

Introduction to Aquaponics with



INTEGRATED
SYMBIOTICS

Who we are:

Integrated Symbiotics, LLC (IS) is a sustainable engineering company focused on agricultural technology, with a specialization in the fields of aquaponics and permaculture. IS aims to reduce the energy and water consumption required in traditional agriculture by mimicking natural behavior while utilizing new advances in automation and monitoring.

IS was founded in 2015 by Nicholas Renner and Ferman Moody in Philadelphia, Pennsylvania. The company was inspired by their love of food, sustainability, and design, as well as their desire to innovate simple solutions to growing environmental problems.

We offer consulting, contracting, training and support services in order to cultivate success for our clients in aquaponic food production. Specifically, we aim to eliminate food deserts and achieve sustainable urban food production by educating youth and their families on sustainably grown produce, healthy food preparation, and the enhancement of Philadelphia-produced premium quality fish and organic aquatic organisms. This concept is known as sustainable food security, and we believe that our company can help to provide food security through aquaponics and controlled environment agriculture.

What is Aquaponics?:

Aquaponics is a food production method that combines aquaculture (raising freshwater aquatic animals such as fish, crayfish or prawns) with hydroponics (cultivating plants in water) in a symbiotic environment. In normal aquaculture, excrement from the animals being raised can accumulate in the water, increasing toxicity. In an aquaponic system, water from an aquaculture system is fed to a hydroponic system where the by-products are broken down by nitrification bacteria into nitrates and nitrites, which are utilized by the plants as nutrients. The clean water is then recirculated back to the aquaculture system.

Intro to Aquaponics:

Integrated Symbiotics will be hosting an Intro to Aquaponics Class in the Weaver's Way Chestnut Hill Backyard on July 11th and August 29th. These classes will run from 9 AM to approximately 4 PM. Each class will have a morning educational session, a lunch break, and an afternoon hands on learning session. Class size will accommodate up to 14 persons.

Location: Weaver's Way Chestnut Hill

Dates: July 11th and August 29th

Time: 9 AM - 4 PM

Fee: \$120

Registration: Register by web <http://www.integratesymbiotics.com/events> OR
Contact Nicholas Renner at nrenner@integratesymbiotics.com or (267)-446-5776

Curriculum:

Classroom Period - 9:00AM - 12:30 PM

- What is Aquaponics?
- Planning Your System
 - Location
 - Environment
- Designing Your System
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- Building Your System
 - Grow Beds
 - Fish Tanks
 - Plumbing
 - Media
- Bringing Your System to Life
 - Fish
 - Plants
 - Bacteria
- Running Your System
 - Cycling
 - System Maintenance

Lunch - 12:30 - 1:00 PM

Hands on Education - 1:00 - 4:00 PM

- Plumbing
 - Creating Media Guards
 - Connecting PVC
 - Installing Uniseals and Bulkheads
- Maintenance
 - Pump Maintenance
 - Water Quality Testing
- Creating Home System
 - Demonstration