

## **Marine Field Ecology Lab Syllabus**

### **Spring Break 2022 – Florida Keys**

#### **General Information**

Class Days: March 12 - March 18, 2022  
Instructor: Dr. Deanna Soper  
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**Books:** Kruczynski, W.L. and Fletcher, P.J. 2012. *Tropical Connections: South Florida's marine environment*. IAN Press, University of Maryland Center for Environmental Science, Cambridge, Maryland. ISBN: 978-0-9822305-3-4

Roszak, Theodore. 1995. *Ecopsychology: Restoring the Earth, Healing the Mind*. Berkeley: Counterpoint.

**Required Documentary:** *Chasing Coral*. 2017. Director: Jeff Orlowski  
(Can be found on Netflix)

#### **Course Description**

This course is intended for students of any major and will cover the ecology of the marine subtropical habitats of the Florida Keys. *Marine Ecology* is the study of the biotic and abiotic interactions that shape the origin, maintenance, and consequences of species diversity in tropical marine ecosystems. We will also pull from the field of *ecopsychology*, which argues that the deep and enduring questions – who we are, how we grow, why we suffer, how we heal – are inseparable from our relationships with the physical world; and similarly, that the overriding environmental questions – the sources of, consequences of, and solutions to environmental destruction – are deeply rooted in the psyche, that is, in our images of ourselves and nature, as well as in our behaviors. This course will utilize ecopsychology as a way of investigating how human behavioral change can be motivated to stop climate change and save one of the most critical habitats in the ocean: coral reefs.

Biological concepts of sustainability, biodiversity, species interactions, and “superorganism” will provide an understanding of the ecological structure of the tropical marine environment. You will learn these concepts through a 6-day trip to the Florida Keys. During this trip, you will experience several marine tropical ecosystems including seagrass, mangrove, and coral reef habitats. Through this immersive

experience, you will observe and identify species of plants and animals in each habitat. You will also observe ecological phenomena such as various interspecies interactions like mutualism, commensalism, and parasitism. You will extend on these experiences by examining how you connect to these habitats in body, mind, and/or spirit. You will reflect on the psychological and physiological responses that you have to the different environments and investigate if and how these experiences reinforce or alter your pre-existing perception of these ecosystems.

## Course Objectives

- Introduce basic ecological and evolutionary concepts through our immersive experience within tropical marine habitats.
- Identify major plant and animal groups within the marine environment, particularly those that are in the South Florida marine waters.
- Understand the community interactions within highly biodiverse habitats and how these interactions shape the ecosystem as we see it now, as well as the evolutionary interactions that have shaped the current form of the ecosystem.
- Develop the student's sense of scientific imagination and their ability to imaginatively enter into the "subjective-self-worlds" of animals.
- Understand empathy and wonder as a foundation for interspecies understanding.
- Utilize your emotional connection to the environment to brainstorm ways to alter behaviors that will lead to more sustainable living.

## Assessment and Requirements

\*In order to participate in this lab, traveling to the Florida Keys for a 5-day trip is required.

<b><u>Item</u></b>	<b><u>Points</u></b>
<i>Field Notebook</i>	50
<i>Post-Trip Presentation</i>	50
<i>Laboratory Report</i>	50
<i>Participation &amp; Chapter Presentation</i>	30
<i>Pre-Lab Quiz</i>	20
	<u>Total 200</u>

## Description of Assessment Tools

### Field Notebook

Record your thoughts every day (even if informally) in a notebook. This should be in a bound notebook that should be easily carried around. In this notebook, you will do two things: (1) record at least 5 plants and 5 animals that you see each day, and (2) reflect on your psychological and even spiritual experience of the environment.

You will be invited to explore the marine habitats with the physical as well as the spiritual eye. You should also take pictures and even videos as documentation and as a reminder of what you observed and experienced. You will use these photos to classify as far down the taxonomic chain as possible. (It is okay if you don't make it to species - this is quite typical in these biodiverse habitats. Even biologists can have difficulty determining different species.) The photos can also be used to capture not just the forms of life observed, but the styles of "seeing" engendered in the observer by the magnificence of nature. Your field notebook will reflect the way that you have integrated these two course interests in your moment-by-moment observations and reflections. This field notebook will be turned in the day you return from the trip.

In regards to the process of keeping these notebooks: while you are in the field, it will not always be easy to attend to the *composition* of what you are writing. There will be times when you can only scribble down notes and random phrases to be used later to jog your memory. These informal notes should be kept in a separate part of your notebooks, perhaps in the back as a kind of appendix. So you can have two sections in these notebooks -- one where you write down stuff as it's happening - notes to yourselves - and then in the evening, like Jane Goodall, you will transcribe your field notes from the day into more formal observations -- written in narrative form. (The observations of field biologists like Darwin and Lorenz and Tinbergen and Goodall are typically composed later in the same day, while everything is still fresh - and this is what presents a more coherent understanding to the reader, than just a perusal of the raw notes themselves.) I will want to see your raw notes, as they were recorded in the field, along with any sketches; but we will also want to read in a separate section of the field notebooks a *daily narrative of your experience* observing the flora, fauna, and environment. This is referred to as the "journaling" component of your field notebooks. These journals will be written in the evenings or during free time in the afternoons.

These narratives of your daily experience will focus upon *two aspects* to your field observations: the *objective* portion will be the making note of species, any drawings, photos, etc., and noting *descriptively* what you observe from a presumably "neutral" standpoint. The *subjective* portion will be where you look at your notes and try to construct an "image" of the world of a particular animal.

### **Presentation**

You will begin to work on the presentation on day 1. You will utilize free time (or meal time) to meet and discuss each other's thoughts and experiences. Be open to the fact that others may perceive and view the same scenario a different way. There is no one "right way" to experience the world – only different ways. Maintain an open dialogue and do not be afraid to present altered points of view. At the same time, discussion of similar experiences and perceptions is welcome.

You will create a 10-minute digital presentation (i.e. power point) that will be recorded and uploaded to Brightspace. In the presentation, you will describe some of the biotic and abiotic features you observed and reflect on your connection to the objects of nature. You will include at least some of the pictures you have taken and you will compare your experiences and perspectives to those of your lab mates.

### **Laboratory Report**

While in the field you will take pictures of the habitats and do a biodiversity quantitative analysis. The analysis procedure will be taught in class and will utilize a version of the Shannon-Weir Biodiversity Index calculation. A graph that displays the quantitative data will be generated using excel. Your lab report will contain an Introduction, Methods, Results, and Discussion section. For more guidance as to the content of information that should be included in each of these sections please see "Dr. Soper's Laboratory Report Guidelines" on the Brightspace webpage. This lab report will be due 6 days after your return from the trip and will be turned in via the Brightspace Dropbox.

### **Participation & Chapter Presentation**

You will read selected chapters in both books assigned. You will be assigned to summarize and stimulate discussion for one chapter from each book. Your points will be awarded based on the thoroughness and correctness of your presentation and your ability to ask questions that generate discussion.

### **ATTENDANCE**

Attendance is required. Missing any part of the required field trip will result in a failure of the course. Missing more than one lab meeting prior to or after the field trip (see dates above), may result in removal (and failure) of the course.

### **Academic Honesty**

Students are expected to maintain academic honesty through avoiding plagiarism and cheating. See the University of Dallas' policy on Academic Honesty at:

[http://www.udallas.edu/about/university-policies/academic\\_policies/academic-honesty.php](http://www.udallas.edu/about/university-policies/academic_policies/academic-honesty.php)

### **Change of Final Grade**

The only reason for which a change of final grade may be requested **is an error** in the original recording of the grade. (THIS MEANS DO NOT E-MAIL US AFTER FINAL GRADES HAVE BEEN GIVEN REQUESTING EXTRA CREDIT OR A GRADE BUMP.) Students should check their transcripts and consult with the instructor if there is a question of error. The appeal for a change of grade must be made in the first three weeks of the semester following that in which the course was taken.

### **General Rules and Expectations for the Course**

1. Students are required to read the assigned readings.
2. Assignments will be completed by the specified deadlines. The instructor is under no obligation to accept unexcused late assignments and can assign a score of zero points. Late assignments accepted by the instructor may be penalized 50% of the assignment's total value.
3. Students will conduct themselves in a courteous and responsible manner in class and keep scholastic integrity (see Academic Honesty).
4. Students have one week to challenge the grade earned on an assignment, presentation, exam, or quiz. After one week, the grade is final.
5. Students are expected to check their University E-mail accounts and Brightspace on a regular basis for additional messages related to the course. Please use University E-mail accounts when communicating with the instructor electronically.
6. Students who are performing unsatisfactorily in the course are expected to discuss their performance with the instructor. The instructor is available by appointment outside of class to review course material and discuss strategies to improve performance.
7. The course schedule is subject to change. Deletions and substitutions in the syllabus schedule may occur.

## Course Schedule

### **Things to be completed prior to the lab:**

-Memorize fish ID card (See:

<https://docs.google.com/document/d/1AazO7JONJ8jdoQ0eBafVGroRA0jseZx8/edit?usp=sharing&ouid=111252069574451694113&rtpof=true&sd=true>)

-Watch Pre-Recorded Lectures (Links are posted to Brightspace)

-Watch *Chasing Coral*

**March 7th** - Quiz by 5pm on Brightspace. See "Upcoming Events" on the course homepage to access the quiz - will cover Fish ID, lecture material, *Chasing Coral*

### **March 12 - March 18th** - Field Trip

Reading to be completed **by the start of the trip** from the *Ecopsychology* book:

The Psychopathology of the Human-Nature Relationship

The Way of the Wilderness

Restoring Habitats, Communities, and Souls

\*You will be responsible for presenting one of these chapters to the rest of the group. An oral (non-digital) presentation is expected. This presentation will occur *during the trip*. You should have read all three chapters and discussed the chapter you were assigned with your group members prior to presenting the material.

**April 3rd** - Student Presentations Videos Due to Brightspace

**March 28th** - Field Notebooks DUE (hardcopy) in the Biology Office

**April 10th** - Lab Report Due Via Brightspace