**Syllabus**

**BSC-3XXX : Mariculture for Conservation and Restoration**

**Faculty Co-Instructors:**

Dr. Richard Brinn office: AC1, room 382 / email: brinnr@fiu.edu

Dr. Mark Butler office: AC1, room 213 / email: mbutleri@fiu.edu

**Graduate Teaching Assistant:**

Ms. Mary Williams office: AC1, room 211 / email: mwill415@fiu.edu

**Office Hours:**

Dr. Brinn: Monday & Tuesday 3-5pm

Dr. Butler: Wednesdays 10am – 3pm

Ms. Williams: Thursday & Friday 3-5pm

**Course Description:**

A first course on mariculture (i.e., aquaculture of marine organisms) as applied to marine conservation and restoration science, rather than human food production. The course includes lecture-based instruction; laboratory exercises demonstrating principals, equipment, and design of mariculture programs; and tours of operational mariculture facilities.

**Course Pre- or co-requisites:** None

**Text:** No text; students will be provided with pdfs of relevant documents

**Learning outcomes:**

* Understand the important principals and practices critical to the successful culture of marine organisms and their use in marine conservation and restoration programs.
* Become familiar with modern technology and tools used in mariculture.
* Learn how to design and implement a mariculture system.

**Grade Scheme:** A: 90-100 C+: 77-79 F: <59

B+: 87-89 C: 70-76

B: 80-86 D: 60-69

Assignments are due by class time on due date; 5% deduction for every day late.

|  |  |  |  |
| --- | --- | --- | --- |
| Course Assignments | Number of Items | Points for Each | Percent of total grade |
| Exams | 3 | 15 | 45% |
| Participation in Field Trips | 4 | 1.25 | 5% |
| Oral Project Presentation | 1 | 20 | 25% |
| Written Project Description | 1 | 20 | 25% |
| **Total** |  |  | **100%** |

**Incomplete Grades: An incomplete grade is a temporary symbol given by the instructor for work not completed because of serious interruption not caused by the student’s own negligence. In any case, more than half of the work of the course has to have been completed. An incomplete grade must be made up as quickly as possible, but no later than two consecutive semesters or it will automatically default to the grade the student earned in the course. To receive an incomplete valid documentation must be provided for the reason the student is requesting the incomplete.**

**Make-Up Exams: Make up exams will not be allowed unless you have an official excuse (e.g., note from a doctor, hospital, court, etc.). You must notify your Professor by email in advance or within 48 hours of the incident and present your original official excuse within 1 week.**

**Observance of Religious Holy days: It is university policy that instructors reasonably accommodate students because of observation of religious holy days. The student shall be given a reasonable amount of time to complete coursework and/or assignments missed during their approved absence. The approved make-up assignment must be equivalent in content, type, and grading scale to the missed coursework and/or assignment. A student who desires to be excused from class to observe a holy day of his or her religious faith should notify all of his or her instructors preferably upon receipt or access to the syllabus, and no later than two weeks before the religious holy day. If a student feels that an instructor has not complied with this policy, he/she may file a complaint of discrimination with the Office of Equal Opportunity Program and Diversity in accordance with FIU Regulation 105. This policy and related procedures is included in the Student Handbook, Undergraduate Catalog, Faculty Handbook, and Graduate Catalog.**

**Help: If you need additional assistance with the information presented in this course, seek the assistance of the professor. If the office hours on the Biscayne Bay Campus are inconvenient, you may make an appointment. PLEASE DO NOT WAIT UNTIL THE END OF THE SEMESTER TO SEEK HELP!**

**The Disability Resource Center: DRC collaborates with university faculty to provide inclusive learning environments. If you have a disability and plan to utilize academic accommodations, additional information may be found in the DRC's website: drc.fiu.edu.**

**Students are expected to**:

* Attend lectures and laboratory sections
* Participate in discussions and interact with instructors, peers, and MAST students
* Keep up with the course schedule, readings, assignments, and exams
* Read and study weekly assigned material
* Follow directions in this syllabus, announced in class, and distributed via Email or Canvas announcements
* Treat one another and the instructors with respect and courtesy

## **Honesty Statement**

Students in the class are required to adhere to the FIU Honor Code. FIU defines academic misconduct in the Student Conduct and Honor Code (Code) as: “*any act or omission by a Student, which violates the concept of academic integrity and undermines the academic mission of the University in violation of the Code.”* Code violations include, but are not limited to: academic dishonesty, bribery, cheating, commercial use, complicity, falsification, and plagiarism. The Code is available here: <https://studentaffairs.fiu.edu/get-support/student-conduct-and-academic-integrity/student-conduct-and-honor-code/index.php>

#### ****Course Communication****

**Please use the Canvas Messages feature to ask questions or generate discussions with fellow students**. Doing so benefits you and your fellow students. Please contact the instructors and graduate teaching assistant via Canvas or via email.

**Exams**

There will be three exams in this course spread evenly throughout the semester, each covering the material since the last exam. Each will consist of multiple choice and short answer questions.

**Laboratories**

There will be structured laboratory exercises during the first half of the class

**Field Trips**

Class field trips are planned during laboratory time frames and, for more distant locations, on Saturdays. The local trips to facilities on the BBC campus (e.g., Frost Museum Quarantine facility, Coastal Conservation and Restoration Laboratory) are required, whereas the more distant trips that will take all day Saturday are optional (e.g., Harbor Branch Aquaculture facility (Ft. Pierce), Coral Nursery (Florida Keys)).

**Student Mariculture System Design Project**

Students will work in small groups (2-3 persons) to conceive and design a mariculture program for a species that includes both laboratory or *in situ* rearing followed by a restoration plan that solves a conservation issue. That plan will be presented in a written document of < 25 pages that follows a research proposal format. More details will be presented in an instructional handout. Visit the FIU Writing Resources Center webpage [(https://case.fiu.edu/writingcenter/)](file:///C:\Users\walterm\Downloads\(https:\case.fiu.edu\writingcenter\)) for more information on professional writing.

**Tentative Class Schedule**

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| --- | --- | --- | --- |
| **Date** | **Lecture Content** | **Lab Content** | **What is due?** |
| Week 1 | What is Mariculture?   * Introduction to marine aquaculture * History of captive culture of marine organisms | No Lab |  |
| Week 2 | * Mariculture Objectives * Current state of the field | Frost Museum Field Trip |  |
| Week 3 | Natural marine systems: using nature as a template for mariculture   * Open vs. closed systems | CCRL Field Trip |  |
| Week 4 | Mariculture System Design & Function   * Tanks * Aeration | System design I | Exam 1 |
| Week 5 | * Plumbing, pumps, and water flow * Heating, cooling & lighting | System design II |  |
| Week 6 | * Biological, physical, and chemical filtration | System Design III |  |
| Week 7 | Marine Animal Husbandry   * Broodstocks & larval biology * Feeding | System Design IV | Exam 2 |
| Week 8 | * Waste management * Disease management | Harbor Branch Field Trip |  |
| Week 9 | Student Project Preparation   * Research design & data analysis * Literature review | Florida Keys Field Trip |  |
| Week 10 | * Student mariculture system design | Independent lab work | Exam 3 |
| Week 11 | * Student mariculture system design | Independent lab work |  |
| Week 12 | * Student mariculture system design | Independent lab work |  |
| Week 13 | * Student mariculture system design | Independent lab work |  |
| Week 14 | * Student mariculture system design | Independent lab work | Student oral presentations due |
| Finals Week |  |  | Student system design paper due |