

**Marine Ecology in Akumal, Mexico (updated 23 September 2017)**  
**Tentative Class Schedule, Spring Immersion Semester 2018**

*February*

CAMPUS COMPONENT:

12: Class 1: Introduction

- **Readings:** Mittelbach, Ch. 1 & 4 (Ch. 12 recommended), course syllabus
- **Assignments due THIS meeting:**
  - Pre-course survey [completion grade]
  - Create a list of three topics in ecology that interest you and describe (briefly) what you find most interesting about these topics (no more than 1 typed page in length). [10 pts.]
- **Lecture:** Introduction to Ecology
- **Discussion:** Go over syllabus and discuss course objectives and expectations
- **Assignment (due by next meeting):**
  - Be a naturalist!: Go out and observe an organism in nature (e.g., on campus, in your yard). Take time to study the animal's environment and (if applicable) its behavior – bring a notepad to take notes! To submit: Describe 3 biotic and 3 abiotic factors that you believe are most important in allowing the animal to persist and briefly describe the observations you made that motivated your choices (~0.5 typed page). [10 pts.]

13: Class 2: Key concepts in community ecology, Part I

- **Readings:** Mittelbach, Ch. 2-3, 14
- **Lecture:** Community assembly, succession and biodiversity
- **Discussion:** Formulating questions in science and group research projects
- **Assignment due by next meeting:**
  - Question Formulation: Using this week's readings as a guide, formulate a hypothetical research question and describe how you would begin trying to answer it. At a minimum, each response must include a list of independent and dependent variables you would explore, the experimental setting, and anticipated challenges with the chosen approach (no more than 1 typed page in length). [10 pts.]

14: Class 3: Key concepts in community ecology, Part II

- **Readings:** Mittelbach, Ch. 5, 7, & 9
- **Lecture:** Species interactions
- **Discussion:** Field research 101: research approaches, experimental design, replication, good research practices
- **Assignment due by next meeting:**
  - Thought Experiment: One day, while snorkeling in a reef you notice that there is a high abundance of sessile snails growing atop dead coral colonies. You decide to conduct a field experiment to test the effects of these snails on reef corals.

Describe your experimental approach, including your control(s), treatments and how you will deal with potential confounding factors (no more than 1 typed page in length). [10 pts.]

- Lecture/Discussion Exam 1 (online, to be completed at home): Covering lectures and discussions up to this point [25 pts.]

#### 15: Class 4: Coral reef ecology

- **Readings:** Richmond and Wolanski 2010, Mumby and Steneck 2010 (Recommended: Stoddardt 1969)
- **Lecture:** Coral reef ecology
- **Discussion:** Form research groups and discuss projects, including supplies needed
- **Assignments due by next meeting:**
  - Study species identification guides
  - Meet with your research group to discuss your project, and work together to create an annotated bibliography including at least 8 references (i.e., at least 4 unique annotated references should be submitted by each group member). [10 pts.]

#### 16: Class 5: Coral reefs of Akumal

- **Readings:** Gil et al. 2015; Mutchler et al. 2007
- **Lecture:** The coral reef ecosystem of Akumal, Mexico
- **Discussion:** Continue planning field methods for group research projects
- **Assignment due by next meeting:**
  - Materials & Methods summary, including daily schedule of field research activities [10 pts.]

#### 19: Class 6: Data analysis and interpretation

- **Readings:** Statistics Manual Introduction
- **Lecture:** Principles in data analysis and presentation
- **Discussion:** What to do with your data once you have them
- **Assignment due by 6 pm Wednesday (in Akumal):**
  - Expected Results Summary [10 pts.]
  - Lecture/Discussion Exam 2 (online, to be completed outside of class): Covering lectures and discussions from Class 4-6 [25 pts.]

#### 20: Class 7: Pre-departure Meeting

##### FIELD COMPONENT:

21: Arrive in Akumal, explore, unpack, and rest

22: Visit 'jungle cenote' in the morning, field research prep

23: Visit Casa Cenote (Cenote Manati) in the morning, Lecture: Coral-algal competition, field research prep

24: Visit Yal Ku Chico and Cavalos Reef by boat in the morning, Lecture: Herbivory in coral reefs, field research prep

25: Field research, Meeting 1: Reality Check

26: Day off for cultural activities/rest

27: Field research

28: Field research

*March*

1: Field research, Guest Lecture: Jenny Mallon: Reef Expedition Akumal

2: Field research, Meeting 2: Data update

3: Day off for cultural activities/rest

4: Field research

5: Field research, Guest Lecture: Baruch Figueroa-Zavala: Centro Ecologico Akumal

6: Field research, Optional: Grad School Discussion

Discussion, Meeting 3: Data analysis and presentation

7: Day off for cultural activities/rest

8: Field research, Meeting 4: Final Presentations

9: Final data collection, cleanup, pack up Field research,

March 10: depart Akumal for the airport in the morning.

Note: Final Research Reports will be due by Friday, March 16th