OCN 330 / ORE 330
Mineral & Energy Resources of the Sea
Fall 2016
T-Th ♦ 10:30-11:45 am ♦ MSB 315

COURSE SYLLABUS†

Instructors:	John C. Wiltshire (JW)	johnw@soest.hawaii.edu	Ph: 956-6042, MSB 319 (ofc hrs by appt)
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AUG 23	Introduction to course	JW
25	Introduction to Energy Resources	JW
30	Oil and Gas	JW
SEPT 1	Resource Distribution & politics of oil & gas	JW
6	Future oil provinces, oil spills & oil spill recovery	JW
8	Methane Hydrates	JW
13	OTEC (Ocean thermal energy conversion)	JW
15	Wind power	JW
20	Peak Everything I: Population & Fossil Fuels	GM
22	Peak Everything II: Minerals	GM
27	Mid -ocean ridges, basins and trenches	GM
29	Overview of submarine hydrothermal systems	GM
OCT 4	Recyling of ocean crust and the Geostill Concept	GM
6	Origins of high and low-temperature hydrothermal deposits	GM
11	Chemistry of hydrothermal vents and polymetallic sulfides I	GM
13	Chemistry of hydrothermal vents and polymetallic sulfides II	GM
18	**MID TERM EXAM **	GM
20	Japanese Kuroko Deposits and PMS of the Western Pacific Back Arc Basins	GM
25	Case studies of ocean floor deposits - Explorer Ridge, North Fiji Basin , Red Sea	GM
27	Phosphorites	GM

NOV 1	Placer Deposits	GM
3	Geology of Ferromangnese Crusts and Nodules	GM
8	Election Day	
10	Mining technology for manganese nodules, crusts and sulfides I	JW
15	Mining technology for manganese nodules, crusts and sulfides II	JW
17	Marine minerals Development – Legal and Environmental Issues	JW
22	Chemistry of Crusts and Chemical Variability with Age	GM
24	*** THANKSGIVING HOLIDAY ***	
29	Fresh Water and Deesalination	JW
DEC 1	Wave Power	JW
6	Current and Tidal Power	JW
8	Future Developments	JW

Tuesday Dec. 13 **9:45 am - 11:45 am, MSB 315 *** FINAL EXAMINATION ***

Distribution of Grade Points:	Homework Assignments	30%
	Midterm Exam	30%
	Final Exam	40%

Student Learning Outcomes (SLOs)

Upon successful completion of OCN/ORE 330, the student should be able to:

1) Understand the various types of marine minerals, their mode of formation and their importance geologically and economically.
2) Understand the various options for deriving energy from the ocean and the potential advantages and disadvantages of each.
3) Understand the legal, environmental, economic and technical difficulties in extracting minerals and energy from the ocean.