



## **BIO 298 Special Topics in Biology: Biology of the Florida Keys Marine Environment**

**(3 credits)**

**Wednesday August 8 - Monday August 13, 2012**

### **Course Description**

The course will focus on the ecology of the Keys and Southern Florida ecosystem. Major topics include invertebrate diversity, sea grass ecology, coral reef ecology, and identification of reef fish, sea turtles and mangrove ecology. A typical day is spent doing 2-3 snorkeling field trips to various ecosystems. In addition to the field trips, students will participate in lab and lectures related to the fieldtrips. Fee: \$1599 includes 3 credits, air travel, lodging and meals. *Note: financial aid may be available to UW-Fond du Lac degree seeking students.* Attend these information sessions for more information: Monday, January 30; Thursday, February 9. Both sessions are at 6:00 p.m. Location: UW-Fond du Lac. If you plan on attending an information session please RSVP to [leanne.doyle@uwc.edu](mailto:leanne.doyle@uwc.edu)

**Instructor:** Trish Strohfeldt

### ***Why take this course?***

Students in Wisconsin do not get to experience the ecology of the ocean in the classroom. This program will expose the students to an area of science that they would not normally be able to experience firsthand in a traditional biology course. This course will offer an opportunity to learn about and then actually experience first hand the ecology of the marine environment.

### ***Where are we going?***

Marine Lab is an educational facility dedicated to educating students about the marine environment. Their mission is “*To use education and adventure in the Florida Keys marine ecosystem to foster environmental awareness and stewardship on a local, regional, and global scale.*” To learn more about Marine Lab’s programs and facilities visit: <http://www.marinelab.org/>

*What will we do each day?*

## **Overview of Discussions, Labs, Activities and Field Trips**

### **Pre Course/travel Activities:**

#### Sea Turtle Stranding Activity and Sea Turtle Discussion

This activity starts with a short PowerPoint discussion on sea turtle species, life history, threats to their individual and group survival, and how these threats are currently being addressed. Students work in groups acting as members of the Cooperative Marine Turtle Tagging Program. Using lifelike scale models of injured or diseased turtles, they complete actual data forms used by CMTTP.

#### Sea Turtle Identification Lab

Learn about different types of sea turtles, their diets, habitats, threats and how to identify the 12 main species of sea turtles and use a dichotomous key to practice identifying sea turtles.

#### D2L Discussion Board Assignment: Introductions

### **Day 1: Wednesday, August 8**

#### Discussion: Introduction to the Keys Habitat

The Keys Habitats discussion is at the beginning of the program, outlining the main habitats that make up the Keys, where these habitats are located and how the abiotic components of each habitat influence the biotic components.

#### Lab: Water Quality

During this lab, students will be taught about the importance of abiotic conditions such as water quality parameters (salinity, temperature, pH, dissolved oxygen, ammonia, and clarity), the healthy levels for water quality parameters, and techniques for measuring water quality parameters. Students will then get the opportunity to use the instruments to test water quality of four different samples of water, representing four different bodies of water (North Sea, South Sea, Key Largo drinking water, Marine Lab fish tank). The measurements from the water samples will be compared and explained. Water quality testing is done in the field at field trip sites and the data is recorded.

### **Day 2: Thursday, August 9**

#### Discussion: Sea grass ecology

The discussion focuses on the importance of a healthy sea grass community, threats facing sea grasses, and familiarization with about 50 of the organisms associated with this area.

#### Field Trip: Sea grass ecology

Students are then taken to a sea grass flat to snorkel in this commercially crucial habitat where spiny lobsters, stone crabs, and baitfish are numerous. Usually this is the first field trip in the program, so students' first snorkeling experience is in the calmer waters of the sea grass areas.

### Field Trip: Mangrove ecology

Mangroves form a biologically rich and environmentally crucial transition zone between land and sea. On the way to the mangrove creek snorkeling site, instructors discuss the importance of the mangrove community. At the site, students explore the intricate, fascinating world of life on and among the mangrove prop roots. Instructors collect small invertebrates for further examination and discussion back aboard the boat.

### Discussion: Coral reef ecology

The Coral Reef Ecology discussion precedes the first trip to the coral reef. It includes information on the biology of reef-building corals, the abiotic parameters necessary for reef formation, types of corals, reef preservation, and snorkeling etiquette.

### Lab: Invertebrate Diversity

Students collect an algae covered rock from the beach off Marine Lab and take it into the lab to "shake" it into a tub of seawater. The various free-swimming and sessile creatures and plants are identified and classified into phyla. The biological significance of diversity is discussed.

## **Day 3: Friday, August 10**

### Field Trip: Coral reef ecology #1

Students are taken about four to five miles offshore to snorkel on a variety of coral reefs, such as Key Largo Dry Rocks, Grecian Rocks, and Molasses Reef.

### Field Trip: Hard bottom shoal ecology

Hard bottom habitats are isolated patches of stony boulder corals and sea rods that are home to many juvenile animals. Students will be able to view a variety of animals, including fish that are in transitional and less recognizable color phases. This trip usually includes a second stop at a patch reef.

### Discussion: Field identification of reef fish

This discussion is an interactive presentation on fish morphology, habitat, and behavior and provides students with the "field marks" needed to identify a fish. With drawn visual aids and slides of local fish, students practice their identification skills prior to their second snorkeling trip to the reef.

### Lab: Sponge spicule identification

In this lab, the instructor begins by reviewing marine invertebrate phyla and associated common characteristics and defense mechanisms. Types of sponge spicules and functions of spicules are explained. Students will work in pairs to isolate spicules from various species of local sponges that have been dried. Spicule shapes are identified for each sponge species.

## **Day 4: Saturday, August 11**

### Field Trip: Coral reef ecology #2

Students are taken about four to five miles offshore to snorkel on a variety of coral reefs, such as Key Largo Dry Rocks, Grecian Rocks, and Molasses Reef.

### Shark Behavior Activity

This activity is designed to provide students with a basic understanding of the adaptations, behavior, and current research on different species of sharks. This will encourage students to maintain a healthy respect for sharks and their environment. The activity is preceded by a 30 minute PowerPoint presentation about shark biology. Groups of students come up with a conclusion on shark data illustrated by a provided graph or chart, and answer corresponding research questions. Groups present their shark and conclusions based on their graph as though they were presenting to a scientific symposium.

### Field Trip: Plankton tow

Students are taken on a short nighttime boat ride into Largo Sound. Drifting on the gentle waves, they are introduced to bioluminescence. While returning to the dock, a plankton net is towed behind the boat. Once ashore, the plankton is placed into deep well slides and magnified on a viewing screen. The plankton are identified and classified according to phyla and type.

### **Day 5: Sunday, August 12**

#### Field Trip: Rodriguez Key zonation

Rodriguez Key is just offshore of Key Largo and features an interesting bottom community that is based on the coralline algae Goniolithon. Students snorkel the area and instructors collect large chunks of the Goniolithon. Back at the boat, students break up the algae to find and identify the invertebrates inside. The second stop on this field trip is usually to a patch reef community, populated with tropical fish and smaller corals, sea whips, and sea rods, or a small wreck with resident nurse sharks, rays, and balloonfish.

#### Field Trip: Florida Bay backcountry trip with water quality monitoring lab

### **Day 6: Monday, August 12**

#### Field Trip: Coral reef ecology #3

Students are then taken about four to five miles offshore to snorkel on a variety of coral reefs, such as Key Largo Dry Rocks, Grecian Rocks, and Molasses Reef.

*Please note: A moderate level of fitness is required as there is swimming, snorkeling, walking and hiking over rough terrain. All students will participate in and pass swimming and snorkeling tests prior to field trip participation.*



**ZOO 298 Special Topics in Biology:  
 Biology of the Florida Keys Marine Environment (3 credits)**

Complete and forward with your deposit of \$400 or full payment to:  
 UW-Fond du Lac, Attn: Continuing Education, 400 University Drive, Fond du Lac, WI 54935

**PLEASE PRINT**

Name: \_\_\_\_\_  
*(Must match your driver's license exactly)*

Name: \_\_\_\_\_  
*(Must match your driver's license)*

Traveling with: (if other than above): \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: Home: \_\_\_\_\_ Work: \_\_\_\_\_ E-mail: \_\_\_\_\_

Special Needs/Medical Conditions \_\_\_\_\_ (dietary/disability/allergy)

Emergency Contact: \_\_\_\_\_ Phone Number: \_\_\_\_\_

From what campus did you hear about this tour? \_\_\_\_\_

**Enclosed is payment for:** Number of persons \_\_\_\_\_ x **\$1599** \$ \_\_\_\_\_  
 Number of persons \_\_\_\_\_ x **\$400 Deposit** \$ \_\_\_\_\_

**Remaining balance due by June 1, 2012**

**PLEASE READ CAREFULLY AND SIGN**

**Description:** This tour includes ground transfers to/from the Florida airport, round trip air from Milwaukee, 5 nights lodging, all meals, all labs and field trips, snorkel gear, and three credits tuition. This tour will be escorted by Trish Strohfeltd. Optional items not in the cost of the tour may include: linens, water bottles, logbooks, wetsuits, sunscreen. Airfare taxes and fuel are subject to change.

**Mobility and fitness to travel:** A moderate level of fitness is required as there is swimming, snorkeling, walking and hiking over rough terrain. The right is retained to decline to accept or to retain any person as a member of this trip who is unfit for travel (unable to swim) or whose physical or mental condition may constitute a danger to themselves or to others on the trip.

**Refunds/Penalties:** I acknowledge that this tour is refundable through May 30, 2012; however, a \$400 service fee will be retained. **No refunds or name changes on or after June 1, 2012.** For further information call Leanne Doyle at (920) 929-1153. Travel insurance is **HIGHLY RECOMMENDED**.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

