

## **THE PROGRAM**

The Department of Biological Sciences, in cooperation with Office of International Programs, is offering a unique opportunity to learn about our marine environment and then experience it first hand in Belize.

Marine biology covers a range of complex environments and a diverse assortment of plants and animals adapted to them. While it is possible to discuss these environments in a lecture course, there is really no substitute for experiencing them in person. The aim of this course is to introduce participants to a variety of habitats, including coral reefs, grass beds, soft and hard bottom communities, intertidal zones, sandy beaches, mangrove swamps and estuaries. A student who completes this course will have observed and learned about the structure and function of a variety of tropical marine ecosystems and their inhabitants, as well as experienced Belize culture firsthand.

While in San Pedro, Ambergris Cay, Belize, we will use the Belize Marine TREC (Tropical Research and Education Center) facility as a base of operations to explore tropical marine and terrestrial ecosystems. Along with daily field trips, the course will include lectures, group activities and projects used to integrate information learned in lecture courses to what the students observe in the field

Pre-requisites: Successful completion of Biology L304, Marine Biology (L304 will be offered in Spring even years), swimming proficiency, a valid passport, and permission of the instructors. Prerequisites for L304 are Biology L101 and Chemistry C101 or C105; Biology L102 is highly recommended,

## **COURSE GOALS**

- ❖ Provide the student with a working knowledge of marine ecosystems and the biotic and abiotic factors that influence them.
- ❖ Integrate classroom learning with field exploration of tropical marine ecosystems.
- ❖ Learn and experience the fundamentals of designing and conducting field research.
- ❖ Learn about Belizean culture and Mayan history.

## **PROGRAM FEE**

The total cost of the program will be approximately \$2300-\$2500, plus tuition for 3 credit hours for the course taken during Summer Session I. The cost includes round-trip air fare South Bend/Belize, all transportation in Belize, room and board, boat fees, park fees, tour fees, and tips. On site lectures and guiding will be provided by the instructors and resident directors at Belize Marine TREC, Dr. Ken Mattes and Maureen Gannon.

## **DEADLINES**

Although Biology L342 is a Summer Session I course, so you won't register for the course or pay for the credit hours until April, you must receive authorization from the course instructors (Dr. Bushnell and Dr. Grens) and pay the costs associated with the trip during Spring semester. Because plane tickets and rooms at the field site must be paid in advance, all fees associated with the trip must be paid in full by March 15. A \$500 deposit is required by January 15 to reserve your space in the course.

## **FINANCIAL AID**

All loans, grants, and scholarships for which participants are eligible at Indiana University can be applied to tuition for both courses; some forms of financial aid can be used to support course-associated expenses including the cost of the trip to Belize.

## **THE SETTING**

Belize Marine TREC is an ideal location for the field course as it has easy access to exquisite examples of coral reefs, mangroves, estuaries, and sea grass beds. Most impressive among these are the coral reefs, which are a short boat ride away from the TREC facility. Thanks to strict environmental conservation laws the reefs are very healthy and diverse, and attract a large and complex assemblage of marine flora and fauna. A boat excursion to Mayan ruins on the mainland will also present the class an opportunity to study the transition from sea water to fresh water and experience a terrestrial rainforest ecosystem.

## **HOUSING AND MEALS**

The Belize TREC facility is a converted hotel consisting of a number of 2, 3 and 4 person rooms situated around the perimeter of a fresh water swimming pool. Rooms are clean, functional, and include a private bathroom. Meals are served family style, in a dining room which also serves as a communal gathering room with books and games. Lunch, drinks, and snacks are provided on the boat for the all day trips.

## THE INSTRUCTORS

Dr. Peter Bushnell has an MS in Marine Biology from the University of Miami and a PhD in Medical Physiology from the University of Hawaii. He teaches marine biology at IU South Bend and has been involved in marine eco-physiological research for more than 35 years. His current interests include cardiovascular and respiratory physiology of sharks and tunas.

Dr. Ann Grens holds a Ph.D. in Molecular and Cellular Biology from the University of California, San Diego and performs research in the area of developmental biology using a simple cnidarian (an animal related to sea anemones and jellyfish) as her study system. She also teaches a survey course in zoology (Z301 - Introduction to the Animal Kingdom) for Biology majors. Together with Dr. Bushnell, she has co-instructed this course three times in Jamaica and twice in Belize.

Dr. Ken Mattes (Belize Marine TREC) has a PhD from Hofstra University in Marine Biology. Ken and his wife Maureen Gannon, a registered nurse and PADI instructor, served as resident directors at the Hofstra University Marine Laboratory in Jamaica before starting the Belize Marine TREC facility in 1995.



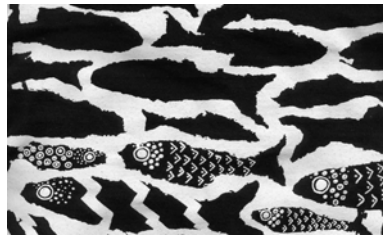
## APPLICATION INFORMATION

Applications are available from the Department of Biological Sciences. Individuals considering participating in the program should contact:

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More information is available at  
<https://www.iusb.edu/biology/belize/>



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OFFICE OF INTERNATIONAL PROGRAMS

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## TROPICAL MARINE BIOLOGY FIELD STUDY (L342)

Early May, even Years