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Marine Invertebrate Biodiversity Course Details

Instructors:

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Course Dates: July 8-26, 2019 (Monday-Friday for 3 weeks)

Course Location: DeFelice Marine Center, Cocodrie, Louisiana

Course Synopsis: This advanced biology course will integrate key aspects of oceanography, ecology, evolution, and statistics. Students will participate in lectures, literature and theory review, field sampling, programming, and laboratory work to quantify and understand patterns and processes of marine invertebrate biodiversity. Students will gain science literacy through regular journal clubs and a final presentation. This course will cover recent developments and classic concepts in biodiversity theory and community ecology and will give an overview of the structure and function of invertebrate communities. Among the topics covered will include: biotic and abiotic determinants of diversity, invertebrate taxonomy, different sampling methodologies and equipment, sampling design, quantifying and analysis of diversity, data visualization, and R programming.

Prerequisites: C or better in a zoology, invertebrate, or biodiversity course (may be waived with permission from the instructor). 8 hours of science major biology courses.

Student Outcome Objectives: To expose students to a wide variety of diversity techniques as well as introduce the array of invertebrates in marine ecosystems. Upon completion of this course, the student will:

- Describe taxonomic and functional diversity in marine invertebrates
- Describe and practice traditional approaches to study marine invertebrate biodiversity
- Demonstrate an understanding of the determinants of diversity patterns
- Program in R to analyze and visualize diversity patterns
- Increase scientific literacy by extracting information from journal articles using knowledge of organization and structure of scientific literature and evaluate or critique results and conclusions
- Practice science communication and presentation skills

Course Requirements: Each student is required to:

- Attend all course lectures. Three unexcused absences from lecture will result in the student receiving an FEA (failed due to excessive absences).
- Attend all field trips. More than one unexcused absence from a field trip will result in the student receiving an FEA (failed due to excessive absences).
- Read and become familiar with material in all assigned readings prior to attending class.
- Participate in three quizzes, all journal clubs and final presentation.
- Conduct themselves in a manner respectful, harmless, and non disruptive to the instructor and fellow students in lecture room, field activities and the laboratory.
- Accept and abide by all other parts and provisions of this syllabus.

Course Activities:

- **Journal Club:** Students are expected to participate in 2 journal clubs a week. Instructors will pre-select papers. On the first day of instruction students will be presented with a grading rubric and expectations for journal club. Students will be assigned sections of a paper and led in discussion on papers that focus on various biodiversity and marine invertebrates. Both classic and cutting edge papers will be reviewed. Students will be graded on their ability to discuss and ask critical thinking questions from the papers.
- **Weekly Quizzes:** Each Friday students will take a weekly quiz that will assess their knowledge gained during lecture and lab. This quiz will consist of multiple choice, short answer and labelling of processes taught earlier in the week. Information from journal club will also be assessed on these quizzes. Participation in each of these quizzes is an absolute requirement of the course: No student can earn graduation credit for this course without participation in each exam: A student will automatically earn a failing grade in the course for failure to participate in any examination.
- **Final Presentation:** Students will define and execute a small field biodiversity field project that will require them to sort and identify a group of invertebrates, analyze the diversity, and identify the possible determinants of the diversity pattern. Each student will be assessed on their ability to present scientific information to the class and ability to research their particular project. A grading rubric for the presentation will be presented on the second week of the course.
- **Graduate Student Literature Review:** Students participating for graduate student credit will write a literature review associated with the line of research used in the course. The literature review will cover the research question emphasized in the course, a review of the methods used, and relevant background information.

Course Contact: General questions about the course can be directed to the Associate Director of Education and Outreach, Murt Conover, mconover@lumcon.edu

How to apply: Applications for Summer Courses and Scholarships can be downloaded from the 2019 Summer Courses page of the LUMCON Website. [Click here](#) to go to the courses page.