

Sp2018 Sp

MSL 660: Chem

Class meeting times: Tuesday and Thursday 09:15-10:55,

Location: 138 Irving II

Prerequisites: Graduate standing

3 credits

In

Dr. Andrew McDonnell

School of Fisheries and Ocean Sciences

231 Irving II

474-7529

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Office Hours: Tues., Thurs.-2 pm

CD The course is an introduction to chemical oceanography, one of the four major fields of oceanography. We will examine the ocean as a chemical system in which the inputs, outputs, and internal cycling of the elements determine their concentrations and distributions within the ocean. The course will cover the role of fluxes across the ocean boundaries with the atmosphere, sediments and hydrothermal vents. We will then focus on the cycling of elements within the ocean, driven primarily by processes such as photosynthetic production, heterotrophic production, and the remineralization of organic matter. Chemical oceanography (like all oceanographic fields) is an essential part of the interdisciplinary knowledge necessary to understand the ocean. Students will be evaluated based on class participation, three homework assignments, two midterm exams, and a final exam.

LO

1. Understand the roles of material input, output, and internal cycling of the chemical components in the ocean.
2. Identify physical, geological, chemical, and biological controls affecting the distribution and behavior of chemical species.
3. Become familiar with chemical oceanographic approaches to data collection and interpretation.
4. Understand and think critically about recent research in the field.

Req Undergraduate degree in science, or a background that includes similar undergraduate courses, is necessary. Competence in algebra is necessary; introductory calculus and differential equations are useful for some topics but are not required. One year of general chemistry and biology at the college level are necessary; organic chemistry, inorganic chemistry and biochemistry are helpful. Biological and physical oceanography are also helpful. If you have not taken a background course described as "helpful", you will probably benefit from doing some extra reading to familiarize yourself with the basics. For example, an introductory general oceanography course would be helpful. For more information, contact the instructor at (907) 474-7529 or amcdonnell@alaska.edu.

2/15	OCEAN SCIENCES (No lecture)	
2/20	Production and respiration	Chapter 8
2/22	Nutrient distributions	
2/27	Nutrient distributions	Chapter 10

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