Fort Wilderness Marine Biology
2018 Educational Requirements and Student Requirements

This document is for the 2018 Marine Biology Trip ***March 27th – April 8th, 2018.***

I. EDUCATIONAL OBJECTIVES

A. To gain an appreciation for the ocean and its wealth of resources.

B. To study in class and on location, the flora and fauna and their habitats in oceans.

C. To observe and understand ecological relationships that exist among marine organisms within a variety of habitats.

D. To understand and practice necessary precautions in marine study.

E. To have the opportunity to enhance their relationship with God.

II. SPECIFIC REQUIREMENTS FOR EVALUATION

A. Part of our work will concern the study of marine organisms. This may include organisms, which are collected to keep, organisms, which are collected for study in one of the holding tanks and then returned alive to the ocean area where they were found, or specimens which are discovered and studied in their natural habitats. In any case, the following guidelines apply:

1. Responsible collecting - for those specimens intended for keeping or study. Unless Mr. Lane gives special permission, all live specimens must be return before nightfall. This helps insures their survival.

2. Identification of a minimum of 20 marine animals and habitats, and a minimum of 10 marine plants. Numbered listings of these specimens must be entered on the separate pages provided in the lab data book.

3. Responsibilities for classifications:

    a. Complete classification of all algae and animal specimen. All records must be kept in the appropriate specimen record portions of the lab data book. There are separate sections for plants and the different phyla for the animals. As always, use specimen identification numbers. Complete classification includes all seven taxonomic levels: kingdom, phylum, class, order, family, genus, and species are desired, but may be difficult to obtain. To accomplish this, it will be necessary to make use of the taxonomic keys and other reference materials provided. (Some exceptions of families & orders may be allowed.) The classifications must be recorded in numerical sequence to match that the specimen page. A drawing is required for each algal specimen and is suggested for the animal pages also.

b. A prescribed number of specimens in each phylum should be classified. Following is a list of the phyla and the suggested number of specimens to be classified for each phylum. Extra classifications are encouraged.

NUMBER	PHYLUM
2	Porifera
3	Cnidaria
3	Mollusca
3	Echinodermata
2	Annelida
2	Arthropoda
5	Chordata
20	Total

4. Use of proper preservation and handling of all of those specimens, which are intended for personal collection. But approval to make personal collections must be approved by Mr. Lane before handling of specimens.
5. Use of proper labels on all specimen jar and/or specimens. Labeling must be completed before departure from Florida. All labels must be patterned after the one below. Place the label on the specimen jar, and protect it with wide cellophane tape.

Specimen Number _____ Habitat _____

Location _____

Phylum Name

Scientific Name

Common Name

Collector _____ Date_____

6. Research and complete ecological profiles for a minimum of 5 identified specimens, representing at least 5 different phyla.
7. Attendance to ALL on location seminars, including stingray studies at an educational facility is required. At these seminars, you are expected to record notes and participate

in any discussions. At the end of each seminar, worksheets found in the lab book are to be completed. Resources for the worksheets should come from seminar notes, appropriate textbook material, and other library sources provided. If difficulty in obtaining the required information occurs, see the habitat leader or Michael.

8. Working in a group, a thorough study is to be made of one particular habitat, (rocky coast, mangroves, etc.). The habitats will be assigned to specific groups, with no two groups assigned the same habitat. This study is to include a description of the physical parameters of the habitat, population studies, distribution of species, identification of the indicator (primary) species of flora and fauna, and determination of ecological relationships. Each group will present its work orally to the entire group in a regular seminar session toward the end of the week. The seminar will reinforce the knowledge of the major habitats in this area. In addition to the oral presentation each group is to post written information of their habitat study on newsprint and tape this to the walls of the eating room for others to read.
9. A required two-hour written exam will be conducted on site.
10. It is expect that each member of the program write an evaluation of this marine biology experience. This is intended to improve the experience and benefit future groups. Please be honest and open with remarks.
11. Evaluation of student work in this course will be made by the instructor's examination of several aspects of your work. The following will constitute the evaluation:
    a. A subjective appraisal (efficiency rating) will be made of the student's work, work habits, cooperation, attendance, etc.
    b. The two hour written exam will be evaluated.
    c. The participation in the oral habitat presentation will be evaluated.
    c. The academic quality of the student's seminar participation will be evaluated.

Students will not be graded by any one instructor. Rather, a joint evaluation by several instructors will hopefully more accurately determine the quality of the participant's work in meeting the criteria listed above.

12. Each participant is strongly encouraged to help one another in fulfilling the requirements listed above. Take advantage of others' strengths by exchanging ideas, information, specimens, and help. Some people are going to be more interested in shells, others in crabs, etc. It is important that we all help one another. But note: there is a distinct difference between providing information for copy and sharing information. Take every opportunity to seek help from any of the scientists

in the group. Speaking for all of us leaders, we are here to help each person make this experience the greatest educational experience of his or her life. Work us hard!

13. We also want to emphasize responsible collecting. Do not collect more specimens than is need or have time to care for properly. If a participant is collecting specimens to preserve for a personal collection, get permission from Mr. Lane first. Then, if he approves the choices, preserve them correctly and label them properly as soon as possible. Remember that care needs to be exercised to preserve the natural ecosystems. Over-collecting disrupts and endangers this delicate balance. Florida state law prohibits the collection or touching of any coral, alive or dead! Also, conch and lobsters are only obtainable with a license. I suggest that you wait a few days before you start adding to a personal collection. This will allow time to discover the difference between a specimen and a good specimen. But remember, "Be responsible!" We are here to study the ecosystems, not destroy them!
14. **OPTIONAL** • Participants are invited to dissect certain specimens if given approval from Mr. Lane. Some of the best educational experiences can come from a very close study of the anatomy of many marine creatures. But I do challenge you to make this a last resort. Much more knowledge can be gained from live observations that from observing a dead animal. If dissection is chosen, it must always be performed under the guidance of one of our biologists.
15. **OPTIONAL** • Participants are invited to conduct a scientific experiment of the ocean's environment and/or organisms while on location. Guidelines for the protocol, follow through, and write-up of the experiment are found in the lab book. A written report may be submitted at the end of the study.

Wisconsin Academic Standards for Science covered in this Marine Biology Course:

E.12.2	Earth Cycles
F.12.6,12	Vertebrates
F.12.6,12	Invertebrates
F.12.11	Energy in Living Systems
EEB. 12.1	Energy in Living Systems
F.12.9	Food Chains & Webs
F.12.9	Photosynthesis
EEB.12.2,7	Ecosystems
F.12.7,12	Ecosystems: Organism Interaction & Behavior
EEB.12.4-6,8	Threatened, Endangered, & Extinct Species
H.12.2	Science & Society: Community Expert Interview
A.12.3	Measurement for Scientific Data Collection
A.12.6-7	Scientific Method
C.12.1-7	Scientific Method
H.12.4-7	Scientific Method
EEA.12.1-5	Scientific Method
C.12.4	Data Collection: Hydrology