

MEDICINAL PLANTS AND HERBS
BOTANY 4000

I. General Information

Professor: Dr. Stuart Wooley
Office: N274
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Phone: 664-6926
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Lecture: TR 3:30-4:45 in C 201

Required Texts: **Online documents printed/read from course website**
Trick or Treatment: The Undeniable Facts about Alternative Medicine
S. Singh and E. Ernst

II. Course Description

Botany 4000 counts as an upper-division GE (F1 and G) course. The University requires that you have completed at least 60 credit hours to receive GE credit for this course. That is a University requirement. If you are a Biology major you cannot receive GE credit for this course and it won't count towards your Biology major.

The overall objective of this course is to improve students understanding of the uses and effects of medicinal plants, including herbal supplements, on people and their cultures or societies. The course topics will be taught from the perspective of how different cultures utilize medicinal plants. This is the logical approach because the common denominator among cultures is the 'human-ness', not the plants, which vary widely within and across continents. Students will learn how different cultures perceive diseases and then utilize plants to treat them. Currently medicinal plant usage is quite common, but how that use of medicinal plants is perceived depends on the society where they are used. The latter part of the course focuses on how societies in developed countries perceive, use and regulate plant medicines or herbal supplements. Finally, because all plants with bioactive compounds can't always be regulated, throughout the course students will learn how to evaluate claims made of specific plants and herbal supplements and will learn where to find reliable information about those plants and products.

Disclaimer

This course is not intended to be a medical or nursing course. Neither is this course intended to diagnose, help diagnose or teach students to become medical practitioners. This course is intended to help students understand concepts of medicinal plant usage by different cultures, issues in the use of herbal supplements and cautions against recreational usage of medicinal plants. Guidance for health or medical issues should be sought from licensed medical professionals.

Medicinal plants & herbs have had a rich history. As such, a tremendous amount of folklore, local practice, tradition, and myth have built up over the last 5000+ years. This class aims to bring a **scientific eye** to the study of medicinal plants and herbs. Because of this, disagreements almost certainly will arise and deep-set ideas may even be challenged. However, all students and instructor(s) must demonstrate respect for the ideas and towards the individuals expressing those

ideas. Of course that respect must flow both ways. In the end, this is a science class aimed at discovering the truth.

III. Course Objectives

Learning Outcomes

Students will

- be able to identify medicinal plants (family/genus -level)
- identify by name and understand the effects of plant chemical constituents on humans
- be able to clearly and logically articulate their ideas in writing and orally
- be able to find reliable information about medicinal plants and herbal supplements at the library or on the internet
- demonstrate understanding of the importance of medicinal plants among different cultures through clear, logical writing
- demonstrate how different cultures approach plant use in different ways and how plants and people interact.
- apply basic ethnobotanical techniques to the study of a specific cultural use of medicinal plants.
- be able to logically defend a position regarding the intersection of religion, government regulation and healthcare.

GE Goals

This course will address GE Goals 1-5 and meet the Multicultural requirements as follows:

1. **Subject Knowledge** This course by design is a comprehensive overview of the basic principles and methodologies of the usage of medicinal plants. Numerous cultures and peoples use medicinal plants differently. As such the course strives to help students understand some of the perspectives of medicinal plants held by different cultures, including current North American culture.
2. **Communication** As part of their grade, students will be required to conduct personal research, write papers and deliver oral presentations on medicinal plants or herbal supplements (“Botanicals”).
3. **Information Retrieval and Evaluation** This specific goal is a major reason to teach this course as a GE course and not solely as a majors-only course. Information about medicinal plants, and in particular herbal supplements, abounds on the internet and other places. Besides being an underlying theme of the course, an entire unit will be dedicated to helping students learn to recognize reliable sources of information and where to go to find additional reliable information.
4. **Interdisciplinary Relationships** Plants and people have been inextricably connected since the beginning of humanity. Students will report on interactions of plants with medicine, chemistry, anthropology, religion, society and politics.
5. **Inquiry and Critical Thinking** The use of some medicinal plants is held sacred by certain cultures (e.g., Native American Church). That use has been (some still is) illegal in the US. Students will have several opportunities to discuss the implications and complexity of regulating and using plants for medico-religious purposes. Students will be required to write on this topic as well as other topics (see goal 2 & 4) and critically evaluate arguments for and against government regulation.

6. **Multicultural Perspectives** 1. The course is intended to cover medicinal plant usage among many cultures. 2. Students will learn in-depth about differences between cultures' perceptions of disease and practices to cure or treat diseases. 3. Students will also learn basic ethnobotanical practices so they can effectively discover information on their own.

Social Responsibility In recent times, the use of a number of plants has been determined illegal by governments. Moreover, some psychoactive plants that have enjoyed use by indigenous peoples can be dangerous and so have also been declared illegal. Students will have the opportunity to learn about and discuss the complex issues surrounding the use of those and other plants.

IV. Course Requirements

This course is a science course. We will cover chemistry, biology, botany, anthropology, politics and popular culture. You will be required to learn scientific plant names, chemical names and some human physiology. In addition, you will learn about the nature of science and how modern science is practiced.

A. Quizzes

Students will be assessed on weekly quizzes. Quizzes will include recall, identification, analysis and critical thinking questions. Quizzes will be each week over the past week's material. Each quiz will be between 10-20 points. You must remain in the room during an quiz/exam. If you arrive late you may not be able to take the quiz. Once the quiz is finished, you will not be able to take the quiz. Cell phones must be turned off and stored away.

B. Make up Work

You are responsible for your own work. If you miss a class/quiz/exam/paper you should contact me to turn in the missing material. You have one week to make up a quiz. The only way to make up a quiz is to provide me with a note from a Dr., jury duty or something like that. Otherwise, you may not retake a quiz.

If you have an emergency, you must contact me as soon as you can after that time and I will need some evidence of your emergency. I also don't post lectures online, so you will need to find someone who will share notes with you.

C. Papers

Topics will be assigned that are both topical and relevant to the course. Papers will be assessed on logical flow, the validity of the arguments, and the correct and appropriate use of scientific principles in their writing. Spelling, grammar and organization will also be assessed as well as if you actually did the assignment (you have to address the issue at hand). Papers are worth 25 points.

D. Webpages (100 pts; about 1/3 of your grade)

Each student (if you know people you can work in a group of up to 3 students) will be required to produce a webpage. This webpage format is like that of a research paper in that it will require reliable references from scientific sources. Your reports will be placed on a wiki located at www.medicalbotany.pbworks.com. The content produced by the

class will eventually be made public, so the information **must be** well-researched, accurate, referenced, scientifically-based, and well-written. A secondary goal of this work is to produce a reliable, on-line medicinal plant database that will be publicly available and added to/edited by future classes. *By participating in the online project, you are consenting to have your work displayed publicly on the website and/or edited for content, accuracy or clarity by future students*

Your article draft must be posted beginning on Friday, September 27. Beginning then, class members will be able to provide editorial, graphic or layout suggestions for each article. Students are **required** to comment/suggest on other students' work at least 5 times beginning September 28, and **before** October 30. Comments must be **substantive**. For example, you could suggest corrections, changes in organization, highlight inaccuracies, suggest valid websites for additional information, etc. that will improve the article in a significant way—highlighting misspellings does not count as a “substantive” suggestion. Comments that improve article flow, article organization, point out factual errors (with references) or correct factual errors (with references) are considered “substantive.” “*Great webpage, I like the pictures*” is **not substantive**.

Once students receive comments on their page, students can edit their own page based on the feedback from fellow students. Almost certainly, they are helping you get a better grade, if you follow the suggestion. **A final, completed page is due by November 29.** At that time, I will remove your ability to edit your page and will begin grading the webpages.

***The information on your wiki

1. **Must be referenced from scientific sources** (internal footnotes make for the easiest reading).
2. References **must be reliable** (see below). Websites in general are not appropriate sources of information, esp. if they end in .com and sometimes if they end in .org.
3. Because you are not conducting the study, **you have to reference** any information on your page. Otherwise it is plagiarism. **Cutting and pasting is not doing research, and your grade will suffer.**
4. References in the text should be either footnotes³ or internal citations (Johnson et al, 2001), “Jones (2001) showed that...”.
5. The simplest way to make the page is to write out the text in Word or some other program. Then paste the text, with references into the wiki page. Pictures can be easily pasted into the webpage using the editor.

Possible Resources

The US Pharmacopeia: <http://naturaldatabase.therapeuticresearch.com/home.aspx?cs=&s=NDs>

The National Center for Complementary and Alternative Medicine: <http://nccam.nih.gov/>

American Botanical Council: abc.herbalgram.org (little free info, but you can join for a fee)

Medicinal Plants of the Southwest: <http://medplant.nmsu.edu/>

Cherokee Pharmacopeia: <http://www.aanativearts.com/cherokee/cherokee-pharmacopoeia.htm>

Green Medicine from the Medicinal Plant Working Group at the National Park Service.

<http://www.nps.gov/plants/medicinal/plants.htm>

Library has numerous books. Search for “medicinal plants” and you will find many books.

Journals

Journal of Ethnopharmacology

Phytochemistry

Economic Botany

HerbalGram (not really a journal, although ostensibly peer-reviewed)...you also have to be a member of the American Botanical Society to have access to it.

Botanical.com The complete text of *A Modern Herbal* published in England in 1931. Contains a huge amount of information about various (European) plants.

A sheet explaining the webpage format can be found at the assignments tab of the course Blackboard page. Please read it over and follow those guidelines.

V. Grading

Grade Calculations Grades are based on the percentage of points earned.

A	93-100%	A-	90-93%		
B+	87-90%	B	83-87%	B-	80-83%
C+	77-80%	C	73-77%	C-	70-73%
D+	67-70%	D	63-67%	D-	60-63%
F	0-60%				

If you take the credit/no credit option: CR 70-100% NC 0-70%

Options: September 19 is the census date, which is the last day to drop or add a class. University policy states that is the last day to choose CR/NC. Instructors can extend the time for C/NC. Therefore, **October 3** is the **last day** you may change your grading option (CR/NC) with me. I will strictly follow the grading option indicated on the final grade sheet supplied by Admissions and Records. Consult with your advisor before making your decision. Grades will **not** be changed once they have been submitted. **In short, choose wisely, and if you choose grade, I won't change to a CR/NC later if you don't do as well as you hoped.**

Extra Credit

I do not plan to offer extra credit.

NOTE: Changing your grade in the last 4 weeks of the term is very difficult, especially if you have already earned nearly 80% of your grade. Please keep up on your grades so you can make adjustments as needed. I will try to return material to you in a timely manner so *you can calculate your own grade*. Then, you can make adjustments in your study to do better and/or come to office hours if you need help.

Making up work: If you miss an assignment, to make it up, you need to provide some kind of reliable evidence for why you missed a quiz. You have **1 week** to make it up. Because we take quizzes often, you need to plan ahead. You will have **4 days** to make up assignments, with 10% taken off for each day the assignment is late.

VI. Learning Environment and Citizenship

Teaching philosophy

Professor

I will come to class prepared to teach an informative lecture containing important information that you will be tested on later.

I will also strive to make lecture as interesting as possible, maybe even fun or humorous.

I will strive to help you prepare for your exams by giving you 'signposts' along the way to focus your study.

I will not purposely be sneaky on exams.

I will answer questions respectfully and will begin and end class on time.

I will set policy and strive to be fair to all students.

Students

I expect students to actively participate in class discussion, group activities, and peer-peer teaching.

I expect students to be prepared for class each day.

I expect that students respect the rights of others. Outbursts or negative discussion about others is unacceptable.

I expect students will not cheat, but if students do so, they will not be surprised by an automatic F for the assignment or a referral to the appropriate disciplinary committee. *Cheating* is "submitting an in-class assignment for a student who is not present or submitting work that is not your own, but claiming that it is your own original work." *Lying* is "communication with intent to deceive" and cheating falls into that category.

Turn off your phones and please don't text in class.

Do not use laptops during class. They distract you and other students. In fact, studies have shown that your grade can suffer as much as 17 points (90% to a 72%).

Study skills

Each lecture will begin with a number of questions to answer during the lecture—look for the answers as the lecture progresses. Test questions will be based on these questions at the beginning of lecture.

The following suggestions will help you succeed in this and other classes. 1. Read the chapter before class and bring questions you have from the chapter to class. (2. Attend class. (3. Do 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 likeminded 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. (9. Receive from and give constructive feedback to the instructor about the class lecture, lab, and text.

Letters of Recommendation

I don't mind writing letters of recommendation. Because they are a letter of *recommendation* I do like to be able *to* recommend the candidate. As such, I can't usually recommend students

unless they achieve a B (3.0) or better in the class. In addition, if you only take the class, do well and never come talk to me, I cannot recommend you either. What would I say? Writing only 2-3 sentences isn't a compelling letter! If you do think you will need a letter from a professor **get to know that professor**. Otherwise your letter will not be as strong.

VII. Lecture Schedule

The schedule may change. We may have several guest speakers, pending their confirmation of attendance. Material to read and watch will be posted online on the course Blackboard page.

Date	Topics	Reading
22-Aug	Intro, Nature of Science	
27-Aug	Plant Morphology/Taxonomy	Links to info Online
29-Aug	Plant Chemistry	Hoffman Ch 3; Ecological Biochem (Blackboard)
3-Sep	Human Physiology	See links and animations (Blackboard page)
5-Jan	Human Physiology	
10-Sep	History of Medicinal Plants	Encyclopedia of Med. Plants reading
12-Sep	History of Medicinal Plants & res Methods	
17-Sep	Philosophies of medicinal plant usage	Buhner article on Blackboard
19-Sep	Ethnobotany	Cox Ch 3 on Blackboard
24-Sep	DSHEA & Supplements	see texts for information; ABC documents
26-Sep	Garlic and Goldenseal	
1-Oct	Chamomile and Capsicum	
3-Oct	Chohosh, Ginseng and Manzanita	Moore
10-Oct	Mints and Plantain	
15-Oct	Tea, Jimsonweed, Coffee Berry	Moore
17-Oct	Elder and Ginkgo	Moore
22-Oct	Cinnamon, California Bay, Agave	Moore
24-Oct	Kava	
29-Oct	Marijuana	
31-Oct	Marijuana and Echinacea	
5-Nov	Medicinal Plants of Malaysia, Sweet Annie	
7-Nov	Hawthorne and St. John's Wort	
12-Nov	Cherokee and Native Am. Medicine	Cherokee Medicine Web book
14-Nov	Preparation of Medicinal Plants	Hoffman Ch 11
19-Nov	Student Choice	
21-Nov	Student Choice	
26-Nov	Student Choice	
3-Dec	Student Choice	
5-Dec	Student Choice	
10-Dec	Frankincense and Myrrh	