

<u>Date</u>	<u>Subject</u>	<u>Problem sets</u>
5 Jan	1 - What is chemical oceanography? Themes for the class	P.S. #1 Assigned
Theme #1 – The Global Carbon Cycle – the unifying themes and tools		
6 Jan	2 - Major ions of Seawater (E&H, p. 10-13)(Pilson Chpt. 3 and 4)	
7 Jan	3 – Trace Elements in seawater (E&H, p. 13-16)	
8 Jan	4 – What controls the composition of seawater (E&H, Chpt. 2)	
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12 Jan	Paper discussion #1 – Sinks for Anthropogenic Carbon (Sarmiento and Gruber, 2002)	
13 Jan	5 - Stable Isotopes and Fractionation (E&H, Chpt. 5, p. 134-153)	P.S. #1 Due P.S. #2 Assigned
14 Jan	6 - Radioactive Isotopes and Decay ; Secular equilibrium (E&H, Chpt. 5, p. 153-169)	
Theme #2– Are humans changing the chemistry of the ocean by ocean acidification?		
15 Jan	7 – Atmospheric composition and gas exchange (E&H, p. 16-17; p. 340-347)	
16 Jan	Student Review Session	
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19 Jan	Holiday - MLK Birthday	
20 Jan	8 - Tracers for gas exchange (^{222}Rn and ^{14}C) (E&H, p.350-356)	
21 Jan	9 - Carbonate System Equilibria (E&H, Chpt 4)	P.S. #2 Due; P.S. #3 Assigned
22 Jan	9 - Carbonate System Equilibria (E&H, Chpt 4)	
23 Jan	Student Review Session	
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26 Jan	10 - CO_2 Distributions in the Ocean (E&H, Chpt. 4; p. 118-127)	
27 Jan	10 – CO_2 Distributions in the Ocean (E&H, Chpt 11., Plate 8)	P.S. #3 Due
28 Jan	Paper Discussion #2 – The Ocean Sink for Anthropogenic CO_2 (Doney et al., 2009)	
29 Jan	Review Session	
30 Jan	Mid-Term #1 (8:30 – 10:20 covers first 10 lectures)	
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Theme #3 – What are the chemical constraints on biological production in the ocean?		
2 Feb	11 – Introduction to Box Models (Broecker, 1971) (E&H, p. 174-179)	P.S. #4 Assigned
3 Feb	12 - Nutrients (macro/micro) (E&H, Chpt. 6)	
4 Feb	13 - Biological Primary and New Production (E&H, Chpt 6)	
Theme #4 – What is the Fate of Biological Productivity and what are the Impacts of Organic Matter in the Ocean?		
5 Feb	14 – ^{234}Th and export production of particulate carbon (E&H, 193-195)	
6 Feb	Student Review Session	
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9 Feb	15 – Redox Reactions (E&H, Chpt. 3, 89-99)	
10 Feb	16 - Biological Respiration (E&H, Chpt 6)	P.S. #4 Due; P.S. #5 Assigned
11 Feb	16 - Biological Respiration (E&H, Chpt 6)	
12 Feb	15 – Redox Sequence and Sedimentary Diagenesis (E&H, Chpt 12)	
13 Feb	Student Review Session	

16 Feb	No Class - Presidents Day Holiday	
17 Feb	17 - Iron Distributions and Chemical Controls (E&H, 184-186)	
18 Feb	Paper Discussion #3 – Mesoscale Iron Enrichment Experiments (Boyd et al., 2007)	P.S. #5 Due ; P.S #6 Assigned
19 Feb	18 - O₂ Distributions and Ocean Ventilation (E&H, 203-215, Plate 6)	
20 Feb	Student Review Session	
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23 Feb	19 - Ocean Nitrogen Cycle (E&H, 147-150)(Plates 4, 5)	
24 Feb	Paper Discussion #4 – Marine Microorganisms and Global Nutrient Cycles (Arrigo, 2005)	P.S. #6 Due
	Review session in the afternoon.	
25 Feb	Mid-Term #2 830 – 1020 in 425 OSB (covers lectures 11 – 19)	
26 Feb	No Class	
27 Feb	No Class	
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2 Mar	No Class	
3 Mar	No Class	
4 Mar	No Class	
5 Mar	No Class	
6 Mar	No Class	
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9 Mar	No Class	
10 Mar	No Class	
11 Mar	No Class	
12 Mar	No Class	
13 Mar	No Class	
18 Mar	no final	

2 – mid terms
4 – paper discussions
6 – problem sets
no final exam

Oceanography Instructional Services

Winter Quarter 2009

OCN400 - Chemical Oceanography

Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
1					1	2	3
					JANUARY		
2	4	(1) 5 Intro and Themes	(2) 6 Major Ions	(3) 7 Trace Elements	(4) 8 SW Composition	(4) 9 SW Composition	10
3	1	Paper #1-S&G	(5) 13 Stable Isotopes	(6) 14 Radio-Isotopes	(7) 15 Gas Exchange	16	17
4	1	★ 19 MLK Jr's Birthday	(8) 20 Gas Tracers	(9) 21 Carbonate System	(9) 22 Carbonate System	23	24
5	2	(10) 26 CO ₂ Distributions	(10) 27 CO ₂ Distributions	28 Paper #2-Doney	29 Review Session	30	31
6	1 FEBRUARY	(11) 2 Box Models	(12) 3 Nutrients	(13) 4 Biological Prod.	(14) 5 Export Prod.	6	7
7	8	(15) 9 Redox Reactions	(16) 10 Biol. Respir.	(16) 11 Biol. Respir.	(15) 12 Redox Sequence	13	14
8	1	★ 1 Presidents Day	(17) 17 Iron Chemistry	18 Paper #3-Boyd	(18) 19 O ₂ Ventilation	20	21
9	2	(19) 2 Nitrogen Cycle	24 Paper #4-Arrigo	25 Mid-Term #2	26 No Class	27	28
10	1 MARCH	2 No Class	3 No Class	4 No Class	5 No Class	6	7
11	8	9 No Class	10 No Class	11 No Class	12 No Class	13	14
12	1	1	17	18	19	20	21
		FINALS		No Final			