

Course Syllabus

EBIO 3590: Plants and Society - Spring 2016, 4 credits

Day/Time:	2:00-3:15 TH (lecture), 11:00-1:50PM H, 9:00-11:50 F, 1:00-3:50 F (lab)
Room:	Gold A120 (lecture); C231 Ramaley (lab)
Instructor:	Dr. Stacey D. Smith (Stacey.D.Smith@colorado.edu) Office: C340 Ramaley (office hours: 3:30-5:00 T) Phone: 402-370-6749 or 303-492-1374
Teaching assistants:	Julia Dupin, Julia.Dupin@colorado.edu Office: C127 Ramaley (office hours: by appointment) Jared Stewart, Jared.Stewart@colorado.edu Office: C454 Ramaley (office hours: by appointment)
Learning assistants:	Halie Baker, Halie.Baker@colorado.edu Lisa Brandt, Lisa.Brandt@colorado.edu

Recommended prior courses

EBIO 1210 and EBIO1220 or equivalent

Course Description

The history of humans is deeply intertwined with plants. We depend on them for food, shelter, fuel, medicine, clothing as well as art and music. The course provides an introduction to the biology of plants, the history of their domestication, their current roles in our society and in our ecosystems. We will examine these topics through discussion, writing, reading, brainstorming, lab activities, presentations, and field trips. This course takes a “just-in-time” approach, where we learn content in the context of real world case studies and experiments, and will build your ability to effectively communicate scientific information and perspectives on current issues with writing that is concise, accurate, and interesting!

Course Materials

Book chapters and journal articles will be assigned as reading and will be made available on D2L. Useful reference text: *Economic Botany, Plants In Our World*, 3rd Edition. Simpson, B.B. and Ogorzaly, M.C. McGraw-Hill Higher Education.

Learning Goals

The overarching goal of this course is for students to understand how economic botany works: What are the questions? What kinds of data and techniques are used? How are these data used to test hypotheses? How do the results inform decisions on small and large scales (from what to have for breakfast, to which plants to save from extinction)? With the skills below, students will be prepared to interpret new sources of information about plants and society as technology advances.

1. Extract information from primary and secondary literature
2. Think critically about the strength of evidence supporting scientific hypotheses
3. Summarize arguments surrounding complex issues such as biotechnology
4. Communicate these viewpoints through writing, speaking, and visuals

Assessment: Points for this course are divided among four categories, totaling 600 points.

In-class activities/quizzes (33%):	200
Writing assignments (33%)	200
Laboratory activities (33%):	200
Total	600

Total Points	Percent	Grade
564-600	94-100	A
540-563	90-93.9	A-
522-539	87-89.9	B+
504-521	84-86.9	B
480-503	80-83.9	B-
462-479	77-79.9	C+
444-461	74-76.9	C
420-443	70-73.9	C-
402-419	67-69.9	D+
384-401	64-66.9	D
360-383	60-63.9	D-
0-359	Below 59.9	F

In-class activities: There will be 21 in-class activities, each worth 10 points and these may include peer review, solving problems, writing exercises, reading quizzes, or homework. I will drop your lowest score.

Writing assignments: Learning to communicate science through writing is a central aim of this course. You will complete three short writing assignments: a press release, a pro/con discussion, and an argumentative perspective piece. In each case, you will submit a complete draft for peer review and revise accordingly. For each assignment, you will turn in your first draft, your peers' reviews, and the final draft. The drafts and the final paper must be submitted to the D2L dropbox by **9am** on the due date (see schedule). **5% will be deducted for each hour past the deadline.** You will bring two paper copies of your draft to class on peer review day (see schedule). Near the end of the course, you will select one of these writings for critical evaluation, the one which you feel to be the best representation of your work. You will also write a reflective letter that explains the development of your writing and your rationale for choosing this piece. A rubric will be provided for each assignment, and all material (drafts and finals) will be scanned for plagiarism against external sources and classmate assignments.

Completion Points:

- Draft writing assignment (3x, 20 points each)
- Peer review (6x, 3 points each) –scan as pdf (free at the library, in the plant lab, or on your phone with Genius Scan or CamScanner) and upload to D2L dropbox
- Final (revised) writing assignments (3x, 20 point each)
- Selected representative piece (one of the three writings) for critical evaluation: 37 points
- Reflective letter: 25 points

Total = 200 points

Laboratory activities: See lab syllabus for structure.

Extra Credit: I will provide an extra credit activity mid-semester that will be due on 4/21.

Guidelines:

- **Make-up assignments:** If there is a foreseeable event that may cause you to miss class or lab, you must contact the instructors and the TA in advance. Make-up work will only be allowed for documented excusable absences (e.g., illness, death in the family) and must be completed within one week of the original deadline. No credit will be given after this point.
- **Tips for doing well in this class:** Come to all classes and labs; Be prepared by completing the reading; keep a close eye on assignment deadlines on the schedule; participate in discussions; work with your peers; take advantage of office hours to get help

Week		MODULE I: FOOD	Assignments due / Reading
	1/12	Introduction; Tools for success	
1	1/14	Plant structure and function	Suggested: Background material online
	<i>Lab</i>	<i>Plant morphology; Seed planting/propagation</i>	
	1/19	Origins of agriculture: When, where, why	Required: Salamini et al. 2002
2	1/21*	Paper discussion: How agriculture shaped human history	Required: Pinhasi et al. 2005
	<i>Lab</i>	<i>Evolution during domestication: Comparative morphology</i>	
	1/26	Peer Review of Press Releases	Press Release Draft due (500-700 words) 9AM
3	1/28*	Forensics and Outzi the Ice Man; The revision process	Required: Rollo et al. 2002
	<i>Lab</i>	<i>Forensic botany</i>	
	2/2	Guest lecture: Dr. Patrick Byrne, CSU	Final press release due by 9AM
4	2/4*	QTL mapping in plant breeding	Optional: Byrne et al. 1996
	<i>Lab</i>	<i>Greenhouse Tour of domesticated plants</i>	
	2/9	Biotechnology and genetic modification	
5	2/11*	Discussion: The GMO debate	Required: Cressley 2013; Gilbert 2013
	<i>Lab</i>	<i>Detection of GMOs and transgenes</i>	
		MODULE II: MEDICINE	
	2/16	Peer Review of Pro/Con	Pro/Con GMO draft due (600-800 words) 9AM
6	2/18	Writing workshop	
	<i>Lab</i>	<i>Conferences: Writing development</i>	
	2/23	Ethnobotany: Indirubin case	Final pro/con due by 9AM
7	2/25*	Constructive controversy: bioprospecting	Required: Cragg et al. 1995
	<i>Lab</i>	<i>Movie Day: Shaman's apprentice</i>	
	3/1	Nutraceuticals and supplements	Required: Hardy et al. 2003
8	3/3*	Experimental design and evidence for efficacy	
	<i>Lab</i>	<i>Extraction of plant compounds</i>	
		MODULE III: Environment	
	3/8	Peer Review of Perspectives	Perspectives draft due (800-1000 words) by 9AM
9	3/10*	Plants and fungi: a intimate history	Required: Waller et al. 2005
	<i>Lab</i>	<i>Fungal ecology and diversity</i>	
	3/15	Pollination biology	Final perspectives due by 9AM
10	3/17*	Ecosystem services	Required: Radiolab Worth Episode 0:51-1:12
	<i>Lab</i>	<i>Flowers and pollination</i>	
		Spring Break	
	3/29	Biofuel production	
11	3/31*	Biofuels and energy policy	Biofuels homework due by 9AM
	<i>Lab</i>	<i>Fermentation and ethanol production</i>	
	4/5	Plant physiology: under the hood	Reflective letter due by 9AM
12	4/7*	Case Study: The FACE experiments	Required: Long et al. 2006
	<i>Lab</i>	<i>Plant ecophysiology</i>	
		MODULE IV: Culture	
	4/12	Pigments, Clothing, Weaving with guest Dr. Bowers	Optional extra credit due by 9AM
13	4/14	Campus botany and aesthetics	
	<i>Lab</i>	<i>Natural dyeing</i>	
	4/19*	Phylogenetics of economically important plants	Required: Salsis-Lagoudakis et al. 2011
14	4/21	Plants in musical instruments with guest Tom Lemieux	
	<i>Lab</i>	<i>Plant anatomy and biomechanics</i>	
	4/26*	Ornamental plants and elements of garden design	
15	4/28*	Designing an EBIO garden	Group powerpoint on dropbox by NOON
	<i>Lab</i>	<i>Paper-making</i>	

* Dates when laptops will be handy!

Disability Policy:

If you qualify for accommodations because of a disability, please submit to Dr. Smith a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at [303-492-8671](tel:303-492-8671) or by e-mail at dsinfo@colorado.edu. If you have a temporary medical condition or injury, see [Temporary Injuries guidelines](#) under the Quick Links at the [Disability Services website](#) and discuss your needs with your professor.

Policy on religious observances:

Campus policy regarding religious observances requires that faculty make every effort to reasonably and fairly deal with all students who, because of religious obligations, have conflicts with scheduled activities, assignments or required attendance. If you foresee any conflicts with this class schedule, please see me at the beginning of the semester to make arrangements. See full details at http://www.colorado.edu/policies/fac_relig.html

Classroom Behavior Policy:

Students and faculty each have responsibility for maintaining an appropriate learning environment. Cell phone use is not permitted during class period and laptops/tablets must be used only for classroom related activities (e.g. note-taking). Students using laptops or tablets for other purposes will be asked to leave class and will not receive credit for any in-class activity on that date. Students are expected to participate in all in-class activities and refrain from engaging in any behaviors that detract from the learning of other students (e.g., talking while the instructor or TA is speaking).

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the [policies on classroom behavior](#) and [the student code](#).

Policy on Discrimination and Harassment:

The University of Colorado Boulder (CU-Boulder) is committed to maintaining a positive learning, working, and living environment. CU-Boulder will not tolerate acts of sexual misconduct, discrimination, harassment or related retaliation against or by any employee or student. CU's Sexual Misconduct Policy prohibits sexual assault, sexual exploitation, sexual harassment, intimate partner abuse (dating or domestic violence), stalking or related retaliation. CU-Boulder's Discrimination and Harassment Policy prohibits discrimination, harassment or related retaliation based on race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Individuals who believe they have been subject to misconduct under either policy should contact the Office of Institutional Equity and Compliance (OIEC) at [303-492-2127](tel:303-492-2127). Information about the OIEC, the above referenced policies, and the campus resources available to assist individuals regarding sexual misconduct, discrimination, harassment or related retaliation can be found at the [OIEC website](#).

Student Honor Code:

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to [the academic integrity policy](#) of the institution. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access, clicker fraud, resubmission, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found responsible of violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code Council as well as academic sanctions from the faculty member. Additional information regarding the academic integrity policy can be found at <http://honorcode.colorado.edu>.

E-mail Correspondence: I consider e-mails that are exchanged between students and me to be professional correspondence and should be conducted in that manner. I have listed some general tips on how to send a professional e-mail:

1. Salutation: Dear Professor Smith, Dr. Smith, Stacey
2. Body of message: Complete sentences, capitalization, and punctuation
3. Closing: not always necessary but if you are asking for my time, a “thanks” always helps.
4. Sign your name. It isn't always apparent from e-mail addresses who the message came from.

Hours: You may generally expect a response to your email within 24 hours or the next business day if on a weekend.