

Oceanography 633: Biogeochemical Methods in Oceanography Fall 2009

Introduction / Course Policy & Grading

Course Instructors: Drs. Eric Heinen De Carlo, Chris I. Measures, Francis J. Sansone
Teaching Assistant: Didier Dumas
Guest Instructors: Drs. J. Cowen, B. Glazer, D. Ho, J. Schoonmaker, K. Selph
Class Times: Lecture: M,F 13:30-14:20, Lab: W 13:30-16:20

Note: Because labs tend to require more than the three hours scheduled each week and because of the need to develop a class schedule, the course will begin **Friday August 28**, but formal lectures will start the **SECOND WEEK** of classes. Theory and the basis of methods will be presented on Fridays and Mondays and laboratory exercises and other equipment demonstrations will take place during the Wednesday extended laboratory sessions.

The field trip to Kaneohe Bay will require at least a half-day and may cause students to miss other classes. We will attempt to schedule the field trip after consultation with students so as to minimize interference with other commitments. It is also possible that we will run the field trip on a weekend, although the availability of a boat/pilot from HIMB will dictate whether this is possible or not. The day of the field trip will be long because some samples must be processed immediately after collection. Other samples may need to be processed within a few days. No lab will be held the week following the field trip to compensate for the extra time spent with sample processing,

Date	Topic	Instructor(s)
August 28	Course Introduction, policies, guidelines	EDC (CIM, FJS)
August 31	Quantification, detection limits, blanks, sources of error, significant figures, data analysis	CIM
September 2	Good Laboratory Practices, weighing, pipetting, calibration of volumetric lab ware	DD, CIM
September 4	Water samplers and Sediment samplers	FJS
September 7	Holiday: Labor Day	
September 9	Nearshore Navigation	DD, FJS
September 11	Environmental monitoring equipment. multiparameter probes, other <i>in-situ</i> systems	EDC
September 14	Environmental monitoring systems (cont.)	EDC
September 16	Field Trip (and sample processing)	DD, EDC, FJS
September 18	Conductivity, Salinity, T-S diagrams	CIM
September 21	CTD, Minisal/AutoSal	CIM
September 23	LAB HOLIDAY	
September 25	Theory of titrimetry	EDC
September 28	Applications of titrimetry (CL, Ca, Mg, Alk)	EDC

October	30 2	Analysis of CL, Ca, Mg in seawater, Lab Acid-Base Theory	DD, EDC EDC
October	5 7 9	Dissolved inorganic carbon, alkalinity Alkalinity titrations, Lab Spectrometric methods of analysis, Theory	EDC DD, EDC EDC
October	12 14 16	ICP-AES and ICP-MS ICP-MS analysis (Mn in porewater and/or Ba, Rb in seawater) Lab Flow Injection Analysis	EDC DD, EDC CIM, M. Hatta
October	19 21 23	Sequential Injection Analysis FIA&SIA analysis of Fe , Al in seawater Lab Dissolved oxygen (Winkler titration, polarographic oxygen sensors)	CIM, M. Grand DD, CIM, M. Grand, M. Hatta FJS
October	26 28 30	Dissolved oxygen (optodes, planar optodes), dissolved oxygen fluxes Dissolved oxygen, Winkler titration, oxygen meter Lab UV Visible spectrometry	FJS DD, FJS EDC
November	2 4 6	UV visible spectrometry, applications (nutrients, metals) Nutrient analysis Lab X-ray diffractometry theory	EDC, DD, EDC, P. Drupp EDC, JS
November	9 11 13	X-ray diffractometry Applications Holiday – Veterans’ Day Demo of SEM laboratory	EDC, JS DD, J. Cowen, EDC
November	16 18 20	Flow cytometry/Coulter Counter Flow cytometry/Coulter Counter Lab In-situ CO ₂ analyzers	K. Selph DD, K. Selph EDC
November	23 25 27	Gas Chromatography Gas Chromatography Lab Demo Holiday – Thanksgiving	D. Ho DD, D. Ho
November December	30 2 4	Electrochemical methods Electrochemical methods Lab Demo Student Presentations	B. Glazer B. Glazer EDC, FS
December	7 9	Student Presentations Student Presentations	EDC, FS EDC, FS