MRSC A222: PRACTICAL EXPERIENCE IN AQUARIUM SCIENCE AND MANAGEMENT 3

Item	Value
Curriculum Committee Approval Date	11/17/2021
Top Code	040100 - Biology, General
Units	2 Total Units
Hours	108 Total Hours (Lab Hours 108)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

This course introduces students to the responsibility and understanding involved in being a senior student aquarium manager. Students will take an active role in researching species interactions and husbandry, and focus on identifying potential issues that they must then proactively address. They will also be responsible for not only mentoring aquarium science students, but also newer aquarium managers to help train them proper procedures and techniques based on the best available scientific knowledge. PREREQUISITE: MRSC A221. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Recognize and proactively address issues that have the potential to cause equipment malfunctions or loss of livestock.
2. Effectively guide peers in proper aquarist techniques and act as a good mentor.
3. Evaluate the design, construction and effectiveness of aquarium system filtration, water flow and species composition.
4. Demonstrate proficiency in testing water parameters and resolving any potential issues before they become a problem.
5. Identify common species and husbandry techniques need to care for them as well as recognizing and addressing potential health problems.

Course Objectives

- 1. Describe how to recognize and proactively address issues that have the potential to cause equipment malfunctions or loss of livestock.
- 2. Explain the importance of technology in the aquarium including advanced lighting, reactors and controllers
- 3. Describe effective group management techniques
- 4. Illustrate potential careers involving aquarium skills and experience

Lab Content

1. Aquarium system design and construction (filtration, aquascaping, species planning, ease of maintenance 2. Advanced system characteristics (reef tanks, planted tanks, kreisels, aquaponics, among others) 3. Proper maintenance and critical analysis of potential problems 4. Aquarium plumbing 5. Water chemistry and methods of achieving proper water quality 6. Species composition planning 7. Husbandry techniques for fish, invertebrates and plants 8. Facility management and developing procedures to keep aquarium clean, safe and efficient 9. Use of technology in the aquarium including advanced lighting, reactors and controllers 10. Effective group management 11. Potential careers involving aquarium skills and experience 12. Leadership, initiative, and working as an effective team in an aquarium setting 13. Developing educational content, good communication skills and effective teaching techniques 14. Contributing to social media content and aquarium tours as part of the aquariums community outreach 15. Quarantine and health procedures that can identify and treat sick and injured organisms 16. Emergency procedures related to system failures and safety guidelines 17. Diversity of aquarium systems, equipment, organisms, and procedures exhibited at the OCC Aquarium

Method(s) of Instruction

- Lab (04)

Instructional Techniques

This class will employ a variety of instructional techniques. Weekly lecture meetings will incorporate class discussions led by the instructor and lead student aquarium manager, but heavily dependent on student contributions. Student presentations on special topics will commonly accompany these discussions. Guest speakers and field trips will help provide additional specialized information. The development and completion of both group and individual projects will be a central focus. Students will also be evaluated and coached in their modeling and explanation of content to general aquarium science students during their lab hours.

Reading Assignments

Reading assignments will be based on researching alternate methods of achieving aquarium water quality goals and husbandry information on existing and potentially new species for the aquarium systems. Based on the number of species kept in the facility, this will be a significant component.

Writing Assignments

Writing will play a major role in the course through the primary aquarium journal communicating and documenting system parameters as well as itemizing the work that is completed each day. Education and advertising materials may also be assigned for aquarium promotional use.

Out-of-class Assignments

Students will be required to maintain the various aquarium systems and mentor marine aquarium science students (MRSC120) outside of lecture class.

Demonstration of Critical Thinking

As a living educational tool where many things often can and do go wrong, students must constantly critically evaluate the aquarium systems for equipment failures, water quality issues and organism health concerns. They must use the information they receive visually or from test and probes to determine why the issue is occurring and what is the

best way to address the problem. Instructor will evaluate the students identification, explanation and action to correct the issue.

Required Writing, Problem Solving, Skills Demonstration

Students will be evaluated by their contribution to the aquarium journal and writing materials they produce for the aquarium as well as their continued ability to demonstrate proper techniques and identify/address potential problems.

Eligible Disciplines

Biological sciences: Masters degree in any biological science OR bachelors degree in any biological science AND masters degree in biochemistry, biophysics, or marine science OR the equivalent. Masters degree required.

Other Resources

1. Lab Manual.