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
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

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

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: Dr. Hugh Hammer
Payable to GCCC
GCCC Aquaculture
PO Box 227
Gadsden, AL 35902

If you have questions call
Hugh Hammer 256-549-8345 (GCCC) - 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