APPLICANT: K. Gopalakrishnan

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COURSE ALPHA and NUMBER: BOT 130-L

COURSE TITLE: Plants in the Hawaiian Environment Laboratory

ESTIMATED NUMBER OF SECTIONS:
  Fall: 0
  Spring: 1

APPLICATION IS FOR:
  ☐ New Course  ☐ Modified Course  ☐ Existing Course  ☐ Re-designation
  ☐ Certification  ☑ Re-Certification. Date of last certification:

DIVERSIFICATION AREA DESIGNATION SOUGHT:
  ☐ DA (Arts)  ☐ DP (Physical Sciences)
  ☐ DB (Biological Sciences)  ☐ DS (Social Sciences)
  ☐ DH (Humanities)  ☑ DY (Laboratory)
  ☐ DL (Literature and Language)

What percentage of the CONTENT of this course focuses on this diversification area? 95

What percentage of CLASS MEETINGS focuses on this diversification area? 95
1. **Hallmarks and SLOs.** Please explain how course-specific SLOs align with the diversification area's hallmarks.

**DY 1. Uses the laboratory methods of the biological or physical sciences:**

SLO 2. Identify structures and explain basic functions of root, leaf, stem, flower and fruits of vascular plants.

SLO 4. Become a student of botany and the natural world in general. Learn to make observations in a detailed and scientific way.

SLO 5. Identify plants in the field

Laboratory sessions will introduce students to standard laboratory procedures used various aspects involved in the study of plants such as identification methods. Dissection techniques and setting-up experiments to study plant physiology and plant growth under controlled environmental conditions SLO 2, SLO 4 and SLO 5. These SLOs also will include application of scientific methods, measurements, data collection and analysis. Students will learn to use dissecting and compound microscopes, use of taxonomic keys for plant identification and cataloging.

**DY 2. Involves processes and issues of design, testing and measurement:**

SLO 1. Describe the origin, development and composition of the Hawaiian native flora today and what it was in the past.

SLO 3. Analyze the biotic and abiotic forces that have shaped the Hawaiian Islands and their impact on evolution, distribution and endangerment of Hawaiian flora.

SLO 6. Understand the impact of human activities on native plants

SLO 1 also involves learning methods used in plant identification and study of distributional patterns native and non-native plants in Hawaii. Students will learn about experimental design, data collection and analysis to test various hypotheses dealing with influence of biotic and abiotic factors on the evolution, distribution and endangerment of Hawaiian flora and also the impact of human activities on the survival and growth of native plants (SLO 3 and SLO 6).

**DY 3. Demonstrates the strengths and limitations of the scientific method:**

Any science student must be taught both the strengths and limitations involved in lab experiments simulating the natural conditions to test hypotheses. Conclusions are to be interpreted with some degree of caution because of the shortcomings (assumptions etc.) in the experimental design (SLO 3 and SLO 4). Data collected from the field may vary depending on weather conditions and accessibility to certain locations SLO 3 and SLO 5). Technological advancements in data collection and measurements have helped the students to overcome some of the difficulties involved in gathering reliable data from their experiments.
2. **Assessment strategies.** Explain assessment strategies you have used (or plan to use) to measure the degree to which students exit the course with the course-specific SLOs. If there are multiple sections of the course taught by different instructors, please discuss how assessment is (or will be) carried out across instructors.

Assessment of student performance is based on different procedures, which include weekly lab quizzes, class attendance and performance in lab sessions, field and lab reports and lab final exam. Instructor will accompany the class during all field trip to ensure student safety as well as to provide guidance in plant identification in the field. Feedback from students during lab sessions and from student evaluation will be used to improve conditions to optimize student learning outcomes. Lab reports assess how well the students understand the experiments and specific concept underlined in those experiments. Field trips and lab activities strengthen students understanding in lecture classes.

3. **Assessment of assessment.** How have you used (or plan to use) the assessment findings to modify or improve this course? If there are multiple sections of the course taught by different instructors, please discuss how review of assessment results is (or will be) carried out across instructors.

Since this course is also taught on other campuses of the University of Hawaii, periodic efforts will be made to compare and make needed changes to establish same level of competency and equivalency. If necessary, curriculum will be upgrades in order to incorporate advancement made in the study plant and related fields (genetics etc). At present, only one instructor will be teaching one section of this course once a year.
DIVERSIFICATION BOARD DECISION:

☑ Approved
Re-Certification Due: Fall 2017

☐ Not approved
If not approved, reasons for disapproval:

Diversification Board Chair Signature: 
Date: Fall 2012
Course Syllabus

Course Title: Plants in the Hawaiian Environment Laboratory

Course Numbers: BOT 130 -L

Credits: 1

Time: Tuesday 11:30 am – 2:20 pm

Co-requisite: BOT 130

Course Description:
Laboratories will involve specific application of lecture material and several field trips to various parts of O’ahu.

This course will satisfy the diversification requirement in Biological Sciences (DY) (Group 1 of Natural Science)

Student learning outcomes:

1. Describe the origin, development and composition of the Hawaiian native flora today and what it was in the past.
2. Identify structures and explain basic functions of root, leaf, stem, flower and fruits of vascular plants.
3. Analyze the biotic and abiotic forces that have shaped the Hawaiian Islands and their impact on evolution, distribution and endangerment of Hawaiian flora.
4. Become a student of botany and the natural world in general. Learn to make observations in a detailed and scientific way.
5. Identify plants in the field
6. Understand the impact of human activities on native plants

Lab Requirements:

Wear clothing and shoes appropriate for walking outside and be prepared for variable weather conditions. Students might want to bring a digital camera, clippers. The text, field notebook, and writing utensil will be required each class.

Grading Policy:

Your Grade for the course will be determined from the following procedures:
For the lab portion of the course, the grade will be determined as follows:
15% of grade: **Laboratory assignments.** Assignments done usually during class and handed in at the end of class. These could be activates done in the classroom, outside on the HCC campus, or done during a field trip. Occasionally these could be small homework assignments.

15% of grade: **Weekly Lab Quizzes.** Each week students will be quizzed on species that we have learned in lab. Students may use their lab notebook for quizzes, but no other resources will be allowed. Other topics discussed in lab are also subject to being included in a quiz.

20% of grade: **Attendance and Participation.** Due to the nature of the course, attendance is mandatory for complete understanding of the material. Attendance will be taken at each class meeting. Consideration is given to the student for the attendance, participation in the class discussions, student group activities and attitude throughout the course when calculating the final grade. There is no way to recreate a lab. Please come to class so that you do not miss the material covered or the points toward your final grade!

25% of grade: **Field & Lab Notebook.** See "Lab Notebook Guidelines" document for details about how to successfully complete your lab notebook.

25% of grade: **Lab Final Exam.** There will be a final exam based on identification of plant species learned in lab and other information presented in lab such as plant identification terminology. Lab notebooks will be allowed during the plant ID portion of the exam.

Final Grade Calculation:

- 90% or more A
- 80% or more B
- 70% or more C
- 60% or more D
- Less than 60% F

Attendance Policy:
Due to the nature of the course, attendance is mandatory for complete understanding of the material. Attendance will be taken at each class meeting.
Required Textbooks and Resources:


Other Required Resources: Field Notebook (sewn pages, composition style),

Other Helpful Resources: Plant Clippers, Digital camera, good walking shoes, protective clothing (hat, shirt and pants to guard you from sun, rain, and mosquitoes)

Students with Disabilities:
Students with disabilities may obtain information on available services online at http://www2.honolulu.hawaii.edu/disability/. Specific inquiries may be made by contacting Student ACCESS at (808) 844-2392 voice/text, by email at accesshcc-l@lists.hawaii.edu, or simply stopping by Student ACCESS located in Bldg. 5, Rm. 107B.

9-17-2012