

SYLLABUS Spring 2015

Biogeochemistry – SIO 267

Tues. - Thurs. 11:00-12:20 pm

Vaughan Hall 328

Instructors:

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Prerequisites: *SIO 260 (Marine Chemistry), Inorganic Chemistry, Calculus*

Texts: *Ocean Dynamics and the Carbon Cycle*, Williams and Follows (2011) Cambridge University Press.

Earth System Science, Jacobson et al. (2000) Academic Press

Units: 4. Grade: Letter grade only; 25% problem sets, 25% Midterm, 50% Final Exam

Date	Lecture	Required reading prior to lecture
Tue Mar 31	J 1. Course overview	
Thu Mar 2	J 2. Isotope basics	Earth System Science Chap. 4.1-4.2
Tue Apr 7	J 3. Hydrological cycle & isotope	Earth System Science Chap. 7 Earth System Science Page 471
Thu Apr 9	R 4. Box models and transport	Williams and Follows, 3.1-3.2
Tue Apr 14	R 5. Radiocarbon: tracer and clock	
Thu Apr 16	R 6. Aqueous chemistry of CO ₂	Williams & Follows, 6.1-6.3
Tue Apr 21	R 7. Aqueous chemistry of CO ₂	
Thu Apr 23	R 8. Anthropogenic carbon	Williams & Follows, 6.5
Tue Apr 28	Class Canceled	
Thu Apr 30	J 9. Calcium carbonate chemistry	Earth System Science Chap. 10
Tue May 5	J 10. Methane	Earth System Science Chap. 17
Thu May 7	MIDTERM	
Tue May 12	R 11. Carbon sinks and feedbacks	
Thu May 14	R 12. Air-sea gas exchange	Williams & Follows, 6.6
Tue May 19	R 13. CO ₂ on 10 ⁶ -yr timescales	
Thu May 21	J 14. Why was glacial CO ₂ lower?	
Tue May 26	J 15. Ice core climate records	Earth System Science Chap. 18
Thu May 28	J 16. Dole Effect	
Tue Jun 2	R 17. Regulation of atmospheric O ₂	
Thu Jun 4	J 18. Snowball Earth	
Tue Jun 9	Final Exam	11:30 a.m. - 2:29 p.m

Homework: Sets will be given out roughly weekly. Return as paper copy (not Email), and in essay format (not printed from spreadsheet).