

Clackamas Community College

Online Course/Outline Submission System

HOR-149 Aquaponics

General education certified: Yes No

- Writing
- Oral Communication
- Arts and Letters
- Science & Computer Science
- Mathematics
- Social Science
- Cultural Literacy
- Health & Physical Education

Approved Date (mm/dd/yyyy): / /

Section #1 General Course Information

Department: Horticulture

Submitter

First Name: Renee

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Email: rharber@clackamas.edu

Course Prefix and Number: HOR - 149

Credits: 1

Contact hours

Lecture (# of hours):

Lec/lab (# of hours): 22

Lab (# of hours):

Total course hours: 22

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

Course Title: Aquaponics

Course Description:

Aquaponics is a food production system that combines aquaculture with hydroponics. A variety of systems will be evaluated, so students can decide which is most appropriate for their scale, interests, and intentions. Topics include greenhouse environment, system components, fish species selection and health, water quality management, vegetable crops selection, and how to meet the nutritional needs of plants with fish waste. This class includes a lab component.

Type of Course: Career Technical Preparatory

Reason for the new course:

Organic Farming certificate elective.

Is this class challengeable?

Yes

Can this course be repeated for credit in a degree?

No

Is general education certification being sought at this time?

No

Does this course map to any general education outcome(s)?

No

Is this course part of an AAS or related certificate of completion?

Yes

Name of degree(s) and/or certificate(s): Organic Farming Certificate

Are there prerequisites to this course?

No

Are there corequisites to this course?

No

Are there any requirements or recommendations for students taken this course?

No

Are there similar courses existing in other programs or disciplines at CCC?

No

Will this class use library resources?

Yes

Have you talked with a librarian regarding that impact?

No

Is there any other potential impact on another department?

No

Does this course belong on the Related Instruction list?

No

GRADING METHOD:

A-F or Pass/No Pass

Audit: Yes

When do you plan to offer this course?

Spring

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

No

Will this course appear in the college catalog?

Yes

Will this course appear in the schedule?

Yes

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

- 1.demonstrate proper use and maintenance of the necessary components of an aquaponics system,
- 2.identify the appropriate fish and crop species for efficient, profitable production,
- 3.apply skills in water quality testing for fish tank management necessary for enhanced fish health,
- 4.describe greenhouse aquaponics structure and equipment and the uses of each,
- 5.demonstrate best practices for fish and vegetable health, as well as biosecurity of the production area,
- 6.select an appropriate production system based on the need it serves.

This course does not include assessable General Education outcomes.

Major Topic Outline:

- 1.Environmental Management
 - a.Greenhouse planning, construction, and available greenhouse coverings.
 - b.Greenhouse heat conservation,
 - c.Greenhouse equipment and its uses.
 - d.Greenhouse and equipment maintenance.
 - e.Greenhouse biosecurity
- 2.Principles of Plant Growth
 - a.Major types of plants in aquaponics
 - b.Plant health evaluation
 - c.Plant nutrition
- 3.Fish production
 - a.Species selection
 - b.Stocking density
 - c.Feed specifications and quantities
 - d.Fish feeding behavior
- 4.Bacterial Colony Management
 - a.Nitrogen cycling
 - b.Water quality testing
 - c.Changing the pH of tank water

5.Components of an aquaponic system

a.Necessary parts

b.Order of operations

c.Clarifiers

d.Cleaning filters and components

Does the content of this class relate to job skills in any of the following areas:

- | | |
|--------------------------------------|-----|
| 1. Increased energy efficiency | No |
| 2. Produce renewable energy | No |
| 3. Prevent environmental degradation | Yes |
| 4. Clean up natural environment | No |
| 5. Supports green services | Yes |

Percent of course: 50%

First term to be offered:

Specify term: Spring 2017
