

# AQUACULTURE & FISHERIES TECHNOLOGY, Aquaculture

*College of the Environment & Life Sciences (CELS)*

Effective Fall 2005

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<b>Department:</b>	Fisheries, Animal & Veterinary Science, 874-2477, <a href="http://www.uri.cels/favs">www.uri.cels/favs</a>
<b>UC Advisor:</b>	Dr. Joseph DeAlteris, <a href="mailto:jdealeris@uri.edu">jdealeris@uri.edu</a> , 874-5333
<b>Option:</b>	Aquaculture Science
<b>Credits:</b>	130

**The Major:** The aquaculture program at the University of Rhode Island, begun in 1969 and administered by the Department of Fisheries, Animal and Veterinary Sciences (FAVS), is one of the oldest aquaculture programs in the northeastern United States. Students in our aquaculture program have come from throughout the United States and from many foreign countries. Faculty in the department have research interests in culture of salmonids, culture of marine finfish and marine finfish larviculture, DNA vaccines, culture of bivalve mollusks, recirculation aquaculture systems, development of new aquaculture species, and environmental impacts of aquaculture among many others.

**Career Options:** Commercial aquaculturist, fish hatchery manager, fishery restoration manager, shellfish grower, state or federal aquaculture official, aquatic habitat restoration coordinator, graduate studies and research in aquaculturally related topics.

**Transfer out of UC:** Must have completed at least 24 credits, minimum GPA of 2.00, and received permission from the UC major advisor. Completion of introductory fisheries and required science courses is strongly recommended. Must select advisor from departmental aquaculture faculty.

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**General Education (36 credits):** All Category MQ (Mathematical & Quantitative Reasoning), N (Natural Sciences), and S (Social Sciences) General Education requirements (15 cr.) are satisfied by courses taken as part of the major. Thus, to satisfy URI's General Education requirements, Aquaculture and Fisheries Science students should take COM 100/COM 110, and only 15 credits of General Education courses from Category A (Fine Arts & Literature), L (Letters), or F (Foreign Language/Culture). See the URI Course Catalog (also on the web at <http://www.uri.edu/catalog/cataloghtml/index.html>) for a listing of all General Education courses.

### **Introductory Professional Courses (9 credits):**

NRS 100 Natural Resource Conservation  
AFS 102 Introductory Aquaculture  
AFS 120, 121 Introduction to Fisheries, Lab  
REN 105 Resource Economics

### **Basic Sciences (28-31 credits- 6 credits satisfy the N requirements and 3 the MQ requirements):**

BIO 101 Principles of Biology I  
BIO 102 Principles of Biology II  
CHM 101, 102 General Chemistry I, Lab *or* CHM 103,105 Introductory Chemistry, Lab  
CHM 112, 114 General Chemistry II, Lab  
MTH 111 Precalculus *or* MTH 131 Calculus

*And select **three** of the following courses:*

BIO 205 Animal Diversity  
BIO 262 Introductory Ecology  
CHM 226, 227, 228 Organic Chemistry I, II, Lab  
CSC 201 Introduction to Computer Programming  
MIC 211 Introductory Microbiology  
MTH 132 Calculus II  
PHY 109 Introduction to Physics *or* PHY 111, 112 General Physics I, Lab  
STA 308 Statistics

**Core Courses (12 credits):**

- AFS 201 Shellfish Aquaculture
- AFS 202 Finfish Aquaculture
- AFS 210 Introduction to the Marine Environment
- AFS 211 Introduction to the Marine Environment Lab

**Concentration (24 credits)**

*Select from the following courses:*

- AFS 311 Exploration of Marine Bioresources
- AFS 312 Fish Habitat
- AFS 315 Living Aquatic Resources
- AFS 316 Living Aquatic Resources Lab
- AFS 321 World Fishing Methods
- AFS 322 Laboratory for World Fishing Methods
- AFS 332 Interactions between Fisheries and Protected Species
- AFS 352 General Genetics
- AFS 362 Crustacean Aquaculture
- AFS 390 Vessel Operations
- AFS 391 Special Problems & Independent Study
- AFS 392 Special Problems & Independent Study
- AFS 400 Diseases of Cultured Fish
- AFS 401 Pathobiology
- AFS 415 Fishery Science
- AFS 421 Design of Fish Capture Systems
- AFS 425 Aquaculture & the Environment
- AFS 426 Ecological Aquaculture
- AFS 432 Marine Finfish Aquaculture
- AFS 433 Research Diving Methods
- AFS 434 Aquatic Food Quality and Processing
- AFS 435 Aquatic Food Product Development
- AFS 476 Genetics of Fish
- AFS 481 Shellfish Aquaculture Lab
- AFS 483 Salmonid Aquaculture
- AFS 486 Applied Physiology of Fish
- AFS 491 Special Projects
- AFS 492 Special Projects
- AFS 510 Applied Problems in Marine Fishery Ecology
- AFS 516 Early Life Hist. Aqua. Resource Anim.
- AFS 521 Evaluation of Fish Capture System
- AFS 531 Fisheries Stock Assessment
- AFS 532 Experiment Design
- AFS 534 Animal Virology
- AFS 536 Virology Lab
- AFS 538 Epidem. Viral & Rickettsial Diseases
- AFS 581 Topics in Molluscan Aquaculture
- AFS 584 Advanced Aquaculture Systems
- AFS 586 Fish Nutrition

**Supporting Electives (30-36 credits):**

AFS 270	Basic Scuba Diving in Science and Technology	3
AFS 290	Small Boats: Their Equipment and Operation	3
AVS 212	Feeds and Feeding	3
AVS 372	Introduction Endocrinology	3
BIO 327	Vertebrate Histology	3
BIO 345	Marine Environmental Physiology	4
BIO 418	Marine Botany	3
EVS 366	Communicating Environmental Research and Outreach	2
CVE 315	Surveying I	3
MAF 220	Introduction to Marine and Coastal Law	3
MAF 312	The Politics of the Ocean	3
MAF 330	World Fishing	3
MAF 511	Ocean Uses and Marine Sciences	3
MAF 523	Fisheries Law and Management	3
MGT 480	Small Business Management	3
MGT 482	Entrepreneurship	3
NFS 207	General Nutrition	3
NRS 212	Introduction to Soil Science	3
NRS 305	Principles of Wildlife Ecology and Management	3
NRS 402	Wildlife Biometrics	3
NRS 409	Concepts in GIS	3
NRS 532	Conservation Biology and Resource Economics	3
RDE 486	Internship in Agriculture and Extension Education	1-6
REN 310	Economics for Environmental Resource Management & Policy	3
REN 325	Planning and Mapping a Small Natural Resource Firm	3
REN 410	Fish and Wildlife Economics	3
REN 435	Aquaculture Economics	3
REN 514	Economics of Marine Resources	3
STA 409	Statistical Methods in Research I	3
STA 412	Statistical Methods in Research II	3

**Free Electives (12 credits):**

You may take any 12 credits of your choice.

# AQUACULTURE & FISHERIES TECHNOLOGY, 130 credits

## College of the Environment & Life Sciences (CELS)

Effective January 2003

STUDENT \_\_\_\_\_

ADVISOR \_\_\_\_\_

General Education (36)

C: COM 100/COM 110 (3)\_\_\_\_\_, CW: WRT 101 (3)\_\_\_\_\_

M: MTH 111\_\_\_\_ or 131 (3)

N: (6 cr. from Basic Sciences below)

S: \_\_\_\_\_ (3), \_\_\_\_\_ (3)

(15 credits from L, A and F)

L: \_\_\_\_\_(3), \_\_\_\_\_(3)

A: \_\_\_\_\_(3), \_\_\_\_\_(3)

F: \_\_\_\_\_(3), \_\_\_\_\_(3)

Introductory Professional Courses (9)

NRS 100 (3)\_\_\_\_\_

AFS 102 (3)\_\_\_\_\_ or AFS 120/121 (3,1)\_\_\_\_\_

REN 105 (3)\_\_\_\_\_

Basic Sciences (12-22)

(6 credits apply to "N" above)

BIO 101 (4)\_\_\_\_\_

BIO 102 (4)\_\_\_\_\_

CHM 101, 102 (3,1)\_\_\_\_\_, or CHM 103,105 (3,1)\_\_\_\_\_

CHM 112, 114 (4)\_\_\_\_\_, or CHM 124, 126 (4)\_\_\_\_\_

Plus 9-12 additional basic science credits from approved list.

\_\_\_\_\_(3,4) \_\_\_\_\_(3,4) \_\_\_\_\_(3,4)

Concentration (24) Min. 300 Level

(See attached sheet for list of courses.)\*

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\*At least 18 credits from AFS courses.

Supporting Electives (30-36)

(See attached sheet for list of courses.)

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Free Electives (12)

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130 credits required

Student Total \_\_\_\_\_

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ADVISING COMMENTS:

**Marine Biology - Aquaculture and Fishery Option  
(8-semester sequence)**

<b>Freshmen I (14)</b>	<b>Freshmen II (16)</b>
AFS 120/121: Introduction to Fisheries/ Lab	AFS 102/104: Introduction to Aquaculture/ Lab
BIO 101: Principles of Biology I	BIO 102: Principles of Biology II
BIO 130: Topics in Marine Biology URI 101 for MBIO	MTH 131: Applied Calculus I
COM 100: Communication Fundamentals	WRT 104: Writing to Inform and Explain
Gen Ed (S, A, L, F)	Gen Ed (S, A, L, F)
<b>Sophomore I (15)</b>	<b>Sophomore II (15)</b>
AFS 201: Shellfish Aquaculture or AFS XXX	AFS 202: Finfish Aquaculture or AFS XXX
BIO 262: Introductory Ecology	BIO 360: Marine Biology
CHM 103/105: Introductory Chemistry/ Lab	CHM 124/126: Introduction to Organic Chemistry/ Lab
GEO 103 or NRS 212: Understanding the Earth or Introduction to Soil Science	PHY 111/185 or PHY 109/110: General Physics I/ Lab or Introduction to Physics/ Lab
Gen Ed (S, A, L, F)	
<b>Junior I (15)</b>	<b>Junior II (15)</b>
AFS Concentration	AFS Concentration
AFS Concentration	AFS Concentration
STA 308 or 309: Introductory Statistics or	OCG 401: General Oceanography
Gen Ed (S, A, L, F)	Gen Ed (S, A, L, F)
Gen Ed (S, A, L, F)	Gen Ed (S, A, L, F)
<b>Senior I (15)</b>	<b>Senior II (15)</b>
BIO 412: Evolution and Diversity of Fish	AFS Concentration
BIO XXX	BIO XXX
EEC XXX	MAF XXX
Free elective	Free elective
AFS Concentration	AFS Concentration