

RESIDENTIAL AQUAPONIC SYSTEMS WORKSHOP

Course Dates:

April 14th, 21st, 28th, and May 5th, 2012

Saturdays from 1:30 – 6:00 pm

(Potluck celebration immediately following the last session, TBA)

Duration of Training:

4 weeks training program, 1 day per week, 4.5 hours per session

Total 4 sessions = 18 hrs. of instruction time

Pre-requisite:

A basic knowledge of aquaculture would be most helpful for this intermediate level course but not an absolute necessity.

Recommended reading “*Backyard Aquaculture in Hawaii, a practical manual by Dr. Jim Szyper*”, prior to the course. This manual is free and can be download directly from your internet web browser or contact the instructor upon registration and he will sent you the file.

Course size:

Minimum: 12 people, Maximum: 20 people.

Course Location:

KCC OCET Classroom Rm #106C

Cost: \$225 per participant

Registration & Payments:

Deadline: Monday, April 9th, 2012 - payments must be in by deadline.

Please contact:

Melanie P. Marshall

UH Kauai Community College - Office of Continuing Education And Training

3-1901 Kaumuali'i Hwy

Lihue, HI 96766

808-245-8318

Certification:

Certificates issued upon completion of all four sessions (18 hrs. of instructions)

WORKSHOP DESCRIPTION:

Aquaponics, also known as the integration of hydroponics with aquaculture, is gaining increased global attention as the fastest growing bio-integrated efficient intensive food production system.

Aquaponics serves as a model of sustainable food production by following certain principles:

The waste products of one biological system serve as nutrients for a second biological system.

The integration of fish and plants results in a polyculture that increases diversity and yields multiple products.

Water is re-used through biological filtration and recirculation, a closed system.

Local food production provides access to healthy foods and enhances the local economy.

Greenhouse growers and farmers are taking note of aquaponics for several reasons:

- Hydroponic growers view fish-manured irrigation water as a source of organic fertilizer that enables plants to grow well.
- Fish farmers view hydroponics as a biofiltration method to facilitate intensive recirculation aquaculture.
- Greenhouse growers view aquaponics as a way to introduce organic hydroponic produce into the marketplace, since the only fertility input is fish feed and all of the nutrients pass through a biological process.
- Food-producing greenhouses – yielding two products from one production unit – are naturally appealing for niche marketing and green labeling.
- Aquaponics can enable the production of fresh vegetables and fish protein in arid regions and on water-limited farms, since it is water re-use system.
- Aquaponics is a working model of sustainable food production wherein plant and animal agriculture are integrated and recycling of nutrients and water filtration are linked.
- In addition to commercial application, aquaponics has become a popular training aid on integrated bio-systems with vocational agriculture programs and high school biology classes.

Aquaponics can be set up indoors in small spaces as well as large commercial scale operations. Some of the most perceptible benefits include:

- Minimum water use
- 100% Organic
- Eliminate soil borne pathogens
- No pesticide used
- Do away with the need to plough the soil
- Stops backbreaking work of digging the soil and weeding
- Can produce fish and veggies for the family / grower all year round
- Working at waist level vs. bending or kneeling
- Can be integrated with other sustainable farming technologies

In this course, students will be presented with a variety of mini scale systems and methods.

The workshop will train participants in basic theory and designing along with hands-on assembly of a home scale system.

Prepares candidates for the following types of employment potentials:

- To design and assemble an aquaponics food production system with the potential to expand into an commercial operation
- To seek employment as an aquaculture/aquaponics technician
- To participate in a Farm Service Team delivering various forms of labor and management support to existing farms and agricultural enterprises
- Teachers can also be trained to apply small-scale aquaculture projects as powerful educational tools for middle to high school students. Students learn hands-on Biology, Chemistry, Physics, Math, Nutrition, Data collection, Statistics, Animal & Plant Relationship, Problem Solving Skills, Scientific Writing Skills, Construction & Plumbing Skills and much more through managing & maintaining a classroom aquaponics project.

COURSE OUTLINE:

Session I: Introduction to Aquaponics (4 hrs.)

- Intro to Aquaponics history overview
- How does Aquaponics work
- System Components
- Home Built vs. Manufactured
- Fish Rearing Tank Designs
- Grow-Bed Designs
 - Media Filled Bed (Ebb & Flow or Fill & Drain)
 - Float (Raft) System (Deep Water)
 - NFT (Nutrient Film Technique)
- Clarifiers & Filter Tanks

Session II: Water Quality Dynamics (4 hrs.)

- Water Quality Testing Lab

Session IV: System Designs (4 hrs.)

- Site Selection, Designs & Layout
- How to build auto siphons:
 - Bell & U tube
- Home Scale Aquaponics System Assembly Demo

Session III: Crop selection (4 hrs.)

- Tilapia & Plants for aquaponics
- Management practices

INSTRUCTOR'S BIOGRAPHICAL SKETCH:

Bernie Tsao earned a Bachelor's degree in Aquatic Biology at the University of California, Santa Barbara, and completed a program of studies in Mechanical Design and Engineering at Santa Barbara Community College. He launched the Aquaculture Technology Training program at University of the Nations -Kona, Hawaii and served as director of the program for 11 years since 1990. Within a period of 20 years, he has trained and led aquaculture development teams to the Amazon basin in Brazil, Indonesia, Northern Thailand, Cambodia, Kingdom of Tonga, and Fiji where semi-intensive small-scale aquafarms were implemented for orphanages, rehabilitation shelters and rural village communities. He is currently serving as the Aquaculture and Aquaponics training programs coordinator / instructor at Kauai Community College and provides consulting & training services to the community at large.

Mr. Tsao is also a member of the Industrial Advisory Committee (IAC) with the Center for Tropical and Subtropical Aquaculture (CTSA) representing the island of Kaua'i.