AQSC: AQUATIC SCIENCE (AQSC)

AQSC 201. Introduction To Aquaculture. (3 Credits)
Principles of sustainable aquatic production of plants and animals will be discussed. A survey of the history of aquaculture, including an overview of major aquaculture products in Virginia, the United States and abroad. Environmental considerations, alternative facilities, required inputs, marketing, and job opportunities will also be discussed. Field trips to aquaculture industry sites will be conducted.

AQSC 301. Aquatic Culture Sys Design. (3 Credits)
Application of engineering principles to aqua cultural production systems. Relationships between cultured organisms, management requirements, and facilities will be discussed. Emphasis will be on system designs for open, semi-closed, and closed aquatic systems.

AQSC 302. Mgmt Of Aquaculture Weeds. (3 Credits)
The environments of algal, floating, immersed, and submersed weeds are examined. Impact of aquatic weeds on resource use is discussed. A comparison is made of preventive, chemical, biological, and mechanical control of aquatic weeds. Collection of characteristic aquatic weeds is required.

AQSC 401. Fish Pond Management. (3 Credits)
Techniques of pond management are explored with emphasis on aquatic production. Focus is on identification of standard and maintenance of environmental quality, the chemistry of water quality testing, and use of testing kits and devices. Pond safety and integration of aquatic environment with other uses are discussed. Hands-on field activities are incorporated into classroom discussions.

AQSC 402. Fish Pathology. (3 Credits)
Prevention of fish health concerns is emphasized. Primary bacterial, parasitic and other fish pathogen are identified. Procedures for sample collection, preparation and analysis are presented. Practical laboratory techniques are performed. Prerequisites: AQSC 201 Introduction to Aquaculture BIOL 120 Principles of Biology BIOL 241 Introduction to Microbiology BIOL 313 General Zoology Junior or above standing 201608.

AQSC 404. Limnology. (3 Credits)
A study of inland waters – lakes (both freshwater and saline), reservoirs, rivers, streams, wetlands, and groundwater – as ecological systems interacting with their drainage basins and the atmosphere. An integration of the functional relationships of growth, adaptation, nutrient cycles, and biological productivity with species composition, and description and evaluation of how physical, chemical, and biological environments regulate these relationships.

AQSC 405. Fish Breeding And Genetics. (3 Credits)
An overview of the history of genetics and fish breeding will be presented. Emphasis is placed on aquacultural fish cultured in Virginia. Basic genetic principles are discussed as they apply to selected fish breeding programs. Prerequisites: AQSC 201 Introduction to Aquaculture BIOL 120 Principles of Biology BIOL 313 General Zoology Junior or above standing 201608.

AQSC 406. Salmonids. (3 Credits)
Focus is on an overview of salmonid fish and salmonid aquaculture in Virginia. Principles of salmonid aquaculture including spawning, incubation, feed formulation, disease control, genetics, systems management, harvesting, and marketing are presented. Class participates in practical rainbow trout culture exercises. Prerequisites: AQSC 201 Introduction to Aquaculture BIOL 120 Principles of Biology BIOL 313 General Zoology Junior or above standing 201608.

AQSC 407. Fish Processing Technology. (3 Credits)
Chemical and biological aspects of fishery products as related to the use of these products for human foods; principles of preservation; unit operation in processing, packaging, storage and distributions. Prerequisites: AQSC 201 Introduction to Aquaculture, BIOL 120 Principles of Biology, BIOL 241 Introduction to Microbiology, BIOL 313 General Zoology, junior or above standing.

AQSC 408. Aquatic Resource Biochem. (3 Credits)
Occurrence, distribution, and role of carbohydrates, lipids, proteins, vitamins, nucleic acids, and other compounds in fish and other aquatic organisms. Topics include digestion, absorption, respiration, excretion, growth, reproduction, body fluids, general metabolism, intermediary metabolism, energy metabolism, and detoxification. Emphasis on biochemistry as it related to nutrition, fish and other aquatic organisms. Prerequisites: CHEM 151 General Chemistry I CHEM 152 General Chemistry II; junior or above standing.

AQSC 409. Aquacultural Economics. (3 Credits)
Operation of hatcheries for the production of cold water and warm water food fish, game fish, and bait minnows; care of brood fish; methods of stocking, fertilizing, supplementary feeding; and related hatchery problems. Emphasis on spawning, rearing, harvesting and distribution. Prerequisites: AGEC 142 Principles of Agricultural Economics Junior or above standing 201608.