

MSL 694: Chemical Coastal Processes

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Class meeting times: TBA
Location: TBA
Office Hours: TBA

Prerequisites: Graduate standing.
Recommended: Chemical Oceanography (MSL 660)

Course Description

This course investigates chemical processes

Synthesis Paper. Choose and investigate a well-defined, focused topic that will be written as a paper. You are to choose an Alaskan coastal region and synthesize 2 to 4 key journal articles on the particular chosen topic and write a synthesis overview.

1. Topics will be selected during the first week of April. You will need instructor approval before moving ahead. This is to ensure you are “on track” with a focused topic.
2. An outline with chosen references will be due on April 12
3. The paper will be due in class on April 26.
4. The body of the paper should have 1.5 line spacing, size 12 font (Time or Times New Roman) and 1 inch margins – it should be approximately 9 to 10 pages with appropriate figures and tables inserted into the text.
5. All tables and figures need to have proper headings or captions, and need to be properly referenced.
6. Reference format:
In the body of the text “The concept of new production (Eppley and Peterson, 1979) has provided valuable insight ...”
In the **Reference** section at the end of the paper:
“Eppley, R.W., and B.J. Peterson. 1979. Particulate organic matter flux and planktonic new production in the deep ocean. *Nature*, **282**: 677-680.”
7. The synthesis needs to be in your own words. It is OK to directly use a sentence from one of the articles as long as you use quotes and reference it properly.

Topic selection – remember that it has to be a focused paper from a **chemical coastal process perspective**. For example, a paper on trace metals in seawater is not acceptable.

Points and grading scale

	Possible points	% of Total
Attendance and active class participation	50	10
Homework (4 assignments)	100	20
Midterm 1	75	15
Midterm 2	75	15
Paper/Presentation	100	20
Final	100	20
Total	500	100

A+	98-100%	A	93-97%	A-	90-92%
B+	87-89%	B	83-86%	B-	80-82%
C+	77-79%	C	73-76%	C-	70-72%
D+	67-69%	D	63-66%	D-	60-62%
		F	< 60%		

Support and Disability Services

At UAF, the Office of Disability Services (203 WHIT; 474-5655; TTY 474-1827; fydso@uaf.edu) ensures that students with physical or learning disabilities have equal access to the campus and course materials. If you have specialized needs, please contact this office or the instructor to make arrangements.

Lecture Schedule (Subject to change)

Week	Date	Lecture Topic	Assignment	Reading
1	1/20	Introductions, overview, logistics		
2	1/25	Coastal zone classification		Open University Ch. 5-8
	1/27	Chemical composition and mixing		
3	2/1	Residence time and input variability		Eyre, 1998
	2/3	Floculation processes	hmw1 Due	Boyle et al., 1974; Sholkovitz, 1976
4	2/8	Organic speciation of trace metals	hwk1 returned	van den Berg, 2000; Buck et al., 2005
	2/10	The roll of Suspended particles		Turner and Millward, 2002
5	2/15	Photochemical Processes		Sulzberger, 2000
	2/17	Photochemical Processes (cont.)	hmw2 Due	Moran & Zepp, 2002
6	2/22	Midterm 1	hwk2 returned (2/21, office)	
	2/24	Carbonate system; Coastal Acidification	Midterm 1 returned	Emerson & Hedges Ch.4
7	3/1	Coastal Acidification (cont.)		Borges & Gypens, 2010
	3/3	Dissolved Oxygen; hypoxia/anoxia		Grantham et al., 2004
8	3/8			

Week	Date	Lecture Topic	Assignment	Reading
9	3/22	Sedimentary transformation of trace metals	hmw3 returned	
	3/24	The role of bacteria		
10	3/29	The influence of sea ice		Melnikov Ch. 3
	3/31	Midterm 2		
11	4/5	Isotopes as tracers	Topic Due Midterm 2 returned	Libes Ch. 5
	4/7	Isotopes as tracers (cont.)	hmw4 Due	Swarzenski et al., 2000
12	4/12	Upwelling, fronts and eddies review	Outline/References Due	
	4/14	Controls on coastal productivity	hmw4 returned	Alongi Ch 7
13	4/19	Controls on coastal productivity (cont.)		Hutchins et al., 1998
	4/21	Interdisciplinary coastal research		Oceanography 10-107,
14	4/26	Coastal Observing Systems	Paper Due	14

Hutchins, D.A., G. R. DiTullio, Y. Zhang and K. W. Bruland. 1998. An iron limitation mosaic in the