

**Seminar in Marine Biology (BIOL 650.02)**  
**Marine Behavioral Ecology**

**Melissa Hughes**

Wednesday 6:30-8pm  
Grice 101

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**Office Hours:** by appointment (call or email)

**About the course:** Behavioral ecology is the study of behavior in an evolutionary context. Behavior is a complex phenotype that mediates an animal's interactions with the environment, with both direct and indirect impacts on fitness; as such, behavior plays a critical role linking physiology and functional morphology with ecology. Nonetheless, aside from a handful of species, marine taxa lag well behind their terrestrial counterparts in studies of behavioral ecology. In this seminar, we will examine this disparity by exploring both current behavioral ecological theory and empirical examples from the marine environment.

**Course goals (learning objectives):**

- Develop an understanding of current theory in behavioral ecology
- Discuss marine examples from current behavioral literature
- Consider role of marine biology in behavioral ecology, and vice versa

**Texts:** None; readings will be assigned from primary and secondary literature, and will either be available through the College library or will be provided.

**Grading:**

Participation	60%
Paper presentation	40%

**About Participation:** This is a discussion-based course; active participation is obviously essential.

**About paper presentations:** Every week, we will discuss several papers (typically 3), including at least one theoretical paper and 2-3 empirical papers illustrating marine examples. However, each week you will be responsible for reading only 1 of these papers; those who read a given paper will be responsible for explaining the paper to those who read different papers. To facilitate this exchange, 1 person will be 'lead presenter' for each paper. Each student will be 'lead presenter' approximately 5 times over the semester.

**Grade Scale:**

90.0 – 100% A	70.0 – 78.49% C
88.5 – 89.9% B+	68.5 – 69.9% D+
80.0 – 88.49% B	60.0 – 68.49% D
78.5 – 79.9% C+	<60.0 F

**Class schedule:** (tentative, although we will cover all these topics)

- 8/26 organization / scheduling
- 9/2 communication
- 9/9 aggression / resource defense
- 9/16 habitat selection / dispersal / migration
- 9/23 territoriality / dominance
- 9/30 mating systems / mating behavior
- 10/7 mate choice
- 10/14 CNHS lecture (optional)\*
- 10/21 foraging / avoiding predation / risk avoidance
- 10/28 social behavior / cooperation
- 11/4 behavioral syndromes / personality
- 11/11 People's Choice\*\*
- 11/18 People's Choice\*\*
- 11/25 (no class; Thanksgiving break)
- 12/2 reflection / discussion:
  - What does behavioral ecology have to offer marine biology;
  - what does marine biology have to offer behavioral ecology?

\*CNHS lecture:

I'm giving a public talk for the Charleston Natural History Society that conflicts with class time. If you're interested in science communication and/or outreach, this would be a good opportunity to learn about groups like this. If you're interested in getting some experience with talking about your science with the general public, they're always looking for new speakers!

\*\*Re: People's Choice:

The list of topics from 9/2 – 10/28 represent what I consider to be the central core of behavioral ecology. Some of my colleagues would quibble about some of the omissions (no parent/offspring behavior?), or the scant time spent on some crucial topics (only one day for mate choice??); many others would object to the exclusive focus on behavioral function – modern behavioral ecology includes not only function, but evolutionary history, development (including behavioral genetics and various forms of learning), and underlying mechanisms (including both neurobiological and hormonal).

But the semester is short, and there's only so much time. So as we progress through the central core, be thinking / keeping an eye on the literature re: what you'd like to explore in the last 2 meetings. Could be more of a topic we touched on earlier – maybe there were other examples that we didn't get to talk about? Or, could be one of the many topics we aren't covering at all. After fall break, we'll discuss what we want to do in these final classes.