

# AQUACULTURE & AQUATIC SCIENCE, A.A.S.

**Major Code:** 1020

This major provides fundamental training in aquaculture, fisheries biology, limnology, marine biology and aquatic biology. Students receive a broad-based education by exploring diverse subject matter in aquaculture and aquatic sciences. Practical, hands-on experience is emphasized, using an operational aquaculture complex and a wide assortment of laboratory and field equipment.

The Aquaculture and Aquatic Science curriculum prepares students for fish culture and management technology, aquatic ecology, limnology, and marine biology, working as federal, state and private hatchery technicians, aquatic biologists, fisheries technicians and environmental science technicians.

## Student Learning Outcomes

Upon successful completion of this program, students will be able to:

- Describe the state of the aquaculture and aquatic science profession and potential career opportunities.
- Utilize the developed expertise in concepts, theories, and emerging methodologies to succeed in tackling real-world issues in aquaculture and aquatic science.
- Conduct himself/herself in a manner consistent with an embodied sense of environmental stewardship.
- Assess, analyze, synthesize, and evaluate information objectively and deal professionally and ethically with clients, the public, and agency personnel.
- Utilize oral and computer communication skills necessary to interact in the profession.
- Demonstrate advanced knowledge and competency in taxonomy and natural history of aquatic flora and fauna of the northeast.
- Demonstrate hands-on experience in aquatic sampling inventory and measurement techniques.
- Become an independent, self-motivated professional with the ability to recognize problems in their field of aquaculture and aquatic science and apply critical thinking and problem-solving skills.
- Utilize existing technology, products, and services to maximize work efficiency and success.
- Practice a collaborative spirit in team-efforts and project coordination.

## Curriculum Requirements

A minimum of 60 credits is required for degree completion.

| Code     | Title                        | Credits |
|----------|------------------------------|---------|
| NATR 101 | General Ecology              | 3       |
| NATR 144 | Seminar/Environmental Resc I | 1       |
| NATR 150 | Aquaculture                  | 3       |
| NATR 152 | Fish Reproduction            | 2       |
| NATR 158 | Fish Nutrition               | 2       |
| NATR 250 | Aquatic Ecology              | 3       |
| NATR 252 | Fish Ecology and Management  | 3       |
| NATR 254 | Fish Health Management       | 3       |

|  |   |              |
|--|---|--------------|
| NATR 156   | Aquaculture Practicum I                     | 1            |
| NATR 256   | Aquaculture Practicum II                    | 1            |
| NATR 280   | Herpetology                                 | 3            |
| Practicum/Research Elective  |   |              |
| Select two of the following:   |   | 2            |
| NATR 257   | Aquaculture Practicum III                   |              |
| NATR 258   | Aquaculture Practicum IV                    |              |
| NATR 288   | Research in Aquatic Science I               |              |
| NATR 289   | Research Aquatic Science II                 |              |
| Select one of the following:   |   | 2-3          |
| AGEN 110   | Small Power Equipment                       |              |
| NATR 103   | Natural Resources Equipment Op              |              |
| AGEN 151   | Applied Hydraulics Hydropower               |              |
| AGEN 120   | Water Supply & Sanitation                   | 3            |
| or ENRM 345  | Surface & Groundwater Mgt.                  |              |
| NATR 113   | Intro toGlobal Positioning Sys              | 1            |
| BSAD - Business Elective as Advised  |   | 3            |
| Select one of the following:   |   | 4            |
| CHEM 101   | Basic Chemistry                             |              |
| CHEM 121   | General College Chemistry I                 |              |
| BIOL 120   | General Biology I                           |              |
| NATR 110   | Natural Resources Measurements (as Advised) |              |
| Technical Electives as Advised   |   | 6-7          |
| Technical Electives from subject areas: AGBS, AGEN, AGSC, BIOL, BSAD, CHEM, CJUS, ENSC, ENRM, HORT, NATR, RENG, HIST, CITA, or SOCI as Advised |   |              |
| SUNY General Education Diversity, Equity, Inclusion and Social Justice as Advised  |   | 3            |
| SUNY General Education Communication Written and Oral as Advised   |   | 3-6          |
| Sunny General Education Mathematics (and Quantitative Reasoning) as Advised  |   | 3            |
| BIOL 285   | General Microbiology                        | 3-4          |
| or NATR 153  | Marine Biology                              |              |
| <b>Total Credits</b>   |   | <b>58-64</b> |

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Proficiency through MATH 102 Intermediate Algebra w Trig required

## Suggested Course Sequence

| Course   | Title                          | Credits   |
|--|--------------------------------|-----------|
| <b>Year 1</b>  |                                |           |
| <b>Fall</b>  |                                |           |
| SUNY General Education Communication Written and Oral as Advised           |                                | 3         |
| NATR 144   | Seminar/Environmental Resc I   | 1         |
| NATR 101   | General Ecology                | 3         |
| NATR 150   | Aquaculture                    | 3         |
| NATR 156   | Aquaculture Practicum I        | 1         |
| SUNY General Education Mathematics (and Quantitative Reasoning) as Advised |                                | 3         |
| NATR 113   | Intro toGlobal Positioning Sys | 1         |
| <b>Credits</b>   |                                | <b>15</b> |
| <b>Spring</b>  |                                |           |
| NATR 280   | Herpetology                    | 3         |
| or NATR 153  | or Marine Biology              |           |
| SUNY General Education Basic Communication as Advised                      |                                | 3         |
| NATR 158   | Fish Nutrition                 | 2         |
| NATR 252   | Fish Ecology and Management    | 3         |

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|  |   |              |
|--|---|--------------|
| NATR 256   | Aquaculture Practicum II  | 1            |
| Technical Elective as Advised in AGBS, AGEN, AGSC, BIOL, BSAD, CHEM, CJUS, ENSC, ENRM, HORT, NATR, RENG, HIST, CITA, or SOCI |   | 3            |
| <b>Credits</b>   |   | <b>15</b>    |
| <b>Year 2</b>  |   |              |
| <b>Fall</b>  |   |              |
| Select one of the following:   |   | 2-3          |
| AGEN 110   | Small Power Equipment   |              |
| NATR 103   | Natural Resources Equipment Op  |              |
| AGEN 151   | Applied Hydraulics Hydropower   |              |
| Select one of the following:   |   | 4            |
| BIOL 285<br>or NATR 153  | General Microbiology<br>or Marine Biology   |              |
| CHEM 121   | General College Chemistry I   |              |
| CHEM 101   | Basic Chemistry   |              |
| BIOL 120   | General Biology I   |              |
| NATR 152   | Fish Reproduction   | 2            |
| NATR 250   | Aquatic Ecology   | 3            |
| NATR 257<br>or NATR 288  | Aquaculture Practicum III (Elective as Advised)<br>or Research in Aquatic Science I | 1            |
| Technical Elective as Advised AGBS, AGEN, AGSC, BIOL, BSAD, CHEM, CJUS, ENSC, ENRM, HORT, NATR, RENG, HIST, CITA, or SOCI    |   | 3            |
| <b>Credits</b>   |   | <b>15-16</b> |
| <b>Spring</b>  |   |              |
| AGEN 120<br>or ENRM 345  | Water Supply & Sanitation<br>or Surface & Groundwater Mgt.                          | 2-3          |
| SUNY General Education Diversity, Equity, Inclusion and Social Justice as Advised  |   | 3            |
| NATR 254   | Fish Health Management  | 3            |
| NATR 258<br>or NATR 289  | Aquaculture Practicum IV (Elective as Advised)<br>or Research Aquatic Science II    | 1            |
| BSAD - Business Elective as Advised  |   | 3            |
| Technical Elective as Advised in AGBS, AGEN, AGSC, BIOL, BSAD, CHEM, CJUS, ENSC, ENRM, HORT, NATR, RENG, HIST, CITA, or SOCI |   | 3            |
| <b>Credits</b>   |   | <b>15-16</b> |
| <b>Total Credits</b>   |   | <b>60-62</b> |