Honolulu Community College  
General Education – DIVERSIFICATION DESIGNATION  
Certification and Recertification  
*Application Form*  
Spring 2012  

APPLICANT: Dr. K. Gopalakrishnan  

E-MAIL: gopalakr@hawaii.edu  

COURSE ALPHA and NUMBER: OCN 180  

COURSE TITLE: Introduction to Aquaculture and Aquarium Management  

ESTIMATED NUMBER OF SECTIONS:  
  - Fall: 1  
  - 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)  
  - ☐ DB (Biological Sciences)  
  - ☐ DH (Humanities)  
  - ☐ DL (Literature and Language)  
  - ☑ X DP (Physical Sciences)  
  - ☐ DS (Social Sciences)  
  - ☐ DY (Laboratory)  

What percentage of the CONTENT of this course focuses on this diversification area? 80  

What percentage of CLASS MEETINGS focuses on this diversification area? 80
1. **Hallmarks and SLOs.** Please explain how course-specific SLOs align with the diversification area’s hallmarks.

**DP. 1 Uses the terminology of the physical sciences:**

SLO 1. Learn techniques involved in the culture of various aquatic organisms  
SLO 2. Understand the structure and functions of aquatic ecosystems  
SLO 3. Learn about pond lay-out, construction and preparation  
SLO 7. Learn how to set-up and maintain aquarium systems  
SLO 8. Understand functions of filtration systems  
SLO 10. Water quality monitoring techniques  

Application of technical terms used in physical science is an essential requirement for implementing topics covered in this course (SLO 3, SLO 7, SLO 8 and SLO 10). Students will be introduced metric system of scientific measurement (length, weight, volume and temperature) (SLO 1 and SLO 2).

**DP. 2 Involves knowledge and theories relating to processes in the physical science:**

SLO 2. Understand the structure and functions of aquatic ecosystems  
SLO 3. Learn about pond lay-out, construction and preparation  
SLO 4. Understand principles of “closed” aquaculture systems  
SLO 8. Understand functions of filtration systems  
SLO 10. Water quality monitoring techniques  

Lectures will cover topics involving knowledge and theories relating to culture techniques, structure and functions of aquatic ecosystems (SLO 2), design of ponds (SLO 3), principles of “closed” culture and filtration systems (SLO 4 and SLO 8) and water quality monitoring techniques (SLO 10). A proper understanding of principles and theories involved in large scale (ponds) or small scale (tanks) is critical for bringing success to those students who may be planning to try out such systems for either their enjoyment or entrepreneurship as a business venture.

**DP. 3 Demonstrates inquiry that involves observation/experiment and reasoning and mathematics:**

SLO 1. Understand the structure and functions of aquatic ecosystems  
SLO 3. Learn about pond lay-out, construction and preparation  
SLO 5. Analyze harvesting and marketing strategies  
SLO 7. Learn how to set-up and maintain aquarium systems  
SLO 9. Study of biology, life-cycle of cultured organisms, diseases and their treatments  
SLO 10. Water quality monitoring techniques
Students will be introduced to simple mathematical calculations such as the relationship of length/width/depth of ponds in estimating the volume of water in order to determine stocking intensity or determining dosage of medicines for treating the organisms for water-borne diseases (SLO 3, SLO 7, SLO 9 and SLO 10). Lectures on harvesting and marketing methods will introduce students to economical aspects of aquaculture, thus exposing them to critical thinking and reasoning aspects that are essential for sustaining a successful business (SLO 5). Field trip activities will provide opportunities for students to observe or watch experimental farms in Hawaii (SLO 1 and SLO 6) so that they can logistically determine what species will be successful for cultivation in Hawaii.

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.

Results of quizzes and exams will provide information on the effectiveness of the methods the instructor used to deliver the knowledge. Instructor will ensure that the course meets the objectives and student is learning outcomes (SLOs). Instructor will monitor how well student understand the materials through individualized or group discussions. Instructor will periodically ask students if they follow the information provided during lecture sessions. Use of audio-visual resources in the class is an effective way that will facilitate better learning outcomes. Student evaluation of the instructor and the course will provide data on the effectiveness in meeting the SLOs.

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.

Aquaculture field has undergone a great deal of changes in recent times because of the advancement in technology. Instructor has upgraded the instructional materials in order to incorporate these changes without any change in course or SLOs. If students point out any instructional shortcomings or weaknesses, the instructor would respond and make needed corrections. The instructor will continue to monitor any such inadequacies in instruction in the future so that he/she can take corrective measures or modifications. There will be only one section of this course taught each semester by one instructor.
DIVERSIFICATION BOARD DECISION:

☑ Approved
Re-Certification Due: 8p 2017

☐ Not approved
If not approved, reasons for disapproval:

Diversification Board Chair Signature: [Signature]
Date: 24 Apr 2017
Course Outline

Course: OCN 180 (introduction to Aquaculture and Aquarium Management)

Instructor: TBA

Course Description:

This course introduces students into two fields of fish culture: aquaculture which is the farming of aquatic organisms for increasing food production and aquarium management which will help aquarium hobbyist to keep ornamental fishes healthy long periods of time. Topics include fish cultivation, biology and life-cycle of species cultivated, aquatic ecosystems, pond and aquarium construction and management and filtration techniques.

Hours Per Week: 3 hrs per week

Pre-requisite: None

Specific course objectives and SLOs (Student Learning Outcomes)

This course will satisfy the diversification requirement in Physical Sciences (DP) (Group 2 of Natural Sciences). It will provide students with broad understanding of culture techniques and aquarium management.

SLOs Include:

1. Learn techniques involved in the culture of various aquatic organisms
2. Understand the structure and functions of aquatic ecosystems
3. Learn about pond lay-out, construction and preparation
4. Understand principles of “closed” aquaculture systems
5. Analyze harvesting and marketing strategies
6. Survey of aquaculture practices and species in Hawaii
7. Learn how to set-up and maintain aquarium systems
8. Understand functions of filtration systems
9. Study of biology, life-cycle of cultured organisms, diseases and their treatments
10. Water quality monitoring techniques


Evaluation and Grades:

Letter grades are determined on the basis of your performance in three exams: two mid-terms and one final. Letter grades are assigned using the following break-down of student’s average score for the three exams: 85%-100% = A; 75%-84% = B; 60%-74% = C; 50%-59% = D and <40% = F.
If a student misses any exams, the score for that exam will be zero. Therefore, it is the responsibility of students to take the exams on scheduled date and time. Excuse for not taking an exam on the scheduled time will be given only for compelling reasons and will require written documentation such as a letter form your physician.