University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course

1. Type of Action
   - A. Addition, Experimental or Other (click and type to specify)
   - B. Deletion
   - C. Modification: in credits, in title, in number or alpha, Other (click to specify)

2. New Alpha, Number and Title: BOT 205 Ethnobotanical Pharmacognosy

3. Credits: 4 credits

4. Old Alpha, Number and Title

5. Credits

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

7. Select box and type specific information in text box.
   - Prerequisites
   - Corequisites or
   - Recommended Preparation
   Prerequisites: Credit or concurrent enrollment in any of these courses: BOT 101, BOT 105, BOT 130, MICRO 130, MICRO 140, BIOL 172/172L, CHEM 152/152L or consent of instructor. Recommended: High school biology, chemistry and math.

8. Student Contact Hours Per Week
   - Lecture: 3 hrs.
   - Lecture/Lab: 3 hrs.

9. Proposed Date of First Offering
   - Semester: Spring
   - Year: 2005

10. This course is proposed for the Liberal Arts Program. It can fulfill Nat Sci: Biological If Other, specify elective for ASC in Bio-Resources & Technology (Plant Biotechnology Program)

11. This course makes no difference in the number of credits required for the program/core.

12. Equivalent or similar courses offered in the UH System:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Alpha, Number, Title</th>
<th>Campus</th>
<th>Alpha, Number, Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>None</td>
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</tbody>
</table>

13. This course is to check one and click in appropriate textbox and provide details):
   - Already articulated with
   Provide details of existing or desired articulation (date, college(s), purposes, pre-major, etc.) in this space:

   ❑ Appropriate for Articulation with UH System
   Provide details of existing or desired articulation (date, colleges(s), purposes, pre-major or major, etc.) in this space:
   BOT 205 is similar to BOT 442 (Medical Ethnobotany) at UHM. BOT 205 focuses on medicinal plants of Hawaii and the applications of plant-medical biotechnology. This course has been approved as an elective for a B.Sc. degree in Plant and Environmental Biotechnology program at the College of Tropical Agriculture and Human Resources at UHM (see attachment).
   ❑ Not yet appropriate for Articulation.

14. Reason for Initiating, Modifying or Deleting Courses or Other Pertinent Comment:
   BOT 205 (identical with BOT 150 listed in the Plant Biotechnology Program) is a new elective course fulfilling the Academic Subject Certificate requirement in Bio-Resources and Technology, Plant Biotechnology Program. This program has been funded through USDA-CSREES FY 2001-present. The course is transferable (elective for B.Sc. in Plant and Environmental Biotechnology) to the College of Tropical Agriculture and Human Resources at UHM.

Requested by: [Signature]
Approved by: [Signature]

CCCMM #6100 (Amended for WCC use October 2002)
University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course

Faculty Senate Chairperson
Brett J. Mollen
Date 4/6/04

Dean of Instruction
Angela Megall
Date 4/8/04

Provost
CHANCELLOR

CCCM #6100 (Amended for WCC use October 2002)
University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course

Levels of Review of Course Proposal at Windward Community College

Course Alpha, Number, and Title: BOT 205 Ethnobotanical Pharmacognosy

Signatures

1. Department Area (more than one departmental instructor’s signature required)

   [Signatures]

   [Dates]

2. Department

   [Signature]

   Department Chairperson

   Was this course discussed in a department meeting? □ Yes □ No

   [Dates]

2. Division

   [Signature]

   [Dates]

2. Curriculum Committee Review

   Approved □ 7-0

   Disapproved □

   Reason:

   [Signature]

   Curriculum Committee Chairperson

   [Dates]

CCCM #6100 (Amended for WCC use October 2002)
1. How is this course related to the education needs and goals of the College/Department/Community as reflected in the EDP/ADP?

Provides students with knowledge and technical skills for immediate employment in the biotech industry in Hawaii. Facilitates student transfer to UHM's Bachelor of Science Degree program in a related field. It also meets the EDP's Goal B.1.a. "Develop additional 200-level course in premajor areas.....".

2. Provide details of any additional staff, equipment, facilities, library/media material, faculty preparation and other financial support that would be required to implement this course. (Include an estimate of the actual cost of supplies and equipment.) What has been done to provide for these additional costs for the proposed date of offering? Who will teach the course?

Lab equipment and supplies will be provided through the grant from USDA-CSREES FY 2003 - 2005. A qualified instructor in the Department of Natural Sciences will teach the course. An honorarium will be provided through this grant for a guest instructor to team-teach 2 to 3 lab sessions and also for a lab assistant.

3. Is a similar course taught elsewhere in the UH system? * If yes, provide details of how this course differs from existing similar courses.

No  Yes, see answer in #5 below. cp. pm 11/4/2004

4. Is this course experimental and/or unique to Windward Community College? * If yes, provide rationale and details of its impact on the College Curriculum

No

5. Is a similar course taught in the upper division level by a 4-year UH college? * If yes, explain why this course is appropriate at the lower division or how it differs from its upper division counterpart.

Yes. This course is similar to BOT 442 (Medical Ethnobotany) taught at the Department of Botany at UHM. It differs in its prerequisites (by replacing prerequisites for Cultural Anthropology and Systematic Botany at UHM with any of these courses: General Microbiology/Lab, General Botany, Ethnobotany, Plants in the Hawaiian Environment, Survey of Organic and BioOrganic Chemistry). BOT 205 focuses on medicinal plants of Hawaii and the applications of plant-medical biotechnology.

6. Please attach a complete course outline. Your course outline should address all the items listed in the Guidelines for Course Outlines.

7. If this course is numbered 100 or above or appropriate for transfer to a 4-year college, complete and attach WCC Form for Transfer Courses (blue). See criteria for transfer courses.
WCC Form for Transfer Courses
(To be completed for articulation with any 4-year UH campus)
(This sheet was originally blue.)

Course Alpha and Number BOT 205

Submitted by Ingelia White

Date January 22, 2004

1. List the counterpart to this course on any 4-year UH campus. Describe the relationship between the course and any related baccalaureate program area.

   None

2. Is this course taught or accepted by major accredited colleges or universities? Give one or two examples.

   BOT 205 is only offered at WCC. Transferable as elective for a B.Sc. degree program in Plant and Environmental Biotechnology at the College of Tropical Agriculture and Human Resources at UHM (see attachment).

3. Please attach a complete course outline if you have not done so already. Your course outline should address all the items listed in the Guidelines for Course Outlines.

CCCM #6100 (Amended for WCC use September 2002)
Proposal to Initiate, Modify or Delete a Course
Articulation with 4-year UH Campus Form

COURSE ARTICULATION FORM (GENERAL EDUCATION CORE)

ORIGINATING CAMPUS: Windward Community College DATE SUBMITTED: January 19, 2004

COURSE ALPHA & NUMBER: BOT 205 SEMESTER CREDITS: 4

COURSE TITLE: Ethnobotanical Pharmacognosy

DATE OF OUTLINE: January 19, 2004 Year 2004

(** Representative outline, no multiple syllabi, please.)

1. Articulation committee to review this course:

   Standing Committees
   - Written Communication
   - Mathematical & Logical Thinking
   - World Civilizations
   - Languages
   - Arts & Humanities
   - Natural Science
   - Social Science

2. The information in this item is required by the reviewing committee so that it has a starting point for reviewing the course. It is the responsibility of the submitting campus to do the necessary research to provide this information.

In the opinion of the originating campus, this course is equivalent to the following and/or meets the criteria for the indicated core categories. Every core category space, except your own campus, must be filled in (can include ‘none’). An equivalent course, if known, may be helpful to committee members but is not required.

<table>
<thead>
<tr>
<th>Receiving Campus</th>
<th>Equivalent Course (Alpha and Number)</th>
<th>Core Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>UH Hilo</td>
<td>None</td>
<td>II.C.Biol</td>
</tr>
<tr>
<td>UH Manoa</td>
<td>None</td>
<td>NS 1</td>
</tr>
<tr>
<td>UH West Oahu</td>
<td>None</td>
<td>NS 1</td>
</tr>
<tr>
<td>Hawaii CC</td>
<td>None</td>
<td>NS 1</td>
</tr>
<tr>
<td>Honolulu CC</td>
<td>None</td>
<td>NS 1</td>
</tr>
<tr>
<td>Kapiolani CC</td>
<td>None</td>
<td>NS 1</td>
</tr>
<tr>
<td>Kauai CC</td>
<td>None</td>
<td>NS 1</td>
</tr>
<tr>
<td>Leeward CC</td>
<td>None</td>
<td>NS 1</td>
</tr>
<tr>
<td>Maui CC</td>
<td>None</td>
<td>NS 1</td>
</tr>
<tr>
<td>Windward CC</td>
<td>BOT 205</td>
<td>NS 1</td>
</tr>
</tbody>
</table>

3. If submitted electronically, I understand that this outline will be posted to a publicly accessible web site to enable open access for reviewing committees and campuses. The outline will be taken off the site upon completion of the review.

Typed Name or Signature

Note: If possible submit coversheet and course outline electronically as e-mail attachments (preferably in ‘pdf’ format). If submitting in printed form, 20 copies of coversheet and course outline are required for distribution for appropriate review.

Note: UCA Clearinghouse

John Muth, Office of the Chancellor for Community Colleges, is acting as staff to the University Council on Articulation and is
WINDWARD COMMUNITY COLLEGE
OUTLINE OF COURSE OBJECTIVES

COURSE NAME: Ethnobotanical Pharmacognosy

COURSE ALPHA: BOT 205

CREDIT HOURS: 04

CATALOG DESCRIPTION:

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

REQUIREMENT COURSE SATISFIES:

AT WCC: AA Degree Natural Science requirement for a Biological Science (Natural Science Group 1) and fulfills lab requirement. It also partially fulfills requirements for the Academic Subject Certificate in Bio-Resources and Technology (Plant Biotechnology Program).

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.

PREREQUISITES:
Credit or concurrent enrollment in any of these courses: BOT 101, BOT 105, BOT 130, MICRO 130, MICRO 140, BIOL 172/172L, CHEM 152/152L or consent of instructor.

RECOMMENDED SPECIAL PREPARATION:
High school biology, chemistry and math.

ACTIVITIES REQUIRED AT SCHEDULED TIMES OTHER THAN CLASS TIMES:
Students have to maintain, inspect and collect data from their lab/field experiments.

INSTRUCTOR:
OFFICE:
OFFICE HOURS:
TELEPHONE:
EFFECTIVE DATE:

1
COURSE GOALS:
Upon completion of this course, you should have a basic understanding of and technical competency in testing medicinal plants and some applications of plant-medical biotechnology.

COURSE OBJECTIVES:
You will demonstrate knowledge and understanding of theories, principles, and laboratory/field skills in the following topic areas: identification, documentation, and collection of medicinal plants of Hawaii, ethics and researcher behavior, concepts of diet-health care and diseases, laboratory methods for analysis of medicinal plants and their constituents, ethnopharmacology, in vitro culture, intellectual property rights, and conservation of traditional knowledge.

EVALUATION OF OBJECTIVE ACHIEVEMENT:
The evaluation of the student’s achievement of course objectives will be based upon lecture, laboratory and field trip participation, laboratory reports, a field trip report, a research project, the ability to maintain aseptic cultures, and examinations as described below:

Lecture and Laboratory/field trip Participation
You will actively participate in all lecture and lab/field trip activities (100 points). You are expected to work safely and efficiently in the laboratory. Thus, you will be graded on lecture and laboratory attendance, level of participation, and laboratory work habits. Because of the difficulties in setting up laboratory material, students missing a regularly scheduled lab activity cannot be given an alternative assignment. Failure to participate in a scheduled laboratory session will result in a 15 point deduction for each session missed. Students missing more than 3 three-hour lab sessions will not receive credit for the course.

Laboratory Reports
You will complete a total of three written formal laboratory reports (300 points). Each lab report consists of modules assigned for specific lab periods. Lab reports must be completed and turned in one week after completion of the lab.

Field Trip Report
Field trip to the Hawaii Agricultural Research Center or UHM Biotech Laboratories is mandatory. One field trip report (100 points) should be turned in within a week following the trip.
Research Project

You should produce one of the following two options (200 points):

1). Web Site
   - Prepare a set of linked web pages on a topic of interest in ethnomedicine of Hawaii. Pages on specific medicinal plants are recommended with the following elements: main page, biogeography, cultural history, cultural context, traditional indications and usage, botanical description and photographs, bibliography, web site author information, and other links.
   - Web page topics must be discussed with the instructor and selected by you by mid-February and completed by mid-April. **No late work will be accepted.**
   - Web pages should be developed following legal and ethical standards with appropriate citations/references and no "data lifting".
   - Final web pages will be placed in the Department of Natural Sciences web site for permanent reference.

2). Written Family Interview Report
   - Conduct a set of interviews with some family members about traditional medicine and health care in a specific area (eg. Kahalu’u, or Waimanalo, or Waikiki or Manoa etc.).
   - Write an original paper of at least eight typed pages about the above interviews including the following parts: introduction (literature review), interview method, results, discussion, researchers’ background, photos and references cited.
   - Papers should follow the format of *Economic Botany* or the *Journal of Ethnopharmacology*.
   - Paper topics must be discussed with the instructor and be selected by you by mid-February and completed by mid-April. **No late work will be accepted.**

Aseptic Culture Maintenance

You will maintain your own *in vitro* cultures (100 points). Assessment will be based upon non-contaminated and successful cultures throughout the semester. Media transfer should be done accordingly. You should detect contaminated cultures as early as possible to repeat the operation before the end of the semester.

Examinations

You will take two non-cumulative examinations (total 400 points) throughout the semester. No make-up exams will be given, except for illness, for which a doctor’s slip is required. A make-up exam will only be given on your first day back to class.
METHOD OF GRADING:
The assignment of points are described as follows:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture, lab/field trip participation</td>
<td>100</td>
</tr>
<tr>
<td>3 Lab reports</td>
<td>300</td>
</tr>
<tr>
<td>1 Field trip report</td>
<td>100</td>
</tr>
<tr>
<td>1 Research project</td>
<td>200</td>
</tr>
<tr>
<td>Aseptic culture maintenance</td>
<td>100</td>
</tr>
<tr>
<td>2 Exams (mid-term and final exam)</td>
<td>400</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1200</td>
</tr>
</tbody>
</table>

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 or informal or incomplete official withdrawal from 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/CN in writing by the end of the 10th week of classes (see catalog).
NC ........ Below 65% of total points; this grade only available under the CR/CN 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 after the third week and prior to the end of the 10th week of classes (see catalog).

Waiver of minimum requirements for 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 to be prepared in advance when you arrive at 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 examination dates, will be announced ahead of time in class. It is your responsibility to be informed of these changes. Because of the nature of the material presented in BOT 205, more study time is required to succeed in this class.

TEXTBOOK AND OTHER ASSIGNED INSTRUCTIONAL MATERIALS:


Other reading assignments will be provided in class or can be accessed through the internet.
<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture/Lab</th>
<th>Reading</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>Sumner Ch 1</td>
</tr>
<tr>
<td></td>
<td>History of medical ethnombotany</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ethnopharmacology of Polynesian medicinal plants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharmacology of Polynesian medicinal plants</td>
<td></td>
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<tr>
<td></td>
<td>Asian medicinal plants</td>
<td></td>
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<tr>
<td>3</td>
<td>Diets and health care</td>
<td></td>
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<tr>
<td></td>
<td>Concepts of health and disease</td>
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<tr>
<td></td>
<td>Field trip</td>
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<tr>
<td>4</td>
<td>Field methods for study of medicinal plants</td>
<td>Sumner Ch 2</td>
</tr>
<tr>
<td></td>
<td>Documentation and collection of medicinal plant specimens</td>
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<td></td>
<td>Ethics and researcher behavior</td>
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<td>5</td>
<td>Ethnobotanical interview techniques</td>
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<td></td>
<td>Informed consent and human research</td>
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<tr>
<td>6</td>
<td>Introduction to pharmacognosy</td>
<td>Robbers Ch 1</td>
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<tr>
<td></td>
<td>Pharmacobiotechnology</td>
<td>Robbers Ch 2</td>
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<td><strong>Midterm</strong></td>
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<td>7</td>
<td>Primary metabolic pathway</td>
<td>Sumner Ch 4</td>
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<td></td>
<td>Secondary metabolic pathway</td>
<td>Sumner Ch 5</td>
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<td></td>
<td>Lab</td>
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<tr>
<td>8</td>
<td>Complex polysaccharides</td>
<td>Robbers Ch 3</td>
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<tr>
<td></td>
<td>Glycosides</td>
<td>Robbers Ch 4</td>
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<td></td>
<td>Lab</td>
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<tr>
<td>9</td>
<td>Lipids</td>
<td>Robbers Ch 5</td>
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<tr>
<td></td>
<td>Terpenoids</td>
<td>Robbers Ch 6</td>
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<tr>
<td></td>
<td>Steroids</td>
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<tr>
<td>10</td>
<td>Phenylpropanoids</td>
<td>Robbers Ch 8</td>
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<tr>
<td></td>
<td>Alkaloids</td>
<td>Robbers Ch 9</td>
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<td></td>
<td>Lab</td>
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<tr>
<td>11</td>
<td>Proteins and peptides</td>
<td>Robbers Ch 10</td>
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<td></td>
<td>Antibiotics</td>
<td>Robbers Ch 11</td>
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<td></td>
<td>Lab</td>
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<tr>
<td>12</td>
<td>Biologic and immunomodulators</td>
<td>Robbers Ch 12</td>
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<td></td>
<td>Lab</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Conservation of medicinal plants and traditional knowledge</td>
<td>Sumner Ch 9</td>
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<tr>
<td></td>
<td>Intellectual property rights</td>
<td></td>
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<tr>
<td>14</td>
<td>History of pharmaceuticals and herbal products in USA</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td><strong>Final Exam</strong></td>
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</tbody>
</table>
February 24, 2004

To: Ben Moffatt, Faculty Senate
From: Jean Shibuya, CAAC

The Curriculum and Academic Affairs Committee met on February 24 and unanimously approved the new course proposal for Botany 205 Ethnobotanical Pharmacology (4 credits).

Please have the Faculty Senate act upon this matter.
Jan. 22, 2004

Igelia White, Ph.D.
Department of Natural Sciences
Windward Community College
45-720 Keaahala Rd.
Kaneohe, HI 96744

Dear Dr. White,

We have accepted your BOT 205 course (Ethnobotanical Pharmacognosy) to be included as an approved elective for the Bachelor’s degree in Plant and Environmental Biotechnology. We believe that BOT 205 will round the students in their study of plant biotechnology. As you may recall from our statewide meeting we have petitioned to simplify and broaden the name of the program to Biotechnology.

Harry Ako, Ph.D.
Professor and Program Coordinator, Biotechnology Program
Chair, Dept. of Molecular Biosciences and Bioengineering