

BOT 205 Ethnobotanical Pharmacognosy (CRN 63411)

4 credits

M,W 1:00 pm – 3:30 pm

INSTRUCTOR:	Ingelia White PhD
OFFICE:	Hale Imiloa 106
OFFICE HOURS:	M,W 10:00 am – 12:00 noon or by appointment
TELEPHONE:	236 - 9102
EFFECTIVE DATE:	Fall 2016

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai'i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O'ahu's Ko'olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DESCRIPTION

A study of medicinal plants of Hawaii and their characteristics, plant extraction, isolation and identification of their chemical constituents for possible uses in pharmaceuticals or in their natural state; and bioproduct manufacturing. This course is designed to train students for careers in plant and medical biotechnology. Lecture and laboratory/field work course (3 hrs. lect.; 3 hrs. lab.).

REQUIREMENT COURSE SATISFIES:

AT WCC:

- AA Lib Arts and ASNS (DB, DY)
- Certificate of Achievement in Agripharmatech: Ethnopharmacognosy

AT UHM:

- Bachelor of Science Degree Program in Plant and Environmental Biotechnology. Accepted as an elective for the following specializations: Plant Biotechnology, General Biotechnology, and Environmental - Microbial Biotechnology.
- Bachelor of Science Degree Program in Ethnobotany

Activities Required at Scheduled Times Other Than Class Times

Preparing home assignments, conducting lab/field observations, collecting data and writing lab reports.

STUDENT LEARNING OUTCOMES

The student learning outcomes:

1. Discuss theories and principles in the study of medicinal and nutritious plants
2. Discuss ethics, intellectual property rights and conservation of traditional knowledge
3. Perform Laboratory activities: plant extraction, distillation, bioassay tests, chemical analysis for possible uses in nutraceutical products
4. Produce lab reports using the standard scientific format

COURSE CONTENT

COURSE GOALS:

Upon completion of this course, you should have basic understanding and technical competency in identifying medicinal plants, analyzing their pharmaceutical and nutritional properties; and manufacturing nutraceutical plant-based products.

COURSE OBJECTIVES:

You will demonstrate knowledge and understanding of theories and concepts of diet-health care and diseases, ethics and researcher behavior, intellectual property rights, and conservation of traditional knowledge; laboratory/field methods in identifying and collecting medicinal plants, and performing bioassay and vitamin B analysis.

COURSE TASKS

The evaluation of the student's achievement of course objectives will be based upon lecture, laboratory and field participations, laboratory reports, research project presentations, and exams as described below:

Lecture and Laboratory/field participations (25 points)

You will actively participate in all lectures and lab/field activities at the Bioprocessing Medicinal Garden Complex (BMGC). Because of the difficulties in resetting up laboratory material/protocol, students missing a regularly scheduled lab activity cannot be given an alternative assignment. Failure to participate in scheduled laboratory sessions will result in a 5 point deduction for each session missed. Students missing more than 3 three-hour lab sessions will not receive credit for the course.

Laboratory Reports (100 points)

You will submit a total of three cumulative lab report portfolios. Each portfolio consists of lab reports that are assigned during specific lab periods. Each lab portfolio must be completed and turned in one week after the last assigned lab module is completed (turn in dates will be announced in the class).

Research Project- class presentation (25 points)

Special group projects will be discussed and approved by the instructor.

Examinations (200 points)

You will take two non-cumulative exams throughout the semester. No make-up exam will be given, except for illness, for which a doctor's note is required. A make-up exam will only be given on your first day back to class (notified by the instructor).

ASSESSMENT TASKS AND GRADING

The assignment of points are described as follows:

Lecture, lab/field participations in all sessions	25 points
Cumulative lab reports	100 points
Research project (class presentation)	25 points
2 Exams (Midterm and Final)	200 points

Total 350 points

Letter grades will be assigned as follows:

- A**.....90% or above in total points
B.....80 – 89.9% of total points
C.....65 – 79.9% of total points
D.....55 – 64.9% of total points
F.....below 55% of total points/informal/incomplete official withdrawal from the course
I..... Incomplete; given at the **instructor's option** when you are unable to complete a small part of the course because of circumstances beyond your control. It is your responsibility to make up incomplete work. Failure to satisfactorily make up incomplete work within the appropriate time period will result in a grade change for "I" to contingency grade identified by the instructor (see catalog).
CR.....65% or above in total points; you must indicate the intent to take the course as CR/N in writing by November 3, 2016 (see catalog).
NC.....below 65% of total points; this grade only available under the CR/N option (see above and see Catalog).
N.....not given by this instructor, except under extremely rare circumstances (e.g. documented serious illness or emergency that prevents you from officially withdrawing from the course); never used as an alternative for an "F" grade.
W..... official withdrawal from the course without a "W" Grade (September 12, 2016). Last day to withdraw with a "W" Grade (November 3, 2016) (see catalog). Waiver of minimum requirements specific grades will be given only in unique situations at the instructor's discretion.

STUDENT RESPONSIBILITIES: You are expected to participate in all lecture activities, and be prepared in advance when you arrive to class. Being prepared includes the following: having already read text materials (e.g. textbook readings, and handouts) assigned for that day's activities. Any changes in the course schedule, such as field trip or exam dates, will be announced ahead of time in class. It is your responsibility to be informed of these changes.

LEARNING RESOURCES

White, I. 2013. Ethnopharmacognosy Series IV: Pharmaceutical and Nutraceutical Values of Spanish Needle. Windward Community College. 52 pp.

White, I. 2016. Ethnopharmacognosy Series V: Pharmaceutical and Nutraceutical Values of *Vanda* Miss Joaquim. Windward Community College. 52 pp. (in publication)

The following books are no longer printed. Handouts (parts of some chapters only) will be distributed in class:
 Robbers, J., M. Speedie and V. Tyler. 1996. Pharmacognosy and Pharmacobiotechnology. Williams & Wilkins, Baltimore, MD.

Sumner, J. 2000. The Natural History of Medicinal Plants. Timber Press, Portland, Oregon.

My websites:

http://windward.hawaii.edu/people/Ingelia_White/

http://windward.hawaii.edu/Academics/Agripharmatech_CA/

DISABILITIES ACCOMMODATION STATEMENT

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale 'Akoakoa 213 for more information.

NON-DISCRIMINATION POLICY

The University of Hawaii is committed to a policy of non-discrimination on the basis of race, sex, age, religion, color, national origin, ancestry, disability, marital status, arrest and court record, sexual orientation, or veteran status in all of its programs, policies, procedures, or practices. This policy covers admission and access to, participation, treatment and employment in university program and activities.

BOT 205 Schedule (tentative)*

Imiloa 106

Instructor: Dr. Ingelia White

Fall 2016

DATE	Reading	Lecture topic	Lab/field research
Aug 22	White. Ethnoph Series	Introduction	BMGC, plant identification
24	Sumner. Ch. 1	History of med. ethnobot	weeding
29	T. Saverns (Librarian)	Internet: literature research	Biosafety lab practice
31	Hand-outs	Hist of pharm & herbal products	Literature research discussion
Sept 5		Holiday (pizza dough prep)	
7		No lecture	Garden pizza/food pharm party
12	Hand-outs	Ethno Polynes med plants	Fungal plate culture
14	Hand-outs	Ethno Polynes med plants	Fungal isolation, pure culture
19			Bioessay test, plant extraction
21	Sumner. Ch. 2	Field meth study of med plants	Observation/data collection
26		Video (the Jungle Pharmacy)	Weeding
28	Sumner. Ch. 3	Med plants in nature	Harvesting/Drying plants
Oct 3	Hand-outs	Asian med plants	Pharm product 1 (med oil)
5		Concept of health & disease	Pharm product 2 (med salve)
10		Ethnobotanical research	Pharm product 3 (med wash)
12		Video (Hawaiian Art of Healing)	Pharm product 4 (med soap)
17		Video (Green Medicine)	Coagulation test (physical)
19			Coagulation test (slides/plates)
24	Mid-term exam		
26	Sumner. Ch. 4	Informed consent & human res	Assign reading for presentation
31	Robbers hand-outs		Vitamin B analysis 1
Nov 2			Vitamin B analysis 1 (cont.)
7		Ethnobotanical interview tech	
9		Doc/coll of med specimens	Observational study 1
14	White. Eth Series	Food pharmacy	Observational study 2
16	Sumner. Ch. 5	Prim/second metabolic pathway	Weeding, planting
21	Sumner. Ch. 9	Conservation/intel prop right	
23	Robbers. Ch. 1, 2, 3	Class presentation	Cell culture research
28	Robbers. Ch. 4, 5	Class presentation	Nutraceutical product 1
30	Robbers. Ch. 6, 8	Class presentation	Nutraceutical product 2
Dec 5	Robbers. Ch. 9, 10	Class presentation	Weeding, planting
7	Robbers. Ch 11, 12	Class presentation	
12	Final Exam		

*** Field work schedule might change due to bad weather. Lab schedule might change as a result of previous lab results**