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# Special Topics: Coral Reef Conservation and Restoration (MSC 430)

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## GENERAL COURSE INFORMATION

**Lecture:** Wednesday. 9:30-11:30am & 1:00-3:00 pm, Mote classroom/lab

**Instructor:** Dr. Daniel A. McCarthy

**Office:** Mote Office; **Phone:** 904-635-3776

**Email:** [dmccart1@ju.edu](mailto:dmccart1@ju.edu)

**Office Hours:** Mon (9:30-2:30 pm) & by appointment

## REQUIRED TEXT:

None: There will be assigned readings on blackboard.

## COURSE OVERVIEW

This course will be a mix of class lecture and hands on class activities focused on current issues with conservation management in the Florida Keys. It will also cover surveying and analytical tools in coral reef ecosystem research and restoration. The will also cover group discussion on current management/conservation/restoration approaches as well as guest lectures from key managers of coastal resources in the Florida Keys.

## STUDENT LEARNING OUTCOMES (SLO)

**SLO One - Critical Thinking:** *Students will use critical thinking skills during :1) one major small group project that they will be required to do and present results, and 2) on numerous group discussions on a series of peer-reviewed journal articles on current issues in coral reef conservation*

**SLO Two - Diversity:** *Students will demonstrate knowledge and skills in working with diverse populations by the high level of interactions with diversity associated with fellow students, staff and visiting speakers of the course. They will be aided by working in assigned groups and learning how to complete assignments in a high quality and timely manner.*

**SLO Three - Communication:** *Students will use written and oral communication during one major small group project that they will be required to do and orally present results, and on numerous group discussions on a series of peer-reviewed journal articles on current issues in coral reef conservation and management.*

**SLO Four -Teamwork:** *Students will develop their skills in working as a team during on one major small group project that they will be required to do and orally present results at the end of the semester.*

## Schedule

*This schedule is tentative and subject to change*

<u>Week</u>	<u>Morning Session</u>	<u>Reading</u>	<u>Afternoon Session</u>
Week 1	Introduction to class General coral reef ecosystem overview	Assigned readings	Lab: Overview of Mote research and restoration activities
Week 2	Marine biodiversity	Assigned	Field trip to NOAA ecosystem

		readings	exhibit
Week 3	Why conserve marine resources?	Assigned readings	Group discussion on environmental ethics
Week 4	Threats to marine environments	Assigned readings	Guest Lecture: National Park Service
Week 5	Threats to marine environments	Assigned readings	Guest lecture: (FKNM Sanctuary)
Week 6	Conservation approaches	Assigned readings	Group discussion on coral reef system sustainability
Week 7	Conservation approaches <b>Exam 1</b>	Assigned readings	Guest lecture: FWS fisheries group
Week 8	Captive breeding and introduction	Assigned readings	Guest lecture: Dr. David Vaughan (Mote Marine Laboratory)
Week 9	Captive breeding and introduction	Assigned readings	Group discussion on management of ecosystems and public perception
Week 10	Captive breeding and introduction	Assigned readings	Guest lecture: Erich Bartels (Mote Marine Laboratory)
Week 11	<b>Coral restoration event</b>	<b>None</b>	<b>Coral restoration event</b>
Week 12	Case histories	Assigned readings	Guest Lecture: FDEP
Week 13	Case histories	Assigned readings	Guest Lecture: Nature Conservancy
Week 14	The future of marine conservation	Assigned readings	<b>Group presentations</b>
Week 15	<b>Final Exam</b>	Assigned readings	

**GRADING: Final grades will be assigned as A: 95-100, A-: 90-94, B+: 86-89, B: 83-85, B-: 80-82, C+: 76-79, C: 73-75, C-70-72, D+: 66-69, D: 63-65, D-: 60-62, F: <60). Your final grade in this class will be based on the following graded items.**

Exams	40% (20 % each)
Paper summaries	30% (2 % each submission)
Project oral presentation	
-Topic, references & plan	2%
-Draft presentation	6%
-Final version	10%
Attendance & participation	12%
<b>Total</b>	<b>100%</b>

## **EXAMS**

The two exams that count for 40% of the total grade. **No Make-up exams will be given!!** Students who miss a test for legitimate reasons will be excused from the test and their grade will be prorated.

## **RESEARCH PROJECT AND PRESENTATION**

Students will do a group literature project where they will develop and research a current challenge with regards to natural resources in south Florida. Towards the end of the semester, each group will develop a 15-minute presentation on the findings of their research.

## **ATTENDANCE**

You are expected to be at class! There is a great deal of material covered during this class. To maximize your chances of excelling in this course it is best that you attend class! In the case of excused absences, please inform me of the nature of the absence before you miss class. You should be advised that having an officially excused absence means that you are excused from being in attendance for the day in question, but you are still responsible for the material covered that day.

## **POLICY ON LATE WORK AND MAKING UP MISSED WORK**

All late work will be assessed a 20% penalty. Late work will be accepted until the assignment in question has been graded and handed back, or made available to be picked up. The turn-around time between an assignment's due date or an exam date and their return can be quite short, so you must contact me immediately in order to schedule a time to make up missed work. If you know you will miss class due to an officially excused activity, you **MUST** arrange to take care of assignments, exams, etc., **BEFORE** you go! If you are sick or other situations beyond your control prevent you from completing required work by the due date, let me know immediately either via phone message or e-mail (the preferred method), and arrangements can be made for you to complete the required work.

## **PLAGIARISM AND CHEATING**

Plagiarism and cheating will not be tolerated in this class! Plagiarism and cheating are defined as follows: Plagiarism is the presentation of information as one's own when in reality some or all of the information was derived (or copied) from some other source (including work of other members of the class). Cheating consists of any unauthorized use of notes, texts, or other sources (including copying answers completed by others) so as to give an unfair advantage to a student in completing a class assignment or an examination. Intentionally aiding another student in cheating is also considered cheating.

## **LEARNING DISABILITIES**

A student with a documented, professionally diagnosed disability is entitled to certain special consideration under federal law, to assist with completing the requirements of the course. All reasonable assistance will be given to help a learning disabled student to meet the course requirements. A student with a documented learning disability who wishes to receive such consideration must make his or her condition known to the instructor(s) before completion of the first graded assignment in the course. In no way does a learning disability exempt a student from course or degree requirements.

Student Information Sheet—Dr. McCarthy

Spring 2018

NAME: \_\_\_\_\_

Local Phone: \_\_\_\_\_

Local address: \_\_\_\_\_

\_\_\_\_\_

Email: \_\_\_\_\_

Hometown: \_\_\_\_\_

Class: *Freshman*    *Sophomore*    *Junior*    *Senior*

Major: \_\_\_\_\_ Minor: \_\_\_\_\_

Future career goals: \_\_\_\_\_

Hobbies and interests:

\_\_\_\_\_

Do you have your own lap top ? \_\_\_\_\_

Do you have a SCUBA certification ? If so, how many logged dives do you have ?

\_\_\_\_\_

**Do you have any experience snorkeling ? If so, how would you rate your experience level ?**

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**Anything I should know? (medical, religious, other?)**

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**Have you taken a GIS class?**

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**Are you federal work study qualified ? Are you interested in working with the Dept. of Biology and Marine Science ?**

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DRAFT

**LIABILITY RELEASE AND HOLD HARMLESS AGREEMENT**  
**FOR CAMPUS ACTIVITIES**

RELEASE executed by \_\_\_\_\_ who address is \_\_\_\_\_

\_\_\_\_\_

Social Security Number is \_\_\_\_\_ to Jacksonville University, their officers, employees and agents (“RELEASEES”). I understand and agree to participate as a participant in the following program (description of program including name and address of off campus facility site)

**SAMPLE**

and I fully understand and appreciate the dangers, hazards and risks inherent in participating in the above described program, including the transportation to and from the program premises: and in any independent activities I undertake as a participant in the program (collectively referred to as “Program”) which may include property damage, personal injury or death. I accept any and all risks, associated with my participation in the Program.

Knowing the dangers, hazards and risks of the Program, and in consideration of being admitted to the University and enrolled in the core curriculum on behalf of myself, my family, heirs, executors, administrators and assigns. I, the undersigned, release, waive, forever, discharge the Release from and against any and all liability for any harm, injury, damage, claims of demands which may accrue to me arising from or related to my participation in the Program. I agree that under no circumstances will I, or any claiming on my behalf, prosecute or present any claim for personal injury, property damage or wrongful death against any or all the Releasees. IT IS MY INTENTION BY THIS RELEASE TO RELIEVE THE RELEASEE(S) OF ANY LIABILITY FOR PERSONAL IINJURY. PROPERTY DAMAGE OR WRONGFUL DEATH CAUSED BY THE RELEASEE(S)’ NEGLIGENCE OR OTHERWISE.

It is my expressed intent that this Agreement shall bind members of my family and spouse, if I am alive, and my estate, family, heirs, personal representatives, or assigns, if I am deceased, and shall be deemed as a release, waiver, discharge and covenant not to sue RELEASEES. I further agree to save and hold harmless indemnify and defend releases from any claim by me or my family, arising out of my participation in this Program.

In signing this release, I acknowledge and represent that I have fully informed myself of the content of this Agreement by reading it before I sign it, and I understand that I sign this document as my own free act and deed. I further state that I am at least 18 years of age and fully competent to sign this Agreement; and that I execute this release for full adequate and complete consideration fully intending to be bound hereby.

I further agree that this Release shall be construed in accordance to with the laws of the State of Florida.

THIS IS A RELEASE OF LEGAL RIGHTS, READ AND BE CERTAIN YOU UNDERSTAND IT BEFORE SIGNING.

**Student/Participant**

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Signature

Date

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Print Name

Date

**Witnesses:**

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Signature

Date

<b>General Safety Guidelines for Laboratory-based Activities:</b>	<i>Check here if applies to this class.</i>	<i>Initial here to document training and/or intent to comply.</i>
• Inform the instructor of any personal health issues before starting the activity.		
• Do not eat or drink in the laboratory.		
• No smoking or use of tobacco of any kind in the laboratory. No electronic cigarettes, smokeless cigarettes, or related products in the laboratory.		
• Never taste chemicals.		
• Never pipet by mouth. Use micropipette.		
• Determine the location of the first aid supplies.		
• Determine the location of the nearest emergency shower and eye wash station.		
• Determine the location of fire blankets and fire extinguishers. Be familiar with their operation.		
• Determine the location of the chemical spill kit.		
• If you should spill a chemical on yourself, immediately notify the instructor, and wash it off immediately with abundant water. Consult SDS (Safety Data Sheet) and seek medical attention, as appropriate.		
• Long hair should be tied back in the lab (especially when using a Bunsen burner or alcohol burner).		
• Jewelry, particularly dangling necklaces, bracelets, or earrings with the potential to interfere with or be contaminated by an experiment, should not be worn in lab.		
• Do not engage in personal grooming in the lab (including hair, makeup, nails, etc.)		
• Place backpacks and purses in the designated area away from the lab benches.		
• Experiments that produce poisonous or noxious fumes are to be carried out in the fume hood.		
• Appropriately dispose of materials immediately after use and in the proper containers.		
• Label full chemical names on all bottles, flasks, and secondary containers.		
• Never leave an experiment unattended, unless required by your instructor.		
• Never leave a solution on a hot plate unattended.		
• Place a warning note on hotplates that have been turned off, but are still hot.		

<ul style="list-style-type: none"> <li>• Determine the location of JU's Chemical Hygiene Plan.</li> </ul>		
<ul style="list-style-type: none"> <li>• Determine the location of Safety Data Sheets (SDS) for chemicals in use.</li> </ul>		
<ul style="list-style-type: none"> <li>• Report all accidents to the instructor immediately.</li> </ul>		
<ul style="list-style-type: none"> <li>• Wash your hands after laboratory-based activities, even after wearing gloves.</li> </ul>		
<p><b><u>Personal Protective Equipment (PPE) in the Laboratory:</u></b></p>		
<ul style="list-style-type: none"> <li>• Wear appropriate footwear - feet should be totally protected at all times. Appropriate footwear in the laboratory includes closed-toe shoes and socks above the ankles. Do not wear sandals, flip-flops, or any type of shoes with holes in them in the laboratory.</li> </ul>		
<ul style="list-style-type: none"> <li>• Contact lenses may be prohibited when working near volatile chemicals. If contact lenses are permitted, chemical splash goggles must be worn at all times.</li> </ul>		
<ul style="list-style-type: none"> <li>• Wear required protective safety glasses or splash goggles continuously while in the laboratory. If a chemical should splash in your eye, immediately notify the instructor, and wash eyes with an abundant amount of water. Seek medical attention at once.</li> </ul>		
<ul style="list-style-type: none"> <li>• Always wear a lab coat and long pants in laboratories where exposure to chemical splashes, chemical spills, broken glassware, sharps, or biohazards (biological agents, human blood, or other potentially infectious material) may occur.</li> </ul>		
<ul style="list-style-type: none"> <li>• Wear heat-resistant gloves when working with hot plate or hot glassware.</li> </ul>		
<p><b><u>General Safety Guidelines for Field-based Activities:</u></b></p>		
<ul style="list-style-type: none"> <li>• Inform the instructor of any personal health issues or medical concerns before starting the activity.</li> </ul>		
<ul style="list-style-type: none"> <li>• When weather conditions are hot and/or the heat index is high, bring extra water and drink water continuously to avoid dehydration.</li> </ul>		
<ul style="list-style-type: none"> <li>• Prior to the activity, eat an appropriate meal or snack that will sustain your energy through the activity.</li> </ul>		
<ul style="list-style-type: none"> <li>• When conducting strenuous fieldwork or participating on a lengthy boat trip, do not consume alcohol the day or night before to avoid dehydration during the activity.</li> </ul>		
<ul style="list-style-type: none"> <li>• Determine the location of the first aid supplies in the vehicle and/or boat.</li> </ul>		
<ul style="list-style-type: none"> <li>• Wash your hands after field-based activities.</li> </ul>		
<p><b><u>Personal Protective Equipment (PPE) in the Field:</u></b></p>		<p><i>Check here if applies to this class.</i></p>
<ul style="list-style-type: none"> <li>• Wear appropriate footwear - feet should be totally protected at all times. Appropriate footwear in the field includes closed-toe shoes, preferably with non-slip soles. Do not wear sandals, flip-flops, or any type of shoes with holes with them.</li> </ul>		<p><i>Initial here to document training and/or intent to comply.</i></p>
<ul style="list-style-type: none"> <li>• Consult weather forecast and wear clothing appropriate for weather exposure (heat, humidity, cold, rainy, windy, wind-chill factor on a moving boat, etc.).</li> </ul>		
<ul style="list-style-type: none"> <li>• Be informed of exposure-related risks. Follow guidelines of instructor and boat captain.</li> </ul>		
<ul style="list-style-type: none"> <li>• When on a boat, follow the safety instructions of the captain.</li> </ul>		
<ul style="list-style-type: none"> <li>• Wear protective gloves when handling potentially harmful organisms (oysters, jellyfish).</li> </ul>		
<ul style="list-style-type: none"> <li>• Wear appropriate protection from the sun/UV light - sunscreen, sunglasses, hat, etc.</li> </ul>		
<ul style="list-style-type: none"> <li>• Wear insect repellent, as appropriate.</li> </ul>		

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<b>Consequences of Non-compliance:</b>	<i>Initial here to document that you understand the consequences of non-compliance.</i>
1. <b>First offense:</b> documented warning.	
2. <b>Second offense:</b> dismissal from the remainder of that day's lab activity and a grade of "0" for that lab (that cannot be used as a drop grade).	
3. <b>Third offense:</b> automatic "0" as laboratory grade for the entire course.	
4. <b>Serious violations</b> (even for a first time offense) will be handled at the professor's discretion.	
5. Any violation of the safety guidelines may be subject to University disciplinary action at the professor's discretion.	
6. Any Biology or Marine Science professor can cite a student for failure to comply with these safety guidelines.	

**More Information:**

- For more information about safety procedures, consult JU's Chemical Hygiene Plan (CHP). The CHP is available in the Division of Science & Math Office (Merritt-Penticoff Room 132) and at <http://www.ju.edu/CampusSecurity/Pages/Environmental-Health-and-Safety.aspx>.
- Watch this safety video: Type this link in your browser <http://www.youtube.com/uscsb>, and click on the "Experimenting with Danger" video.
- **IF THERE IS A SERIOUS ACCIDENT:**
  1. First, call 911 IMMEDIATELY!
  2. Second, call the Division Office at 256-7300, and Public Safety at 256-7585 or 256-7911.

**Declaration of Understanding:**

I, [print name legibly] \_\_\_\_\_, have read and understand the above "Laboratory and Field Safety Guidelines for Biology and Marine Science Students" and agree to abide by them. By signing this form, I accept the consequences for not complying with the safety guidelines.

Print Name Legibly \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_ Course \_\_\_\_\_ Section \_\_\_\_\_