AG 170, Introduction to Aquaponics  
4 Credits (3 Hours Lecture, 1 Hour Laboratory CRN 64375)  
TR 5:00pm to 7:45pm

INSTRUCTOR: Bradley Fox  
OFFICE: Hale Uluwehi  
OFFICE HOURS: TUESDAY and THURSDAY 4:00pm-5:00pm;  
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EFFECTIVE DATE: Fall 2018

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 the Koʻolau region of Oʻahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DESCRIPTION

The course covers aquaculture, hydroponics, aquaponics, sustainable aquatic feed production, renewable local seeding technologies and micronutrient supplementation, fish and plant physiology, renewable energy systems, water catchment and conservation techniques, and best aquaponic food safety practices. The basic physical and biological principles governing sustainable farm and agribusiness operations are emphasized. (3 hours lecture, 3 hours laboratory)  
Recommended Preparation: AG 120 and IS 201.

Activities Required at Scheduled Times Other Than Class Times
Data collection and record keeping during the week.  
Feeding of finfish.

STUDENT LEARNING OUTCOMES

As a result of taking this course, students can expect to attain the following outcomes:

1. Design and construct a basic aquaponic system that uses all three grow out technologies (nutrient film technique, ebb and flow, and floating raft) either alone or in combination.  
2. Apply best aquaculture practices for culturing fishes in an aquaponic setting.  
3. Identify the water quality parameters and manage them in order to maximize fish, plant and microbial outputs in an aquaponic setting.  
4. Use best agricultural practices for plant crop production in an aquaponic setting. Prepare seedlings for planting, harvest produce, stagger production of both plant and fish, and apply food safety procedures.
COURSE CONTENT

Concepts or Topics

- Water cycle
- Nitrification cycle
- Scientific method
- Hydroponic growing methods
- Aquaculture systems
- Management of water and nutrients
- Water chemistry testing and test equipment
- Fish and plant anatomy
- Pumps and filtration
- Use of basic tools in carpentry and plumbing
- Troubleshooting in aquaponics
- Food safety and GAPs

COURSE TASKS

1. Attend all lectures, field trips and laboratories. (30 points)
2. Participate in group discussions, read all assigned readings and turn in all writing and laboratory assignments on time. (30 points)
3. Construct and successfully operate an aquaponic system. (20 points)
4. Contribute towards a group project. (20 points)

ASSESSMENT TASKS AND GRADING

There will be no make up essay examinations, field trips or laboratories. Your grade will be based on your attendance, participation and performance in completing the above tasks. Corresponding letter grades are as follows:

A = 100 – 90 pts
B= 89 – 80 pts
C= 79 – 70 pts
D= 69 – 60 pts
F = 59 and below.

Please refer to the WCC College Catalog for audit, withdrawal, and incomplete options.

LEARNING RESOURCES

No textbook will be used in this course. Descriptions of lectures, copies of presentations, handouts and laboratory assignments and activities will be made available as downloadable files over the course period on Laulima. Having access and use of a computer with Internet connection will be essential to completing the course.
The course, particularly the laboratory section, is to be taught with a “hands-on, learn-by-doing” philosophy as described in an ʻōlelo noʻeau (Hawaiian Proverb) compiled by Mary Kawena Pukui:

Ma ka hana ka ʻike — In the task is the knowledge and understanding.

Lectures covering the various course content and topics are to be accompanied with PowerPoint presentations and selected reading materials. The laboratory will consist of a variety of hands on learning activities and objectives.

**ADDITIONAL INFORMATION**

- Students are expected to participate in all laboratory and field activities and complete all course assignments on time.
- Students are expected to be prepared in advance when they arrive to class.
- Any changes in the course schedule, such as examination dates, deadlines, etc., will be announced ahead of time in class. It is the student's responsibility to be informed of these changes.
- It is also the student's responsibility to be informed about deadlines critical to making registration changes (e.g., last day of erase period and last day for making an official withdrawal).
- If the instructor’s office hours do not work with your schedule, please e-mail or call to set up an appointment.
- The schedule and activities in this course are subject to change.
- MySuccess: Students may be referred for extra help or advising through MySuccess. Students can also explore resources at MySuccess.Hawaii.edu and windward.hawaii.edu/MySuccess

**DISABILITIES ACCOMMODATIONS**

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 Ākoakoa 213 for more information.

**TITLE IX**

Title IX prohibits discrimination on the basis of sex in education programs and activities that receive federal financial assistance. Specifically, Title IX prohibits sex discrimination; sexual harassment and gender-based harassment, including harassment based on actual or perceived sex, gender, sexual orientation, gender identity, or gender expression; sexual assault; sexual exploitation; domestic violence; dating violence; and stalking. For more information regarding your rights under Title IX, please visit: [https://windward.hawaii.edu/Title_IX/](https://windward.hawaii.edu/Title_IX/).
Windward Community College is committed to the pursuit of equal education. If you or someone you know has experienced sex discrimination or gender-based violence, Windward CC has resources to support you. To speak with someone confidentially, contact Karla Silva-Park, Mental Health Counselor, at 808-235-7468 or karlas@hawaii.edu or Kaahu Alo, Designated Confidential Advocate for Students, at 808-235-7354 or kaahualo@hawaii.edu. To make a formal report, contact the Title IX Coordinator at 808-235-7393 or wcctix@hawaii.edu.

**ACADEMIC INTEGRITY**
Work submitted by a student must be the student’s own work. The work of others should be explicitly marked, such as through use of quotes or summarizing with reference to the original author.

Students can upload papers to [http://www.TurnItIn.com](http://www.TurnItIn.com) to have papers checked for authenticity, highlighting where the paper potentially fails to appropriately reference sources.

In this class, students who commit academic dishonesty, cheating or plagiarism will have the following consequence(s):

Students will receive a failing grade for plagiarized assignments.

All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

**ALTERNATE CONTACT INFORMATION**
If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

Location: Alakai 121  
Phone: 808-235-7422  
Email: wccaa@hawaii.edu