

MSL 494: Chemical Coastal Processes

Instructor: Dr. Ana M. Aguilar-Islas
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Class meeting times: TBA
Location: TBA
Office Hours: TBA

Prerequisites: upper-division undergraduate. General Chemistry CHEM 105 and CHEM

Student Presentations All students will make an oral presentation that highlights findings from a chosen journal article addressing a chemical process within an Alaskan/Arctic coastal region (topic and reference to be approved by instructor by April 21)

Paper selection – remember that it has to be a scientific paper addressing a chemical coastal process. For example, the following paper would not be acceptable.

Wagemann, R., E. Trebacz, G. Boila, and W.L. Hart. 1998. Methylmercury and total mercury in tissues of arctic marine mammals. *The Science of the Total Environment* 218:19-31

However, the paper below would be appropriate

Leitch D.R., J. Carrie, D. Lean, R.W. Macdonald, G.A. Stern, and F. Wang. 2007. The delivery of mercury to the Beaufort Sea of the Arctic Ocean by the Mackenzie River. *The Science of the Total Environment* 373:178-195

Presentations will take place during the last week of lecture (May 5th).

Note

This is a stacked 400/600 level course. The material covered will be the same for both versions of the course. Undergraduate level students will be required to answer 4 out of 5 questions for each homework assignment and exam, while graduate students will be required to answer all questions. Undergraduate students will not be required to write a synthesis paper, nor will they be expected to be able to critically evaluate the direction of future coastal/shelf research at the end of the course.

Lack of academic integrity including plagiarism is not acceptable and will not be tolerated.

Points and grading scale

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

A+ 98-100%

A 93-97%

A- 90-92%

- Melnikov, I.A. (1997) *The Arctic Sea Ice Ecosystem*. Gordon and Breach Science Publishers, Amsterdam, 204 pp.
- The Open University (1997) *Waves, Tides and Shallow-Water Processes*. Butterworth-Heinemann, Oxford, 187 pp.
- Valiela, I. (2006) *Global Coastal Change*. Blackwell Publishing, Malden, MA, 368 pp.

Articles

- Borges, A. V. and N. Gypens. 2010. Carbonate chemistry in the coastal zone responds more strongly to eutrophication than to ocean acidification. *Limnology and Oceanography* 55(1): 346–353
- Boyle, E.A., R. Collier, A.T. Dengler, J.M. Edmond, A. Ng, and R.F. Stallard. 1974. On the chemical mass-balance in estuaries. *Geochimica et Cosmochimica Acta* 38: 1719-1728.
- Buck, K.N., J.R.M. Ross, and K.W. Bruland. 2007. A view of total dissolved copper and its chemical speciation in San Francisco Bay, California. *Environmental Research* 105: 5-19
- Eyre, B. 1998. Transport, Retention and Transformation of Material in Australian Estuaries. *Estuaries* 21(