

# **OUTLINE OF PROPOSED SCHEDULE AND ACTIVITIES\***

## **MARINE BOTANY MAYMESTER-MEXICO, MNS 352D**

***Location: Akumal, Mexico (May 17-June 4, 2017)***

**Register fall 2016 for MNS 352D and NSC 109 (Scientific Research and Inquiry). Both offered Spring 2017.**

Instructor: Dr. Kenneth Dunton ([ken.dunton@utexas.edu](mailto:ken.dunton@utexas.edu))

Phone: 361-471-6744 (Marine Science, Port Aransas)

Co-Instructors: Drs. Stein Fredriksen (Univ Oslo) and Michael Gill (UC Davis)

Lead TAs: Meaghan Cuddy and Christina Bonsell

This course is entirely focused on the ecology of Caribbean coral reef and seagrass communities of the Yucatán Peninsula with special emphasis on the marine vegetation. Our research and learning goal is to understand the effect of anthropogenic inputs of inorganic-nitrogen on tropical seagrasses, algal turfs, and the overall coral reef/coastal ecosystem. This course is mainly designed for upper division undergraduate students in the College of Natural Sciences, or students with strong backgrounds and interest in marine science. This course satisfies both the writing component and independent inquiry for UT-Austin students.

***NOTE: No University of Texas at Austin student, faculty, or staff can be required to travel to a Restricted Region (<http://world.utexas.edu/risk/restrictedregions>). Any participation in travel to a Restricted Region is strictly voluntary, and the participant assumes full responsibility for all risks associated with this travel.***



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\*revised 4 October 2017

## Marine Botany, MNS 352D

**Course Description:** Restricted enrollment; contact the department for permission to register for this course. **Prerequisites:** Upper division standing; Biology 311D; and one of the following courses: Biology 322, 324, 328, Marine Science 320, 352C; and three additional semester hours of coursework in biology. **Field work includes a 19-day field trip to Akumal, Mexico (17 May – 4 June).**

### Safety and Security Notes:

- The host hotel, *Hotel Club Akumal Caribe* has 24 hr security and is situated in the virtual center of major resort hotels and villas on the Yucatán coast of Mexico.
- IOC Right to Withdraw Approval: *In the event of approval, the University retains the right to withdraw approval and/or require return to the U.S. This may occur if there is a change in the proposed itinerary, the critical nature of the trip, or the health/safety/security climate of the region of interest.*
- Students and staff of this program are encouraged to enroll in the Smart Travelers Enrollment Program (STEP) at: <https://step.state.gov/step/>
- SOS Registration (**REQUIRED!!**): The University of Texas System provides all students, faculty, and staff traveling internationally on UT-sponsored activities/programs with International SOS, an international emergency assistance service. This is not insurance. Rather, it is a global 24-hour help line that can provide assistance in the event of a medical or security emergency. For more information about International SOS, visit <http://world.utexas.edu/risk/travelresources/sos>. The official International SOS website is <http://www.internationalsos.com>. The UT Member ID is 11BSGC000037. The International SOS smartphone app can be downloaded at <http://www.internationalsos.com/en/membership-app.htm>. If you find yourself in need of immediate assistance while abroad, contact International SOS anytime 24/7 at **1-215-952-8226** (main line) or **1-215-942-8478** (dedicated scholastic hotline), or call UTPD at 512-471-4441.
- All UT and non-UT participants must complete a signed Release & Indemnification Agreement, accessed through the SAO Portal

This course will focus on the ecology and vegetation of Caribbean ecosystems on the Yucatán Peninsula (Quintana Roo), including coral reefs, seagrass beds, and mangrove communities. Our studies will also include how anthropogenic impacts from increased tourism have affected coastal watersheds and the functioning of these unique ecosystems. Students will participate in lectures and field exercises based from a site on the Riviera Maya near [Centro Ecológico Akumal](#) (CEA or the Akumal Ecological Center) in Akumal, Mexico. Instructors include Dr. Ken Dunton (UTMSI), Dr. Stein Fredriksen (Univ. Oslo), Ph.D. candidate Michael Gil (University of Florida), and M.S. student Jason Jenkins. Class TAs from Dunton's lab include Christina Bonsell, a Ph.D. student in marine ecology and M.S. graduate student Victoria Congdon, whose graduate research focuses on seagrasses. Mike Gil, a Ph.D. student in coral reef ecology, is a 2008 UT-Austin graduate in Marine and Freshwater Biology (MFB), a Dean's Honored Graduate in the College of Natural Sciences, and a member of the 2007 Akumal class. Potential guest lecturers include Drs. Deana Erdner, a phytoplankton ecologist and MSI Associate Professor, Brigitte Tussenbroek, marine botanist and Unit Manager from the Institute of Marine Sciences and Limnology (ICML) at Puerto Morelos, Dr. Luiz Rocha (California Academy of Sciences), and Wes Tunnell, a coastal oceanographer from TAMU-Corpus Christi. The course will include site visits to examine the vegetation and structure of coral reef, seagrass, and mangrove environments. Topics will be covered from an interdisciplinary perspective; our measurements of water quality, plant community structure, species composition, and sediment parameters will be used by CEA and other organizations to develop management and conservation policies of these unique systems. The Riviera Maya is under immense pressure

from tourism; however, CEA has emerged as a leading advocate for environmental protection of the area through focused educational efforts. We can help CEA by providing invaluable data on the effects of nutrient inputs from groundwater pollution that originates from wastewater seepage into the porous limestone that underlies the Riviera Maya.

Our class of 18-20 students will be initially divided into two groups. Each group will receive an overview on basic topics related to ecology, subtropical seagrasses, the algae of coral reefs, and the water chemistry of inland and coastal habitats. Students will spend mornings in the field, working in shallow waters from the shore or small boats. Following the completion of the two modules (six-day total), students will divide into six research teams and begin conducting their approved field studies under the direction of an instructor. Field notebooks and underwater slates will be provided. Measurements and interpretation of environmental parameters (e.g. light attenuation, temperature, salinity, inorganic nutrients, pH, and dissolved oxygen) will be performed using modern field and lab instrumentation. We also provide new compound and dissecting microscopes for algal and invertebrate identifications. Students will work together in making observations, collecting field data, performing lab work, and synthesizing their observations. A considerable amount of time will be spent in the water. Afternoons and evenings are spent performing laboratory work, participating in discussion groups, or attending lectures. The final lectures in Akumal will feature brief presentations by student teams on the results of their focused research. Please note that this course does fulfill part of the Basic Education Requirement in writing based on field and laboratory data collected for detailed journal entries and the final research paper.

This course is designed to provide research experiences to upper-division undergraduate students. The course was first taught in May 2005 with 17 students. The samples and data gathered by the students and instructors resulted in the publication of a journal paper entitled: "*Isotopic and elemental indicators of nutrient sources and status of coastal habitats in the Caribbean Sea, Yucatan Peninsula, Mexico*", which was published in the *Journal of Coastal and Estuarine Science* in 2007. A second journal paper "*Origins and Fate of Inorganic-Nitrogen from Watersheds to Coastal Ocean on the Yucatan Peninsula, Mexico*", based on data collected by students in the 2007 class, was published in 2010. A third journal paper, *Rapid tourism growth and declining coral reefs in Akumal, Mexico* was published in *Marine Biology* in 2015 (lead author Mike Gil). **All three papers (posted on Canvas) are REQUIRED reading by all students in this course.** The 2009 trip to Akumal was cancelled within two weeks of departure because of fears relating to the H1N1 epidemic and moved to Puerto Rico. A fourth publication on the Riviera Maya cenote ecosystems, is focused on the unique flora of these estuarine and highly stratified cenotes is in preparation (led by Stein Fredriksen). This paper is based on the collective efforts of many student researchers of this course since May/June 2005. We highly encourage students to develop independent research projects (individual or small group) for additional credit or to satisfy requirements of other UT interdisciplinary programs (e.g. Bridging Disciplines Program (BDP): Environment or the new Environmental Science Degree). We will have a minimum of six instructors that can provide mentorship and assist with logistics. All students are encouraged to present the results of their work at regional meetings and submit a paper to the UT Undergraduate Research Journal. Separate funds are available to students in this class to support travel or other expenses related to presentation and publication of results.

### **Course Syllabus**

**Field and Laboratory Research Journal:** Students are required to maintain a detailed field and laboratory journal that details their activities, observations, and data collecting efforts. Information on the content and format of journals will be provided at the beginning of the course. Emphasis is placed on an understanding of the effects of nitrogen loading and other anthropogenic disturbances on the water column and on the production ecology and trophic structure of seagrass beds, coral reef, and macroalgal communities.

### **Program Design and Habitat Modules:**

One of our overall objectives is to evaluate the effects of anthropogenic activities on the submerged macrophyte communities of the northern Yucatán Peninsula coast in the Caribbean Sea. We will focus our studies on the

vegetative and coral reef communities at two sites in Akumal Bay (adjacent to our hotel). We will also make visits to other sites, including Xaak Bay, a beautiful pristine lagoon about 20 minutes by boat north of Akumal. Although field work on seagrasses and macroalgae around and within the coral reefs in Akumal Bay is the focus of our coordinated studies, we will have the flexibility of visiting additional sites as time and interest permits. Some of these sites can be accessed by small boats provided by the Akumal Dive Shop or by vehicle (all sites would be located within a 10 mile radius of Akumal). Otherwise, field work will generally take place in the morning with lab work in the afternoon.

As stated above, each group of students will initially rotate through two class modules. The day-to-day activities associated with each 3-day module are summarized below. Following the modules, focused field research will commence until the end of our stay in Mexico. We will also set aside days for exploration or cultural activities.

**Marine Botany-Mexico, May/June 2017\***  
**Final Draft (subject to change in the field)**  
**OVERALL SCHEDULE (19 days)**

17 May	Arrival and initial orientation.
18	Presentations on safety followed by lab set-up, swim test, and field orientation
19-24	Ecology and systematics modules
25 May	Free Day
26-30	Student-led Independent Research (on your own schedule)
31 May	Free Day for cultural or wildlife activity of your choice
1-2 June	Finish research projects
3	Free Day for other activities of your choice following submission of journal and completion of lab clean-up and packing of equipment; evening banquet at 1900
4	Departures of students, some instructors and gear by 0900

**Daily “Average” Schedule**

	<u>Time</u>	<u>Event</u>
AM	0630	Breakfast (in the Bungalows)
	0700	Departure into field ( <b>Don’t Be Late!</b> )
	1130-1200	Return from field sites
PM	1130-1330	Lunch and siesta (Bungalows and on site)
	1330-1500	Guest lectures and discussion
	1500-1800	Lab and/or field work
	1830	Dinner (Pueblo or Akumal restaurant)

**Grading and Evaluation**

Final course grades are based on assignments, an on-site field practical, presentations, a written report, and your journal (asterisks denote grades assigned by instructors only):

\*Writing assignments in field ecology, three @ 4% each (**12%**)

\*Field Practical (Algal Taxonomy) @ **12%**

Field Journal (**30%**; based on three independent student and instructor evaluations during the course:

5% (student), 10% (student), and 15% (instructor)

Group Presentations (**6%**)

\*Final Written Report (**20%**)

Participation (**15%**; includes 10% from student group peers submitted with final report; 5% from instructors)

### Tentative Mini-Lecture and Guest Seminar Schedule (1330-1500)

22 May	Stein Fredriksen: The Seaweeds!
23 May	Field Research/Review (no lecture)
24 May	Field Research/Review (no lecture)
25 May	Free Day
26 May	Laura Bush, CEA
27 May	Mike Gil: Coral Reef Ecology; Ken Dunton and Victoria Congdon: The Subtropical Seagrasses
28 May	Christina Bonsell: Fundamental of Marine Ecology
1 June	Field Research and Student-led Research Presentations
2 June	Field Research and Student-led Research Presentations
3 June	Departure Logistics

### Test, Report, and Presentation Dates (May/June)

25 May	Journals submitted at 0800 for student peer evaluation
25	Seaweed Field Practical in AM then free time for remainder of day
26	Journals returned at 0700 with grades and constructive comments
29	Group Research Presentations (10 min/group)
30	Journals submitted at 1500 for student peer evaluation
30	Journals returned at 2100 with grades and constructive comments by e-mail
1 June	Group Research Presentations (10 min/group)
2	Submit Journal for Instructor grade
4	Journals returned at 0900 to students (prior to departure from Akumal)
6-9	Research Group meetings (in person or by conference call) with Group Instructor/Ken Dunton
9	Final group report due Instructor
12	Report returned to student-group for revision (comments in Track Changes)
16	Final Report due Instructor and Ken Dunton for evaluation/grading

**Module Rotations. Group One will start with the seaweeds and group Two with field ecology. Modules will occur over a 6-day period (3-day rotation).**

**Module One: Fundamentals of Marine Botany**  
**(this module focused on the systematics of seaweeds; includes field and laboratory work)**

### **Module Two: Fundamentals of Field Ecology**

Day 1 (morning): Hypothesis testing and how to ask questions in field biology (focusing on formulation of questions, approaches and succinct communication of ideas through presentations and writing).

*First assignment (4%):*

**To turn in: Be a naturalist!** Snorkel in Yal Ku Chico and describe the patterns you observe. Who are the major players involved? What mechanism(s) do you think could be driving this pattern? What could you do to test these mechanisms? *Due the next morning.*

**To think about: Visually survey your system/question.** Now that you have seen what you will be dealing with, how has this affected your thoughts on the importance of your question or feasibility of your approach? Did anything catch you by surprise? If so, what? Write out your *revised* question, hypotheses and predictions.

**This assignment can be completed at the end of the afternoon session for a grade. (Done INDIVIDUALLY). There is no right or wrong answer, the point is to put in the effort to THINK.**

Day 1 (afternoon): How to collect observational and experimental data from the field

*Second assignment (4%):*

**To think about: Play with your field approach in the field and in your head.** Is your approach logistically feasible? Is your approach the best way to meet your interests? Does it really answer your question? What are the limitations of the data you plan to collect? **If you are planning surveys/site selection, start doing them!**

**To turn in: What is your data-collection schedule?** Write out a day-to-day plan for your data collection, considering also experiment/survey setup/breakdown times and time needed to analyze/think about your results. This should read like a detailed methods section but with dates involved. *Due before dinner two days later.*

**Because this assignment will take more thought and prep, it will not be due until the next meeting**

Day 2 (morning continue work in situ)

Day 2 (afternoon): What do I do with my data?! (focusing on how to complete the basic statistics and presentation of data needed, including Q&A sessions between each group and the instructors).

*Third assignment (4%):*

**To turn in: What figures/analyses do you plan to produce?** Discuss ways to best visualize and statistically analyze data and write out your plan for your results section, including drawing expected figures and describing expected statistical analyses. **Also, write out/discuss your expectations INCLUDING alternative hypotheses** (e.g., patterns or mechanisms *other than your hypotheses* that could be observed or at play, respectively). *Due before dinner two days later.*

**To think about: How will you present your project?** Discuss construction of papers/presentations and write an outline for your final paper (since you won't have your results yet, write down your expected results).

**Day 3:** Collect data under supervision of instructor (for real)!

## **General Information on the Course and Safety**

**Prerequisites:** Upper division standing; Biology 311D; and one of the following courses: Biology 322, 324, 328, Marine Science 320, 352C; and three additional semester hours of coursework in biology. Preference given to seniors in Marine and Freshwater Biology (MFB; Option III) who can graduate in May, August or December 2017, or juniors in MFB who plan to graduate in 2018, or EEB and Environmental Science students that have demonstrated a strong interest in Marine Science by having previously enrolled in summer field courses at UTMSI.

**Faculty:** Ken Dunton is a marine ecologist whose research focuses on the role of marine plants as carbon sources in marine food webs from the Arctic to the Antarctic. He teaches both graduate courses and undergraduate courses in the Department of Marine Science. He has also taught an undergraduate course for the University of Alaska in Tropical Coral Reef Ecology in 2001 and 2003 (in Fiji). He has been teaching field oriented summer courses at UTMSI continuously since 1988 (Marine Botany and Estuarine Ecology). He taught this course with his friend and colleague, professor Stein Fredriksen (Univ Oslo) in Akumal in alternate years since 2005 (and in Puerto Rico in 2009).

### ***Course Logistics***

**Air Travel to Cozumel:** For their flexibility, students are expected to make their own travel arrangements. Round-trip airfares to Cozumel range from \$500-\$650 from Austin, Dallas, Houston, or Corpus Christi. Students must arrive in Cozumel by the afternoon of 17 May; the field component of the course ends the evening of 3 June 2017, with a morning departure on 4 June.

**Accommodations in Akumal:** We will arrange very nice accommodations at the *Hotel Club Akumal Caribe*, which is located within the gated resort community of Akumal. The resort is staffed by security guards 24 hours/day. The [Akumal Caribe](#) offers individual bungalows, surrounded by lush tropical gardens just steps from the beach. The bungalows are air conditioned, contain private showers, a mini-refrigerator, and can sleep 2 people. They are very nice.

**Meals in Akumal:** We will have a kitchenette stocked with food for breakfast, lunch, and snacking. Students will also be provided with a modest per diem allowance for occasional meals on their own. We have made arrangements to have most of our dinners in the Pueblo, at local restaurants, at 1830. Meals will feature traditional local foods, prepared by people who have strong Mayan heritages. We'll also eat occasionally at restaurants in Akumal. The costs of all meals are included in the course fee.

**Jellyfish and Sea Lice Protection:** Between March and September there is an increased risk of being stung by Sea Lice, a type of jellyfish common in the Gulf and Caribbean Sea. There is a new product called *Safe Sea* that offers both UV and Sea Lice protection. My colleagues that work in these areas strongly advise having this product on-hand. See [www.nidaria.com](http://www.nidaria.com) for information on ordering.

**DAN (Divers Alert Network) Insurance:** Strongly recommended for anyone snorkeling or intending to SCUBA dive on their own. See: <http://www.diversalertnetwork.org/index.asp>

**Health Preparations:** Before acceptance, you must begin the UT UHS Travel Health Program Online counseling. Initiate this process as soon as possible.

<http://www.utexas.edu/student/health/promotion/travel.html>

Students need to fill out a medical report when accepted into the class.

<http://www.utexas.edu/student/abroad/ccs/medical.pdf>. Make an appointment with your doctor or a UT doctor for advice on recommended inoculations and for any medical updates. Before seeing the doctor you need to

complete and sign the student side of the medical report. The other side of the medical report needs to be completed by the doctor.

**Passports:** Students must have passports—it is now a requirement to enter Mexico. Passports are good for 10 years and are necessary if you plan to travel down to Belize before or after the class. Go to [http://travel.state.gov/passport/passport\\_1738.html](http://travel.state.gov/passport/passport_1738.html) or consult the UT Austin West Mall Post Office (which can also expedite its processing for an additional fee.)

**Safety:** Over the years we have implemented and established a variety of measures to insure your safety in Mexico. We will review these guidelines in the spring Scientific Research and Inquiry class, in a special presentation at the start of the course, in our pre-departure meeting, and in regular class meetings while in Mexico. Our biggest rule is to never travel alone and to communicate your intentions for any activity with any one of the six group instructors. Every student and instructor is issued a Mexican cell phone. Students have found these absolutely invaluable in communicating with each other and the instructors. Their reception is excellent, even deep in the coastal mangrove forests. Because Akumal is a resort community, we do have access to relatively good medical care that we have used occasionally. The usual health problems are related to sun exposure and minor cuts and bruises from field work. In 2013, a few students and instructors suffered from a 12-24 hour flu bug. In 2015, two students developed an outer ear/sinus infections that were treated effectively by local doctors.

**General Information:** Credit and debit cards are NOT widely accepted in Mexico. In big cities and at some of the larger hotels, credit cards are accepted, but as a general rule cash is the only option. The majority of motels, most restaurants, gas stations, and mini supers (where you get cokes, snacks etc.) do not take credit cards. It is better to bring cash. Do not use debit cards except at a reliable ATM!!

You must have at least 500 pesos on hand when you enter Mexico. Once you arrive in Akumal you can obtain Pesos from ATMs at the food market. Avoid using a credit card; instead, save on ATM and bank fees by using a Check Card (the Austin UFCU Check Card works great in Mexico and fees are minimal).

In Akumal and a lot of the other tourist towns there are phones that let you call home collect with an English-speaking operator. They are a potential liability, with charges of about \$10/min or more. It is best and most inexpensive to use your U.S. cell phone for texting (and occasional calls if necessary), but arrangements must be made in advance with your carrier, otherwise the charges are likely to be exorbitant.

### **UT Risk Notification Statement**

The University of Texas at Austin must review international travel to destinations on the UT Restricted Regions List, as determined by the International Oversight Committee. Travel to any location on the UT Restricted Regions List involves certain degrees of risk.

### **It is important that travelers UNDERSTAND & CAREFULLY CONSIDER THE FOLLOWING RISKS:**

- The US Embassy nearest your destination may temporarily close or suspend public services for security reasons.
- The US Embassy nearest your destination may not be able to provide emergency assistance should you require it.
- If there is a need to evacuate in an emergency, flights may be suspended and other departure or shelter options in place may be limited or non-existent.
- Access to hospitals, emergency medical care and medications may be limited or non-existent.
- Should you experience difficulties, the University of Texas at Austin and their contracted emergency assistance provider, International SOS, may not be in a position to provide emergency assistance to you.

- Participation in travel to a UT Restricted Region has inherent risks which may include kidnapping or death. These risks can never be completely eliminated.
- Risks of travel to your destination may include (but are not limited to) dangers to health and personal safety, including possible death posed by natural disaster, disease, terrorism, crime, civil unrest, and/or violence.
- Additional risks include (but are not limited to) minor and major physical injuries, emotional and psychological injuries inflicted accidentally or intentionally by others, and/or catastrophic injuries, including paralysis and death.
- There may be additional health, safety, and security factors that have not been brought to your attention by the University of Texas at Austin.

**IT IS HIGHLY RECOMMENDED THAT YOU VISIT & CAREFULLY REVIEW THE FOLLOWING WEBSITES:**

- <http://world.utexas.edu/risk/travelpolicy> UT International Travel Policy
- <http://world.utexas.edu/risk/travelresources> UT Health & Safety Resources for International Travel
- <http://www.utexas.edu/emergency> UT Emergency website
- <http://www.internationalsos.com> International SOS website (member ID: 11BSGC000037)
- <http://www.travel.state.gov> US Department of State website for Travel Warnings, advisories, and consular information sheets for the intended destination
- <http://www.cdc.gov> US Centers for Disease Control and Prevention website for information on health issues and recommended vaccinations
- <http://www.who.int> World Health Organization website for information on disease outbreaks and emergencies

**UT Liability Disclaimer**

If **any UT travelers** will be participating in the proposed program, then the following statement must appear on the official website promoting the program to potential travelers. This statement should also appear in safety handbooks or other health, safety, and security-related print materials.

*No University of Texas at Austin student, faculty, or staff can be required to travel to a Restricted Region (<http://world.utexas.edu/risk/restrictedregions>). Any participation in travel to a Restricted Region is strictly voluntary, and the participant assumes full responsibility for all risks associated with this travel.*

If **any non-UT travelers** will be participating in the proposed program, then the following statement must appear on the official website promoting the program to potential travelers. The statement should be posted in its entirety and positioned in an accessible and prominent location, so that non-UT travelers are aware of the disclaimer. This statement should also appear in safety handbooks or other health, safety, and security-related print materials.

*As a condition of Participant's involvement with or participation in the program activities, the Participant will release, waive, discharge, and agree to hold harmless the University of Texas at Austin from all liability arising out of or in connection with Participant's involvement with and/or participation in the program activities at Akumal, Mexico. Participants of all Marine Botany-Mexico programs must acknowledge that the country/countries in which the Marine Botany-Mexico program activities may take place in whole or in part, or any other country through which the Participant may travel when involved with and/or participating in the program activities, or while in route to or from the program activities, may have health and safety standards substantially below those enjoyed in the United States. Participant must further acknowledge the inherent hazardous and dangerous nature of the program activities as well as the above-referenced risks of participating in the program activities or in traveling to, through or from the country/countries in which the program activities will take place, and must agree to assume all risk of illness, injury, or death from Participant's travel to or from the program activities and participation therein.*

## **Packing List**

Mask, snorkel and fins!  
Lycra skins for sun, jellyfish, and coral protection  
Hat  
Sunglasses with a cord (2 pair)  
*Safe Sea Sun Block and Jellyfish Protection (see [www.nidaria.com](http://www.nidaria.com))*  
Light weight rain jacket  
2 long sleeve synthetic shirts (capilene or polypropylene)  
2-3 t-shirts  
Lycra sun top (or rash guard) for snorkeling  
1 pair lightweight trousers  
2 pairs shorts and swimwear  
Shoes and sandals  
Reef booties or shoes with good soles for wading/walking on rocky shores (old tennis shoes or wetsuit booties)  
Insect repellant  
Water bottles (two)  
Dry bag (sun screen, glasses, water bottle, chapstick etc)  
Camera, film, batteries  
Binoculars  
**Passport\***  
Airline ticket or record locator for e-tickets\*  
Insurance cards\*  
Alarm clock  
Coffee cup and koozie  
Light towel  
Small Flashlight and batteries  
Calculator with statistical functions for linear regressions  
**Group Proposal and your Field Journal**  
Meat tenderizer for jellyfish stings  
First aid items (eg. adhesive bandaids, Neosporin, Immodium A-D, Tylenol, Pepto-Bismol, Benadryl, Q-tips, iodine, etc. or specific medications that you may require!)  
Mexican pesos and traveler's checks\* (at least \$50 depending on your own personal needs)  
Earplugs or headphones to insure a sound sleep

\* Make copies that you leave at home for emergency back-up

NOTE: Statistical hand calculators and field notebooks WILL BE PROVIDED!!!