

Course Content and Outcome Guide for AQS 245

Course Number: AQS 245

Course Title: Animal Husbandry in a Research Capacity

Credit Hours: 2

Lecture Hours: 20

Lecture/Lab Hours: 0

Lab Hours: 0

Course Description

Examines the use of fish in research as well as the regulatory and ethical issues associated with this practice. Common procedures, protocols and research methodology such as husbandry, anesthesia, biopsy, blood draws, minor surgeries, field study, behavioral techniques, and euthanasia will be presented.

Intended Outcomes for Course

1. Explain the role of Institutional Animal Care and Use Committee or similar entity that is responsible for monitoring the quality of animal care at a research facility.
2. Distinguish between animal rights and animal welfare perspectives.
3. Develop a Standard Operating Procedure for the transport, acclimation, quarantine, feeding and husbandry of a healthy population of fish for research purposes.
4. Discuss the responsibilities of the aquarist or animal husbandry technician as it relates to fish husbandry and welfare.
5. Implement measures to reduce workplace hazards.

Course Activities and Design

The format for this course is a combination of online lecture materials (The Experimental Fish Course, University of Prince Edward Island, Canada), associated readings, field trips and development of a Standard Operating Procedure for a fish holding facility. Field trips will utilize the aquatic research facilities located at the Hatfield Marine Science Center, Oregon State University Main Campus and University of Oregon.

Outcome Assessment Strategies

- Each student will participate in a group project to develop a Standard Operating Procedure for an existing aquatic animal holding or support system.
- Oral presentations utilizing the information used to develop the Standard Operating Procedures and focusing on the rationale for the developing the specific actions outlined in the Standard Operating Procedures.
- Scheduled quizzes at the conclusion of each online lecture module to evaluate knowledge acquired regarding the use of aquatic animals in the research setting upon completion of each of the seven modules. Successful completion of the online modules results in Experimental Fish Certification through the University of Prince Edward Island.

Course Content (Themes, Concepts, Issues and Skills)

Themes

- Regulations associated with experimental aquatic animal care and use.
- Ethical issues associated with experimental aquatic animal care and use.
- Unique aspects of using fish as a research model.
- Essential components of aquatic animal holding facilities.
- Essential aspects of daily aquatic animal care for animal housed in aquatic research facilities.
- A basic overview of disease identification and management in captive aquatic research settings.
- Basic principles of fish anesthesia and euthanasia.
- Principles of occupational health and safety in aquatic animal facilities.

Concepts

- Review of the key federal laws and policies and state statutes regulating the use of aquatic animals in the research setting.
- The charge, responsibilities and role of the institutional animal care and use committee in providing oversight for aquatic animal research and care at a research institution.
- The evolution of the animal welfare movement and its impact on aquatic animal research.
- The concepts of scientific integrity and the principles of the Three R's (Replacement, Reduction, Refinement) in aquatic animal research.
- The evolution of fish as experimental models and an overview of the common fish species used in research.
- The role of the animal care technician and the veterinarian in aquatic animal research.
- Review the common aquatic animal holding systems and their key component utilized in aquatic animal research.
- The key facility operation and maintenance issues.
- The development of Standard Operating Procedures.
- The daily husbandry and health management procedures necessary to ensuring healthy aquatic animals.
- Key concepts in disease prevention and identification.
- Husbandry practices as a predisposing factor to disease.
- Key concepts of fish anesthesia and euthanasia.
- Common human hazards associated with aquatic research facilities and preventive strategies.

Issues

- The regulatory and social environment impacting utilizing aquatic animals in research.
- The role of the aquatic animal care technician is the maintenance of aquatic animals.
- The common holding systems and procedures utilized to ensure the health of aquatic animals and the integrity of the research utilizing these animals.
- The common human hazards associated with the aquatic research facility.

Skills

- Describe the key laws and policies regulating the use of aquatic animals in a research setting.
- Describe the role of the Institutional Animal Care and Use Committee.
- Identify the key components of the common aquatic animal holding systems utilized in aquatic animal research.
- Describe the key protocols and procedures used to manage the health of fish utilized in a research setting.
- Develop a standard operating procedure for a fish holding or fish support facility.
- Identify common human hazards associated with an aquatic animal research facility.