

# Teach Aquaculture Curriculum: Introduction<sup>1</sup>

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This curriculum provides teachers a series of individual modules covering topics on aquaculture and aquatic sciences. This curriculum has been written at a 9th grade level but is highly adaptable to grades 5–12. The curriculum contains seven modules; each contains specific directions to multiple low-cost and easy to implement activities. Each activity lists the Florida Sunshine State Standards and Student Performance Standards that activity covers. These activities are related to all the sciences, mathematics, and reading and writing. The curriculum activities can be implemented in complete form by teachers of aquaculture courses or individual activities could be incorporated into existing courses covering a wide variety of subjects.

These modules are designed to engage students in aquaculture and the aquatic sciences by providing activities, supporting materials, PowerPoint presentations, and assessments. The materials associated with these EDIS documents are available on the website <http://irrec.ifas.ufl.edu/teachaquaculture> and direct links to the materials are listed within each EDIS document.

These modules were developed by a team from Florida consisting of curriculum development experts, aquatic science professors, aquaculture specialists, sea grant Extension agents, and graduate students. These modules have been

critically reviewed by a group of middle and high school teachers in Florida and have been tested and implemented by schools throughout the United States. Their suggestions and ideas have been incorporated in these activities.

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Please look at the content of these modules outlined below and find activities and information that can be incorporated into your classes.

## 1. General Biology of Aquaculture Species

- a. Anatomy of a Fish
- b. Fish Eating Contest
- c. Anatomy of a Clam
- d. Anatomy of a Shrimp /Crawfish

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2. Design and Operation of Growout Production Facilities
  - a. Ponds
    - i. How Big is that Pond?
    - ii. Soil Permeability
    - iii. Determination of Diel Changes in Dissolved Oxygen Concentrations in Pond Water
  - b. Recirculating Aquaculture Systems
    - i. Aquaculture Measurements Made Easy
    - ii. Exploring Recirculating Aquaculture Systems
    - iii. Air-Lift Pump and Flow Rate Determination
3. Broodstock Breeding and Hatchery
  - a. Aqua-Pop Culture: Domestication and Broodstock Development
  - b. Clam Spawning
  - c. Clam Larval Culture
  - d. Dancing with Brine Shrimp
4. Water Quality
  - a. How DO Changes with Salinity
  - b. The Process of Nitrification in Aquaria
  - c. What is in that Water: Bacteria and UV Light
  - d. Chlorine: Friend or Foe?
5. Nutrition
  - a. Make a Fish Food
  - b. Understanding Feed Conversion Ratios
  - c. Understanding Differences in Fish Food
  - d. What Makes a Good Fish Food?
6. Harvesting, Processing, and Packaging
  - a. COOL: Country of Origin Labeling
7. Plant Aquaculture
  - a. Plant Identification Using Dichotomous Keys