

AQUACULTURE

*Effective Term – Fall 1999 [1999*03]*

| | | | | |
|----------------|----------------------|---|---|---|
| AQU 111 | Aquaculture I | 3 | 0 | 3 |
| Prerequisites: | None | | | |
| Corequisites: | None | | | |

This course introduces the basic principles of fish and shellfish production. Topics include site selection; water quality; nutrition and feeding; management of diseases and parasites; genetics and breeding; and harvest, transport and marketing. Upon completion, students should be able to describe the natural conditions and management practices necessary to produce a crop of fish or shellfish.

*Effective Term – Summer 1997 [1997*02]*

| | | | | |
|----------------|---------------|---|---|---|
| AQU 111 | Aquaculture I | 3 | 3 | 4 |
| Prerequisites: | None | | | |
| Corequisites: | None | | | |

This course introduces the basic principles of fish and shellfish production. Topics include site selection; water quality; nutrition and feeding; management of diseases and parasites; genetics and breeding; and harvest, transport and marketing. Upon completion, students should be able to describe the natural conditions and management practices necessary to produce a crop of fish or shellfish.

*Effective Term – Fall 1999 [1999*03]*

| | | | | |
|----------------|-----------------------|---|---|---|
| AQU 112 | Aquaculture II | 3 | 0 | 3 |
| Prerequisites: | None | | | |
| Corequisites: | None | | | |

This course covers the specific culture techniques used in the production of a variety of aquatic species. Emphasis is placed on species of economic importance in North Carolina, especially channel catfish, hybrid striped bass, rainbow trout, crawfish, clams, and oysters. Upon completion, students should be able to describe the various culture methods and prepare a production plan for each of the species covered.

*Effective Term – Summer 1997 [1997*02]*

| | | | | |
|----------------|----------------|---|---|---|
| AQU 112 | Aquaculture II | 3 | 3 | 4 |
| Prerequisites: | AQU 111 | | | |
| Corequisites: | None | | | |

This course covers the specific culture techniques used in the production of a variety of aquatic species. Emphasis is placed on species of economic importance in North Carolina, especially channel catfish, hybrid striped bass, rainbow trout, crawfish, clams, and oysters. Upon completion, students should be able to describe the various culture methods and prepare a production plan for each of the species covered.

*Effective Term – Summer 1997 [1997*02]*

| | | | | |
|----------------|---------------------|---|---|---|
| AQU 120 | Aquabusiness | 3 | 0 | 3 |
| Prerequisites: | None | | | |
| Corequisites: | None | | | |

This course provides a basic background in aquacultural economics, business management, and marketing. Emphasis is placed on the management of farms for profitable production and the sale of fish and shellfish products. Upon completion, students should be able to prepare a good quality farm/business plan for potential lenders and investors.

*Effective Term – Fall 2003 [2003*03] – CRC 10/9/02*

AQU 161 Aquaculture Practicum I 0 3 1
 Prerequisites: None
 Corequisites: None

This course provides students with practical hands-on experience in fish/shellfish farming. Emphasis is placed on introductory concepts involved in daily management. Upon completion, students should be able to perform routine duties associated with the daily management of a fish/shellfish production facility.

*Effective Term – Fall 1999 [1999*03]*

AQU 161 Aquaculture Practicum I 0 9 3
 Prerequisites: None
 Corequisites: None

This course provides students with practical hands-on experience in the daily management of fish and/or shellfish production systems. Emphasis is placed on management of ponds, flow-through fish/shellfish hatchery systems, indoor recirculating culture systems, or shellfish bottom leases. Upon completion, students should have the minimal hands-on experience needed to operate fish and/or shellfish production systems for growth of marketable species.

*Effective Term – Fall 2003 [2003*03] – CRC 10/9/02*

AQU 162 Aquaculture Practicum II 0 3 1
 Prerequisites: AQU 161
 Corequisites: None

This course is designed to provide students with basic hands-on experience in fish/shellfish production. Emphasis is placed on the specialized culture techniques used to produce a variety of species of fish/shellfish. Upon completion, students should be able to complete the various tasks associated with the production of various species of fish/shellfish.

*Effective Term – Fall 1999 [1999*03]*

AQU 162 Aquaculture Practicum II 0 9 3
 Prerequisites: AQU 161
 Corequisites: None

This course is a continuation of AQU 161. In addition to the routine duties assigned in AQU 161, students will be expected to complete a number of exercises and projects in facility design, construction and maintenance, and in advanced production system management techniques and procedures. Upon completion, students should have sufficient hands-on experience to enter the aquaculture industry as aquaculture production system technicians.

*Effective Term – Fall 2003 [2003*03] – CRC 10/9/02*

AQU 163 Aquaculture Practicum III 0 3 1
 Prerequisites: None
 Corequisites: None

This course is designed to provide students with basic hands-on experience in fish/shellfish production. Emphasis is placed on the special problems associated with fish/shellfish production during the critical warm summer season. Upon completion, students should be able to address the various problems associated with warm season fish/shellfish production.

*Effective Term – Fall 2003 [2003*03] – CRC 10/9/02*

| | | | | |
|----------------|---------------------------------|---|---|---|
| AQU 164 | Aquaculture Practicum IV | 0 | 3 | 1 |
| Prerequisites: | None | | | |
| Corequisites: | None | | | |

This course is designed to provide students with advanced hands-on experience in fish/shellfish production. Emphasis is placed on advanced topics in aquaculture, including nutrition, diseases, and genetics and breeding. Upon completion, students should be able to recognize nutritional and pathogenic diseases and should be proficient at selecting brood organisms.

*Effective Term – Fall 2003 [2003*03] – CRC 10/9/02*

| | | | | |
|----------------|--------------------------------|---|---|---|
| AQU 165 | Aquaculture Practicum V | 0 | 3 | 1 |
| Prerequisites: | None | | | |
| Corequisites: | None | | | |

This course is designed to provide students with advanced hands-on experience in fish/shellfish production. Emphasis is placed on facility design, construction and maintenance. Upon completion, students should be able to design, construct and maintain a variety of aquaculture production facilities.

*Effective Term – Fall 2003 [2003*03] – CRC 10/9/02*

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|----------------|---------------------------------|---|---|---|
| AQU 166 | Aquaculture Practicum VI | 0 | 3 | 1 |
| Prerequisites: | None | | | |
| Corequisites: | None | | | |

This course is designed to provide students with advanced hands-on experience in fish/shellfish production. Emphasis is placed on water quality management in aquaculture. Upon completion, students should be proficient in the management of water quality in a variety of aquaculture production facilities.

*Effective Term – Fall 2003 [2003*03] – CRC 10/9/02*

| | | | | |
|----------------|--------------------------------------|---|---|---|
| AQU 210 | Limnology & Water Quality | 3 | 0 | 3 |
| Prerequisites: | BIO 111 and CHM 151 | | | |
| Corequisites: | None | | | |

This course introduces the ecosystem dynamics of freshwater lakes and ponds. Topics include the physical, chemical, and biological aspects of standing water bodies with emphasis on practical management. Upon completion, students should be able to collect and analyze data and develop an appropriate management plan for a freshwater pond or lake.

*Effective Term – Fall 1999 [1999*03]*

| | | | | |
|----------------|--------------------------------------|---|---|---|
| AQU 210 | Limnology & Water Quality | 3 | 0 | 3 |
| Prerequisites: | BIO 120 and BIO 130 | | | |
| Corequisites: | None | | | |

This course introduces the ecosystem dynamics of freshwater lakes and ponds. Topics include the physical, chemical, and biological aspects of standing water bodies with emphasis on practical management. Upon completion, students should be able to collect and analyze data and develop an appropriate management plan for a freshwater pond or lake.

*Effective Term – Summer 1997 [1997*02]*

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|----------------|--------------------------------------|---|---|---|
| AQU 210 | Limnology & Water Quality | 3 | 3 | 4 |
| Prerequisites: | BIO 120, BIO 130, and CHM 152 | | | |
| Corequisites: | None | | | |

This course introduces the ecosystem dynamics of freshwater lakes and ponds. Topics include the physical, chemical, and biological aspects of standing water bodies with emphasis on practical management. Upon completion, students should be able to collect and analyze data and develop an appropriate management plan for a freshwater pond or lake.

*Effective Term—Summer 2008 [2008*02] – CRC 3/27/08*

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|----------------|----------------------|---|---|---|
| AQU 215 | Algae Culture | 2 | 3 | 3 |
| Prerequisites: | BIO 111 and CHM 151 | | | |
| Corequisites: | None | | | |

This course covers the specific techniques used in the process of propagating various species of marine and freshwater algae. Topics include media preparation and culture on a scale ranging from the research laboratory to commercial production. Upon completion, students should be able to start, maintain and scale up cultures of algae.

*Effective Term – Fall 1999 [1999*03]*

| | | | | |
|----------------|-------------------------------|---|---|---|
| AQU 220 | Aquaculture Facilities | 3 | 0 | 3 |
| Prerequisites: | None | | | |
| Corequisites: | None | | | |

This course covers the design of facilities used in the production of fish and shellfish. Topics include pond construction, open-channel and pipe flows, motors and pumps, water wells, cage and raft construction, and flow-through and recirculating system design. Upon completion, students should be able to design a variety of aquaculture production systems.

*Effective Term – Summer 1997 [1997*02]*

| | | | | |
|----------------|-------------------------------|---|---|---|
| AQU 220 | Aquaculture Facilities | 3 | 3 | 4 |
| Prerequisites: | None | | | |
| Corequisites: | None | | | |

This course covers the design, construction, and maintenance of facilities used in the production of fish and shellfish. Topics include pond construction, open-channel and pipe flows, motors and pumps, water wells, cage and raft construction, and flow-through and recirculating system design. Upon completion, students should be able to design, construct, and properly maintain a variety of aquaculture production systems.

*Effective Term—Fall 2003 [2003*03] –CRC 10/9/02*

| | | | | |
|----------------|-------------------------------------|---|---|---|
| AQU 230 | Fish Genetics & Breeding | 3 | 0 | 3 |
| Prerequisites: | BIO 111 | | | |
| Corequisites: | None | | | |

This course covers the principles of qualitative and quantitative genetics and breeding of fish and shellfish. Emphasis is placed on quantitative genetic traits that affect various production parameters, with numerous examples using commonly cultured species. Upon completion, students should be able to discuss the basic principles of genetics and design appropriate breeding programs for a variety of commonly cultured species.

*Effective Term—Fall 1999 [1999*03]*

| | | | | |
|----------------|---------------------|---|---|---|
| AQU 230 | Genetics & Breeding | 3 | 0 | 3 |
| Prerequisites: | BIO 111 | | | |
| Corequisites: | None | | | |

This course covers the principles of qualitative and quantitative genetics and breeding of fish and shellfish. Emphasis is placed on quantitative genetic traits that affect various production parameters, with numerous examples using commonly cultured species. Upon completion, students should be able to discuss the basic principles of genetics and design appropriate breeding programs for a variety of commonly cultured species.

*Effective Term – Summer 1997 [1997*02]*

| | | | | |
|----------------|---------------------|---|---|---|
| AQU 230 | Genetics & Breeding | 3 | 0 | 3 |
| Prerequisites: | BIO 120 and BIO 130 | | | |
| Corequisites: | None | | | |

This course covers the principles of qualitative and quantitative genetics and breeding of fish and shellfish. Emphasis is placed on quantitative genetic traits that affect various production parameters, with numerous examples using commonly cultured species. Upon completion, students should be able to discuss the basic principles of genetics and design appropriate breeding programs for a variety of commonly cultured species.

*Effective Term—Fall 2003 [2003*03] –CRC 10/9/02*

| | | | | |
|----------------|--------------------------------------|---|---|---|
| AQU 240 | Fish Nutrition & Diseases | 3 | 0 | 3 |
| Prerequisites: | BIO 111 | | | |
| Corequisites: | None | | | |

This course introduces the principles of fish and shellfish nutrition and provides a background in the management of diseases and parasitic infestations. Topics include nutritional requirements of fish and shellfish, feed formulation, feeding practices, viral diseases, bacterial diseases, parasites, and medication and disease prevention. Upon completion, students should be able to discuss the principles of nutrition and identify and control microbial and parasitic diseases of fish and shellfish.

*Effective Term – Summer 1997 [1997*02]*

| | | | | |
|----------------|----------------------|---|---|---|
| AQU 240 | Nutrition & Diseases | 3 | 0 | 3 |
| Prerequisites: | BIO 120 and BIO 130 | | | |
| Corequisites: | None | | | |

This course introduces the principles of fish and shellfish nutrition and provides a background in the management of diseases and parasitic infestations. Topics include nutritional requirements of fish and shellfish, feed formulation, feeding practices, viral diseases, bacterial diseases, parasites, and medication and disease prevention. Upon completion, students should be able to discuss the principles of nutrition and identify and control microbial and parasitic diseases of fish and shellfish.

*Effective Term – Fall 2003 [2003*03] – CRC 10/9/02*

| | | | | |
|----------------|------------------------------|---|---|---|
| AQU 251 | Hatchery Management I | 3 | 0 | 3 |
| Prerequisites: | BIO 111 and CHM 151 | | | |
| Corequisites: | None | | | |

This course introduces the basic principles of fish and shellfish hatchery management. Topics include the basic chemical, physical, and biological requirements for the propagation of a variety of commonly cultured fish, crustaceans, and mollusks. Upon completion, students should be able to describe the environment tolerances and preferences for reproduction of a variety of cultured species.

*Effective Term – Fall 1999 [1999*03]*

| | | | | |
|----------------|-----------------------|---|---|---|
| AQU 251 | Hatchery Management I | 3 | 0 | 3 |
| Prerequisites: | None | | | |
| Corequisites: | None | | | |

This course introduces the basic principles of fish and shellfish hatchery management. Topics include the basic chemical, physical, and biological requirements for the propagation of a variety of commonly cultured fish, crustaceans, and mollusks. Upon completion, students should be able to describe the environment tolerances and preferences for reproduction of a variety of cultured species.

*Effective Term – Summer 1997 [1997*02]*

| | | | | |
|----------------|-----------------------|---|---|---|
| AQU 251 | Hatchery Management I | 3 | 0 | 3 |
| Prerequisites: | AQU 111 | | | |
| Corequisites: | None | | | |

This course introduces the basic principles of fish and shellfish hatchery management. Topics include the basic chemical, physical, and biological requirements for the propagation of a variety of commonly cultured fish, crustaceans, and mollusks. Upon completion, students should be able to describe the environment tolerances and preferences for reproduction of a variety of cultured species.

*Effective Term – Fall 1999 [1999*03]*

| | | | | |
|----------------|-------------------------------|---|---|---|
| AQU 252 | Hatchery Management II | 3 | 0 | 3 |
| Prerequisites: | AQU 251 | | | |
| Corequisites: | None | | | |

This course covers the specific techniques used in the artificial propagation of a variety of commonly cultured species of fish and shellfish. Topics include facility requirements, hatchery production planning, and propagation techniques for several species, including clams, shrimp, catfish, hybrid striped bass, rainbow trout, and others. Upon completion, students should be able to develop a plan for the successful operation of a fish or shellfish hatchery facility.

*Effective Term – Summer 1997 [1997*02]*

| | | | | |
|----------------|------------------------|---|---|---|
| AQU 252 | Hatchery Management II | 3 | 3 | 4 |
| Prerequisites: | AQU 251 | | | |
| Corequisites: | None | | | |

This course covers the specific techniques used in the artificial propagation of a variety of commonly cultured species of fish and shellfish. Topics include facility requirements, hatchery production planning, and propagation techniques for several species, including clams, shrimp, catfish, hybrid striped bass, rainbow trout, and others. Upon completion, students should be able to develop a plan for the successful operation of a fish or shellfish hatchery facility.

*Effective Term—Summer 2008 [2008*02] – CRC 3/27/08*

| | | | | |
|----------------|-----------------------------|---|---|---|
| AQU 255 | Invertebrate Culture | 3 | 0 | 3 |
| Prerequisites: | BIO 112 | | | |
| Corequisites: | None | | | |

This course introduces techniques used in the culture of a variety of species of freshwater and marine invertebrates. Topics include culture of aquatic invertebrates for a variety of purposes: as live food for larval fish, for human consumption, and for the pharmaceutical industry. Upon completion, students should be able to discuss propagation techniques for a variety of invertebrate species used in diverse applications.

*Effective Term – Fall 2003 [2003*03] – CRC 10/9/03*

| | | | | |
|----------------|---------------------|---|---|---|
| AQU 260 | Aquariology | 2 | 3 | 3 |
| Prerequisites: | BIO 110 and AQU 111 | | | |
| Corequisites: | None | | | |

This course provides students with a broad background in the diseases, nutrition, genetics and breeding of aquarium and ornamental fishes. Topics include major viral, bacterial and fungal diseases, basic nutritional requirements, and genetics and breeding practices for major aquarium and ornamental fish species. Upon completion, students should be able to recognize disease symptoms, develop a feeding program, and develop a breeding program for a variety of ornamental fishes.

*Effective Term – Fall 2003 [2003*03] – CRC 10/9/02*

| | | | | |
|----------------|----------------------|---|---|---|
| AQU 270 | Water Gardens | 2 | 3 | 3 |
| Prerequisites: | None | | | |
| Corequisites: | None | | | |

This course provides students with a broad background in the design, construction, maintenance and management of water gardens. Topics include waterscape design, pumps and plumbing, wiring, selection of plants and animals, water quality management, and pest management. Upon completion, students should be able to design, construct, and maintain water gardens with a variety of shapes, sizes and degrees of biological complexity.

See the SEL and SEM prefixes for generic Selected Topics and Seminar course descriptions.