetation type, basic structure	climatic regime
features unique to the area being studied	role of fire
Plant communities	human disturbance

Additional resources

The following books and websites are useful tools for identification and study of native/naturalized plants and plant communities in our area (and throughout California).

Books

Baldwin et al. (Eds.) (2012). The Jepson Manual, Higher Plants of California -2nd edition. UC Press, Berkeley CA. 1568pp.

Dale, N (2000). Flowering Plants: The Santa Monica Mountains, Coastal & Chaparral Regions of Southern California – 2nd edition. California Native Plant Society, Sacramento CA. 240pp.

Holland VL, and DJ Keil (1995). California Vegetation. Kendall Hunt Publishing Company, Dubuque Iowa. 516pp.

Keator, G (2009). California Plant Families: West of the Sierran Crest and Deserts. UC Press, Berkeley CA. 215pp.

Rundel PW, and R Gustafson (2005). Introduction to the Plant Life of Southern California. UC Press, Berkeley CA. 316pp.

Smith, C (1998). A Flora of the Santa Barbara Region, California – 2nd edition. Santa Barbara Botanic Garden & Capra Press, Santa Barbara CA. 391pp.

Websites

<http://www.calflora.org/> (links to: <http://calphotos.berkeley.edu/>)

<http://www.smmflowers.org/>

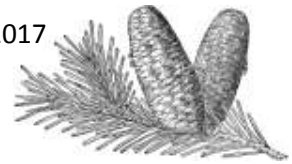
<http://ucjeps.berkeley.edu//interchange.html>

<http://santabarbarahikes.com/flowers/>

<http://sbwildflowers.wordpress.com/>

<http://www.santabarbaratrailguide.com/wildflowers00.shtml>

} These three include photos and great local references. Peer review?



Important Dates – 2017/18 SBCC Academic Calendar

**Santa Barbara City College
2017-2018 Academic Calendar**

May 2017						
S	M	Tu	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
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June 2017						
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July 2017						
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August 2017						
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September 2017						
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October 2017						
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November 2017						
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- MAY 2017**
- 13 Spring Semester Ends
 - 15 Summer Session 1 Begins
 - Varies Last Day to Drop Classes without 'W'
 - 26 Last Day to Petition for Pass/No Pass Grading
 - 29 Memorial Day, Holiday
- JUNE 2017**
- 24 Summer Session 1 Ends
 - 26 Summer Session 2 Begins
 - Varies Last Day to Drop Classes without 'W'
- JULY 2017**
- 4 Independence Day, Holiday
 - 7 Last Day to Petition for Pass/No Pass Grading
- AUGUST 2017**
- 5 Summer Session 2 Ends
 - 17-18 Scheduled Faculty Flex Days
 - 21 Fall Semester Begins
- SEPTEMBER 2017**
- 2 Last Day to Drop Classes Without 'W' (with Enrollment/Tuition Refund)
 - 4 Last Day to Drop Classes Without 'W' (without Enrollment/Tuition Refund)
 - 4 Labor Day, Holiday
 - 22 Last Day to Petition for Pass/No Pass Grading
- OCTOBER 2017**
- 20 Last Day to Withdraw from Classes/College
- NOVEMBER 2017**
- 10 Veterans Day, Observance
 - 23-25 Thanksgiving Vacation
- DECEMBER 2017**
- 2 Last Day of Instruction
 - 4-9 Final Exams
 - 9 Fall Semester Ends
 - 10 Winter Vacation (through January 10)
 - 25 Christmas, Holiday

- JANUARY 2018**
- 1 New Year's Day, Holiday
 - 11-12 Scheduled Faculty Flex Days
 - 15 Martin Luther King, Jr. Day, Holiday
 - 16 Spring Semester Begins
 - 27 Last Day to Drop Classes Without 'W' (with Enrollment/Tuition Refund)
 - 28 Last Day to Drop Classes Without 'W' (without Enrollment/Tuition Refund)
- FEBRUARY 2018**
- 15 Last Day to Petition for Pass/No Pass Grading
 - 16 Lincoln's Birthday, Observance
 - 19 Washington's Birthday, Holiday
- MARCH 2018**
- 16 Last Day to Withdraw from Classes/College
 - 26-31 Spring Break
- MAY 2018**
- 5 Last Day of Instruction
 - 7-12 Final Exams
 - 11 Commencement
 - 12 Spring Semester Ends
 - 28 Memorial Day, Holiday

Board approved 11/10/2016

Blue = Term Begins Yellow = Final Exams Green = Campus Closed Orange = Spring Break

December 2017						
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January 2018						
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February 2018						
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March 2018						
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April 2018						
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May 2018						
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June 2018						
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