

Aquaponics Workshop - Teaching with Tilapia and Tomatoes

June 10-14, 2013 – Gadsden, Alabama

For more information contact, Hugh Hammer 256-549-8345, David Cline 334-844-2874 or PJ Waters 251-438-5690



Aquaponics is being utilized in classrooms across the country to excite and engage students and teachers. Aquaponics is the art/science of growing fish and plants in a symbiotic relationship in a single system. It is a combination of aquaculture and hydroponics. The fish are fed a high quality prepared diet and their waste is used as fertilizer to grow plants. The plants in turn act as a filter to clean the water that can be returned to the fish tank. There is tremendous interest in Aquaponics and aquaculture as a platform to teach real world applications of biology, chemistry, math and science. Working with an aquaponics system also requires technical skills in plumbing, carpentry and sometimes masonry. It is an excellent tool to examine the different elements of business management and marketing.

The trouble is that most teachers don't have any training in aquaponics. The **Aquaculture/Aquaponics 101 Workshop** provides hands-on training and expert advice on how to start and operate an aquaponics system and provides resource materials to help integrate the knowledge into existing curriculum. Teachers will design and build a complete aquaponics system that they can take back to their school. Expert instruction is provided by faculty from Auburn University, the Alabama Cooperative Extension System, Gadsden State Community College and the Alabama, Mississippi Sea Grant Consortium.

The workshop will be held at the Gadsden State Community College Aquaculture Education and Development Center, June 10-14th, 2013 in Gadsden Alabama. The cost for the workshop is \$249 and 32 hours of continuing education credit is available. **For more information visit: www.alearn.info**



The Gadsden State Community College Aquaculture and Education Development Center is an outstanding teaching venue. There are a dozen outdoor ponds, hatchery facility, water quality lab, a new Aquaponics greenhouse and the only zebra fish training facility (used in human genetics and disease research) in the state.

Aquaponics 101 Teacher Training Workshop



When: June 10-14th, 2013. 9:00am to 4:00 pm daily

Where: Gadsden State Community College
 Aquaculture Development and Education Center
 PO Box 227 (1001 George Wallace Drive)
 Gadsden, AL 35902

Cost: \$249 to attend the workshop
 This includes resources that previous teachers felt were worth \$400+
 (Travel and living expenses not included)

CEUs: **32 hours of continuing education credits**

Capacity: Due to the **hands-on** nature of the workshop seating is **limited to 25 participants**
 (please send in pre-registration form and \$50 deposit to hold your seat – payable to GSCC address above c/o Hugh Hammer)

Information: Hugh Hammer (GSCC) at 256-549-8345 - hhammer@gadsdenstate.edu
 David Cline (AU) 334-844-2874 - clinedj@auburn.edu
 P.J. Waters (AU-Sea Grant) 251-438-5690 - Waterph@auburn.edu

Topics Addressed Include		
Biology	Chemistry	Math
Aquaponics – Integrating plant and fish culture	Nitrogen cycle – ammonia, nitrite, nitrate	Nutrient input vs. grow bed capacity
Catfish and tilapia morphology	Dissolved oxygen	Volumetric displacement
Fish culture techniques	Alkalinity	Feeding rates
Pond dynamics	PH	Feed conversion and growth rate
Diseases of warm water fish	Hardness	Tank and system volumes
Fish hatchery operations	Temperature effects	Surface area of biofilter material
Components and functions of a recirculating aquaculture system	Water quality relationships	How to correctly size a biofilter
Fish genetics (super male tilapia)	And Many Other Topics	Average weights

<http://www.youtube.com/watch?v=YfdVbvC28Po>

Aquaponics 101 - Pre- Registration Form
Teacher Workshop June 10-14, 2013
Seating limited to first 25 people

\$50 Deposit Holds Your Seat and will be applied to the \$249 Registration Fee

Name: _____

Home Address: _____

Home phone: _____

School: _____

School address: _____

School phone: _____

E-mail address: _____

Grades taught: _____

Courses taught: _____

Briefly describe the current aquaculture facilities available at your school. _____

Please mail this form with your \$50 deposit to:
Payable to GSCC

Dr. Hugh Hammer
GSCC Aquaculture
PO Box 227
Gadsden, AL 35902

If you have questions call

Hugh Hammer 256-549-8345 (GSCC) - hhammer@gadsdenstate.edu

David Cline, 334-844-2874 (Auburn University, ACES) - clinedj@auburn.edu

PJ Waters, 251-438-5690 (Sea Grant, ACES, Auburn University) Waterph@auburn.edu

Workshops sponsored by Alabama Cooperative Extension System, Gadsden State Community College, Auburn University, Auburn Marine Extension and Research Center, Mississippi-Alabama Sea Grant Consortium