BOT 205 Ethnobotanical Pharmacognosy (CRN 61229)

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
E-MAIL: ingelia@hawaii.edu

EFFECTIVE DATE: Fall 2017

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

Prepare literature research, conduct lab and field research, collect/analyze data, provide lab reports and other home assignements and participate in extra-curricular activities.

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 exercises: plant extraction, drying or distillation, bioassay tests, and vitamin analysis for use in nutraceutical product manufacturing
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 and nutritious 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 and home assignments (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 two to three cumulative lab report portfolios. Each portfolio consists of lab reports that are assigned during specific lab modules. 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).

Estra-curricular activities (10 points)
Prepare food pharmacy for special Agripharmatech program events. Event dates will be announced in the class.

ASSESSMENT TASKS AND GRADING

The assignment of points are described as follows:

Lecture, lab/field participations & assignments	25 points
Cumulative lab reports	100 points
Research project (class presentation)	25 points
2 Exams (Midterm and Final)	200 points
Extra-curricular activities	10 points
Total	360 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 October 30, 2017 (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, 2017). Last day to withdraw with a "W" Grade (October 30, 2017) (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. 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

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BOT 205 Tentative Schedule*
Imiloa 106 and BMGC
Instructor: Dr. Ingelia White
Fall 2017

DATE	Reading	Lecture topic	Lab/field research
Aug 21	White. Ethnoph Series	Introduction	BMGC, plant identification
23	Sumner. Ch. 1	History of med. ethnobot	weeding
28	T. Saverns (Librarian)	Internet: literature research	Biosafety lab practice
30	Hand-outs	Hist of pharm & herbal products	Literature research discussion
Sept 4		Holiday (pizza dough prep)	Harvest the greens/spices
6			Food pharmacy – Adv Board Mt
11	Hand-outs	No class to replace the holiday	
13	Hand-outs	Ethno Polynes med plants	Plant drying
18		Ethno Polynes med plants	Plant extraction
20			Color pigment research
25	Sumner. Ch. 2	Field meth study of med plants	Color pigment research (cont.)
27	Sumner. Ch. 3	Med plants in nature	Data analysis
Oct 2	Hand-outs	Asian med plants	
4		Concept of health & disease	Nutraceutical product 1
9		Ethnobotanical research	Pharm product 1
11		Video (Hawaiian Art of Healing)	Prep for vitamin B analysis
16		Video (Green Medicine)	Vitamin B analysis 1
18			Data analysis
23	**Mid-term exam**		
25	Sumner. Ch. 4	Informed consent & human res	Assign reading for presentation
30	Robbers hand-outs		Vitamin B analysis 1I
Nov 1		Ethnobotanical interview tech	Data analysis
6		Video (the Jungle Pharmacy)	
8		Doc/coll of med specimens	
13	White. Eth Series	Food pharmacy (Int. Edu Week)	
15	Sumner. Ch. 5	Prim/second metabolic pathway	Weeding, planting
20	Sumner. Ch. 9	Conservation/intel prop right	Vitamin B analysis 1II
22	Robbers. Ch. 1, 2, 3	Class presentation	Data analysis
27	Robbers. Ch. 4, 5	Class presentation	
29	Robbers. Ch. 6, 8	Class presentation	Nutraceutical product 2
Dec 4	Robbers. Ch. 9, 10	Class presentation	Pharm product 2
6	Robbers. Ch 11, 12	Class presentation	
11	**Final Exam**		

* Field work schedule might change due to bad weather. Lab schedule might be changed to follow the previous lab result outcomes.