

Marine Chemical Ecology
4 units (Tues and Thurs, 3:00-4:20, via zoom)
Instructor: Paul Jensen

Course description: Chemistry is the language by which most marine organisms communicate with each other and the environment. While we have yet to learn how to interpret much of this dialogue, it has become clear that natural products play pivotal roles in most biotic process and interactions in the ocean. This course will broadly address the topic of marine chemical ecology, both at the macro- and microbiological scales. It will address the roles of natural products in predator/prey interactions, signaling, allelopathy, food selection, induced defenses, mate recognition, larval settlement, symbioses, compound sequestration, and new methods in chemical ecology among other topics. The goal is to provide a broad understanding of the diverse ecological functions of marine natural products and the important roles played by chemistry in the life histories of marine organisms. Classes will generally consist of a lecture by the instructor and a student led discussion and literature review.

While no textbooks are required, *Marine Chemical Ecology* (Baker & McClintock) and *Chemical Ecology: The Ecological Impacts of Marine Natural Products* (Puglisi & Becerro) are recommended as a resource for supplementing the course lectures.

Student discussion: While each lecture will focus on a specific topic, they will not be comprehensive. "Homework" will be to review literature relevant to each lecture and discuss what you learned in the following class. Are there new, recent advances in this area that were not presented? Are there other systems in which the concepts/methods were applied? Are there new directions in the field that were not covered? These discussions are meant to explore each topic in more detail and to think more broadly about the ecological roles of marine natural products.

The final will consist of 1) a review paper covering a select topic in marine chemical ecology and 2) an oral presentation to the class on the subject.

Week	Topic
1	Introduction to marine natural products
2	Predator/prey interactions
3	Allelopathy/defense
4	Symbiosis/associational defense
5	Settlement cues
6	Quorum sensing
7	Cross-kingdom signaling
8	Mate recognition
9	Food detection/selection
10	Nutrient acquisition/sequestration
Finals week	Paper due, oral presentation