



Botany 4600 Plant Ecology (Spring 2013)

I. General Information

Professor: Dr. Michael Fleming
Office: N 261
Office Hours: Tuesday 11-12, Wednesday 2:30-3:30, or by appointment
Phone: 664-6923
Email: mfleming1@csustan.edu
Lectures: MWF 1:00–1:50 in Naraghi 211
Lab: M 2:00–4:50 in Naraghi 211
Required Text: *The Ecology of Plants, 2nd ed.* by J. Gurevitch *et al.*

II. Course Description

Plant ecology is the study of the interrelationships between plants and their environment, with special emphasis on the structure, development, and distribution of plant communities. This course satisfies the ecology elective for the biology major. Most of our focus will be on wild plant communities, but as there are some agriculture students in the class, we will also cover some material dealing with ecology of agricultural systems. **Prerequisites:** BIOL 1150, CHEM 1110, or equivalent. **Strongly recommended:** one semester of statistics (MATH 1600, 1610 or 4640) and/or general ecology (BIOL 4680).

III. Assignments, Exams and Grading

Exams. We will have three midterms and one comprehensive final exam. Exams will consist of diagram interpretation and open response questions. All personal communication devices must be turned off during class and exams. Please plan ahead and arrive early on exam days. Requests for early or make-up exams must be submitted *in writing* to the instructor prior to the scheduled exam. You will need to provide some evidence of hardship. **No makeup exams will be given after graded exams have been returned to the class.**

Primary Literature. Throughout the semester we will have in-class group discussions stemming from outside readings from primary literature. Some readings and subsequent discussions will require more work than others (depends on the length and rigor of the paper). No opportunities for makeup discussions will be given, but if you miss one I encourage you to talk about the paper with a friend or with me outside of class. These readings/discussions are designed to provide opportunities for you to delve into plant ecology research, discuss complicated concepts and terminology, and teach each other.

Labs. The laboratory and lecture are generally integrated, and each lab period will have a special emphasis that (hopefully!) further illustrates concepts introduced in lecture. Labs will often NOT have an accompanying lab report; rather, lab grades are based on (1) participation and (2) the term project that you and your team design, implement, analyze, write up and report to the rest of the class. Any take-home work stemming from a lab constitutes “participation” and will be due the next week at the beginning of lab. You can only get credit for a lab if you are present in lab—there are no make-up labs. Lab activities will include, but are not limited to, greenhouse and bio-ag area work, plant identification, statistical methods relevant to analyzing plant community data, and field trips.

Grades. There are 600 points possible in this course distributed as follows:

<i>MIDTERM EXAMS (70 pts. x 3 exams)</i>	<i>= 210 pts.</i>
<i>FINAL EXAM</i>	<i>= 150 pts.</i>
<i>PRIMARY LITERATURE DISCUSSION (10 pts. x 7 weeks)</i>	<i>= 70 pts.</i>
<i>LAB TERM PROJECT (30 pts. presentation, 70 pts. paper)</i>	<i>= 100 pts.</i>
<i>LAB PARTICIPATION (5pts. weekly)</i>	<i>= 70 pts.</i>
<i>TOTAL</i>	<i>= 600 pts.</i>

I calculate grades as a function of grade point average (GPA) where A=4.0 and D=1.0 (I will show you an example of this in class). Students find this method fair and equitable. **I give + and – grades** as follows:

4.0-3.8 = A	3.7-3.6 = A-	3.5-3.3 = B+	3.2-3.0 = B	2.9-2.6 = B-	2.5-2.3 = C+
2.2-2.0 = C	1.9-1.6 = C-	1.5-1.3 = D+	1.2-1.0 = D	0.9-below = F	
<i>CR = 1.6 or higher</i>		<i>NC = 1.5 or lower</i>			

Options. **February 22** is the census date; CSUS policy states that is the last day to choose CR/NC without the instructor's signature. It is also the last day to drop the course. Instructors can extend the time to choose grade options. Therefore, **April 8th** is the **last day** you may change your grading option (CR/NC) with my signature. I will strictly follow the grading option indicated on the final grade sheet supplied by Admissions and Records. I will **not** change grades once they have been submitted.

Extra Credit. I do not plan to offer extra credit. If I do come up with a great idea for extra credit, I will let you know, but often it means more work for both you and me (not an attractive option). The best thing to do is to do well in class, study effectively, and see me for help when you need it.

Recording Lectures and Special Accommodations. Students with documented disabilities should seek special accommodations for all classes through the DRS office on campus. If DRS sends me a file on you that lists recording lectures as an acceptable accommodation, then you may record my lectures. Otherwise, you have to do it the old-fashioned way with pen and paper. If you record my lectures in any form (video, audio, still pictures, etc.) without accommodation from DRS, that constitutes intellectual property theft and it will be a bad situation for all involved.

IV. Field Trips

We will have field trips during the semester, around campus during lab and to Red Hills, a serpentine soil site with many endemic plants one Saturday or Sunday. Other options besides Red Hills may be Arena Plains (a grassland preserve), Buffington Tract Preserve (a remnant riparian forest across the river from Caswell State Park), or one of the local National Wildlife Refuge complexes. If you have a strong opinion about any of these areas, please tell me! For the Saturday/Sunday field trip, we will meet in the parking lot at the east end of Naraghi Hall to drive there. Field notes/plant lists will be expected from those trips. Details provided in class.

* We will vote as to which day the main field trip will be; since many of you may be taking other field courses this spring, a Sunday may be preferred! We are at the mercy of the elements/seasons, so timing of flowering may force our hand. More on this in class.

V. Academic Honesty

Academic honesty is essential for effective teaching and learning. I expect students to have the highest standards of academic honesty, and I won't tolerate academic dishonesty (cheating). Any academic dishonesty will result in an F in the class and the matter will be turned over to the appropriate student disciplinary committee.

VI. Study Skills

The following suggestions may help you succeed in this and other classes. 1. **Read** the chapter(s)/papers before class and bring questions you have to class. 2. **Attend** class. 3. **Complete all assignments** and turn them in on time. 4. **Take notes** in a way that is intuitive to you, even if you have to use a lot of paper. 5. **Join a study group** with like-minded individuals. 6. **Study** for the exams sooner than the night before or morning of the exam. 7. **Go to bed early** the night before and get up early the day of exams. 8. **Learn how you learn** and then stick with a style or process that is successful for you.

Learning takes time and is difficult (impossible?) to do in a single session before an exam. Form a study group that meets regularly so you can talk about new concepts and review terminology with your colleagues. When studying for exams, focus primarily on lecture/lab notes and concepts emphasized in in-class and lab activities. Students who study in groups tend to do better than those that study alone.

VII. Graduate Students

If you are taking this course as a Master's degree student, then extra work is required. Please set up a time to talk to me about additional graduate-level work.

VIII. Tentative Schedule (subject to change)

<i>Week (Monday date)</i>	<i>Lecture Topic(s)</i>	<i>Readings</i>	<i>Lab</i>
1 (Jan. 28)	Introduction The Community Concept	Ch. 1 Ch. 9 (pp. 205-212)	Greenhouse → set up competition experiment
2 (Feb. 4)	Environmental Gradients Climate	Ch. 2, 3, 4 (skim these) Ch. 17	Finish competition set up Campus Plant walk, ID plants
3 (Feb. 11)	Biomes Indicator Species Concept	Ch. 18 Ch. 7, 8	Theory and Practice of sampling communities
4 (Feb. 18)	Nature of Populations EXAM 1 FRIDAY Feb. 22	Ch. 5, 6	Statistical Methods 1 – the basics (mean, SD, types of graphs, t-tests, ANOVAs)
5 (Feb. 25)	Competition Herbivory	Ch. 10 Ch. 11	Statistical Methods 2 – Regression Analysis
6 (Mar. 4)	Nature of Communities Ordination Methods 1	Ch. 9 (pp. 212-end), 15	Team formation, Statistical Methods 3 – Indirect Ordination
7 (Mar. 11)	Ordination Methods 2	Ch. 15	Statistical Methods 4 – Direct Ordination
8 (Mar. 18)	Succession EXAM 2 FRIDAY Mar. 22	Ch. 12	Process plants/data from competition experiment FIELD TRIP THIS WEEKEND??
9 (Mar. 25)	Landscape Ecology	Ch. 16	Process plants/data from competition experiment
SPRING BREAK!			
10 (Apr. 8)	Lessons From Succession	Ch. 12, 13	Process soil from FT, begin entering/formatting data
11 (Apr. 15)	Restoration Ecology	Ch. 12, 8	Work on reports
12 (Apr. 22)	EXAM 3 MONDAY Apr. 22 Plants and People	Ch. 21	Work on reports
13 (Apr. 29)	Global Climate Change	Ch. 21, 19	Work on reports
14 (May 6)	Extinction Good News For a Change!	Ch. 19, 16 (last section) Ch. 13	Reports
15 (May 13)	Summing Up		Reports
16 (FRIDAY, May 24)	FINAL EXAM = WED. 24th, 11:15- 1:15		