General Information
Catalog Number, Section, and Term: MBIO 3900, Spring 2012

Title of Course: Tropical Marine Vertebrates

Pre-requisites: Biological Sciences II.

Class Room and Meeting Times and Dates: Tambora Hotel, Mondays, Tuesdays, Thursdays and Fridays 10:00 AM – 5:00 PM, April 2 – April 20, 2008

Instructor: Hector Ramirez
Office: La Tambora Beach Resort
Phone # 809-889-1491 (cell) / e-mail: bjorobada@yahoo.com

Samana Field Station Room # TBA
Phone # 809-374-2803 or 809-374-2804

Office Hours: by appointment

Course Description
A study of the evolution, reproduction, development, behavior, anatomy, physiology, and ecology of marine vertebrate taxa. The laboratory will include dissections, collections, identifications and experimentation on tropical marine vertebrates.

Text and Materials
Required text: Vertebrates: comparative anatomy, function, evolution Kenneth Cardong

The ecology of fishes in coral reefs by Peter Sale

Optional: Reef fish identification: Florida, Caribbean and Bahamas by Paul Human & Ned DeLoach

Required materials: Mask, swim fins and snorkel.

Rules, Regulations, Grades
Attendance and lateness policy: Students are responsible for all material missed due to absence and or tardiness.

Makeup and missed work policy:
1) Each exam will only cover the material listed above it or the material listed since the previous exam (see the course outline).

2) Exams may be curved depending on the class average.
3) If you miss the exam and do not have a doctor’s note, YOUR EXAM WILL NOT BE CURVED. Therefore it is important to take the exam on time.

4) Exams not taken by the last day of the course will become zeros.

5) Exams will be short answer and fill-in.

Integrity and plagiarism policy:
Students enrolled at Fairleigh Dickinson University are expected to maintain the highest standards of academic honesty. Students have the responsibility to each other to make known the existence of academic dishonesty to their course instructor, and then, if necessary, the department chair, or the academic dean of their college. Course instructors have the added responsibility to state in advance in their syllabi any special policies and procedures concerning examinations and other academic exercises specific to their courses. Students should request this information if not distributed by the instructor.

Academic dishonesty includes, but is not necessarily limited to, the following:
1. Cheating—Giving or receiving unauthorized assistance in any academic exercise or examination. Using or attempting to use any unauthorized materials, information, or study aids in an examination or academic exercise.
2. Plagiarism—Representing the ideas or language of others as one’s own.
3. Falsification—Falsifying or inventing any information, data, or citation in an academic exercise.
4. Multiple Submission—Submitting substantial portions of any academic exercise more than once for credit without the prior authorization and approval of the current instructor.
5. Complicity—Facilitating any of the above actions or performing work that another student then presents as his or her assignment.
6. Interference—Interfering with the ability of a student to perform his or her assignments.

Sanctions: Any student found guilty of academic dishonesty will, for the first offense, receive one or a combination of the following penalties:
1. No credit (0) or Failure for the academic exercise
2. Reduced grade for the course
3. A failure in the Course that is identified on the student’s permanent record card as permanent and cannot be removed.
4. Recommendation for Academic Probation to the dean’s office.

In cases of interference and complicity, when the student is not registered in the affected course, the incident may be recorded on the student’s permanent record card. In any case, the incident and penalty will be recorded in the student’s file maintained in the campus office of Enrollment Services.
For a second offense of academic dishonesty, a student will be subject to any combination of the above sanctions, and, with concurrence of the academic dean, one of the following:

1. *Suspension* from the University for one year. Readmission will be contingent upon the approval of the academic dean.
2. *Dismissal* from the University.

**Grading policy:**

There will be five grades: (3) lecture mid term exam; Each grade is worth 20% of your final grade and (1) a research paper, worth 40%. Your final grade will be the sum of the four grades. This average will then be placed on the following scale for your grade:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>92-100</td>
</tr>
<tr>
<td>A-</td>
<td>90-91</td>
</tr>
<tr>
<td>B+</td>
<td>88-89</td>
</tr>
<tr>
<td>B</td>
<td>82-87</td>
</tr>
<tr>
<td>B-</td>
<td>80-81</td>
</tr>
<tr>
<td>C+</td>
<td>78-79</td>
</tr>
<tr>
<td>C</td>
<td>72-77</td>
</tr>
<tr>
<td>C-</td>
<td>70-71</td>
</tr>
<tr>
<td>D+</td>
<td>68-69</td>
</tr>
<tr>
<td>D</td>
<td>62-67</td>
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<tr>
<td>D-</td>
<td>60-61</td>
</tr>
<tr>
<td>F</td>
<td>0-59</td>
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</tbody>
</table>

**Safety Policy:**

Effective with the Fall 2001 semester no student will be permitted into laboratories wearing shorts, halter-tops, open toed sandals, undershirts, tank tops or any other inappropriate attire. All students are to purchase a white laboratory coat which can be used for any Biology or Chemistry class which requires a lab--non-majors or majors.

**Course Objectives**

The objectives (goals) of this course are for you to become competent in knowledge of:

1) Introduction to evolution of marine vertebrates;
2) Systematic sans eco-physiology of fishes (with emphasis in teleosts)
3) General concepts on reproduction of marine fishes, sea turtles and marine mammals;
4) Ecology and behavior in marine vertebrates
5) Marine vertebrates anatomy;
6) Sensory biology and diving physiology of marine vertebrates
7) Introduction to marine mammals identification, feeding behavior and ecology
8) Ecology and conservation of sea turtles and sea birds
9) Locomotion and respiration in marine vertebrates
10) Feeding patterns in marine vertebrates
11) An introduction to methods for fish, turtles and mammals surveys
13) Conservation and management of marine vertebrates with critical analysis of current issues in management

Teaching Methodologies/Activities
The following will be used to assess student learning:
1. Exams to assess days 1-5
2. Exams to assess days 8-9
3. Exams to assess days 11-15
4. A paper to assess selected topics

Modes of instruction that will be used by the instructor:
1. Oral Presentation
2. Hands-on Demonstration

Course Outline

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Field/Laboratory Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 2</td>
<td>Introduction to the course, evolution of marine vertebrates</td>
<td>Slides and/or powerpoint presentation</td>
</tr>
<tr>
<td>Apr 3</td>
<td>Classification of living fish (with emphasis in teleosts). Agnatha, chondrichthyes, osteichthyes.</td>
<td>Field work and slides and/or powerpoint presentation</td>
</tr>
<tr>
<td>4</td>
<td>General concepts on reproduction, migration and dispersal of marine fishes.</td>
<td>Slides, field work and/or powerpoint presentation</td>
</tr>
<tr>
<td>5</td>
<td>Feeding ecology of fish</td>
<td>Field work and slides and/or powerpoint presentation</td>
</tr>
<tr>
<td>6</td>
<td>Taxonomy and distribution of marine reptiles and birds</td>
<td>Field work and slides and/or powerpoint presentation</td>
</tr>
<tr>
<td>9</td>
<td>Ecology and conservation of sea turtles and sea birds.</td>
<td>Field work and slides and/or powerpoint presentation</td>
</tr>
<tr>
<td>10</td>
<td>Management of sea turtles and sea birds with critical analysis of current issues in conservation</td>
<td>Field work and slides and/or powerpoint presentation</td>
</tr>
<tr>
<td>11</td>
<td>Marine mammal identification (with emphasis in cetaceans and sirenians)</td>
<td>Field work and slides and/or powerpoint presentation</td>
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<tr>
<td>12</td>
<td>Feeding patterns in marine mammals</td>
<td>Field work and slides and/or powerpoint presentation</td>
</tr>
<tr>
<td>13</td>
<td>Migrations, reproduction in marine mammals</td>
<td>Field work and slides and/or powerpoint presentation</td>
</tr>
<tr>
<td>16</td>
<td>Sensory biology, intelligence and diving physiology of marine mammals</td>
<td>Field work and slides and/or powerpoint presentation</td>
</tr>
<tr>
<td>17</td>
<td>Research Presentations</td>
<td>Slides and/or powerpoint presentation</td>
</tr>
<tr>
<td>21</td>
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</tbody>
</table>
Other Information
(Please see the next two pages)

Papers:
You will be responsible for a paper. It must be typed and will be graded based on its organization, content, grammar, punctuation, and spelling. It is to be written in scientific format (avoid using “my”, “our”, “I”, or “we”).

Title Page
State the title of your work, your name, school address, and the date.

Abstract
Write a few sentences of the introduction, methods, results, and discussion. If you get information from other authors, you must cite them. You cite them by writing their last name followed by a comma and the year of publication in parentheses.

Introduction
Start by giving the background of the topic and end by stating the purpose of the study.

Materials and Methods (written in past tense)
Explain how you did the study. As you explain how you did the study, include the materials that you used in paragraph form. No lists.

Results
Start by saying what you found and end by showing what you found. You show the reader what you found by referring to tables or figures (graphs or diagrams). You refer to them by number (like Table 1 or Fig. 1). You must number your tables and figures. For tables or figures you must provide a key or legend to explain the meaning of any signs or symbols that you use. For graphs you must also label the x axis and the y axis and state the units (moles or grams, #, or %).

Discussion
Start by briefly telling the reader what you found and end by telling them what you think the results mean and why. If the study did not turn out as you thought it should, state the reasons why. How do you think these reasons gave you the results that you got? You can include your mistakes here but you must explain how you think these mistakes gave you the results that you got. At the very end of this section you should conclude by making a statement about whether the purpose of this study was accomplished or not, and what it means in a general sense.

Hints for writing papers
1. Keep a detailed record of what you used to do the study and how you did the study
2. Write the materials and methods section using this information
3. Look at your tables and figures and state what you got
4. Write the results section using these data
5. Decide what you think the results mean and why
6. Write the discussion using these ideas, conclude (general) by relating to the purpose
7. Decide what information the reader needs to know to understand the discussion
8. Write the introduction using this information, state study purpose, and write abstract.

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**Acknowledgements**
Thank everyone that helped you with the project except your coauthors.
Literature cited

Write the author’s last name, a comma, their first initial, and a period before writing the same for the other authors. Next write the year the paper was published, a period, the title, a period, the journal name, volume, and page numbers. Do this for each work cited and put on separate lines. Put in alphabetical order by last name of the first author.