MAR 110 "Ocean Hazards" SYLLABUS
FALL 2008

Monday, Wednesday, & Friday 10:00-10:50pm
DION Science & Engineering Bldg Room 110

Instructors: Professor Wendell S. Brown
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COURSE FORMAT

Course Webpage http://www.smast.umassd.edu/OCEANOL/courses/mar110/index.htm

- **Three Weekly Lectures**
  Lecture Outlines on Website
- **Regular Reading Assignments**
  Pinet, P.R. "Invitation to Oceanography", 4th Edition, Jones & Bartlett Publishers, Sudbury, MA, 2000.

	Grade %
• **Homework Exercises**	25%
• **Examinations**	
Examination I	15%
Examination II	25%
Final Examination	35%
	100%

- **References** (with codes that are used to reference the figures in the lecture outlines)

Required Course Text

Pinet, P.R. **"Invitation to Oceanography"**, 4th Edition, Jones & Bartlett Publishers, Sudbury, MA, 2000. (ItO)

General Oceanography References

Chauffe, K.M., & M.G. Jefferies. "Laboratory Exercises to accompany Invitation to Oceanography", 2007. (CJ)

Ericson, D.B., and G. Wollin, "The Ever-Changing Sea", Alfred A. Knopf, Inc., 1967. (ECS)

Pipkin, B.W., D.S. Gorsline, R.E. Casey, D.A. Dunn & S.A. Schellenberg, "Laboratory Exercises in Oceanography", W.H. Freeman & Co., 2001. (LEiO)

General Meteorology Reference

Aguado, E. & Burt, J.E., "Understanding Weather and Climate", Prentice-Hall, Inc., Upper Saddle River, NJ, 1999. (UWaC)

General Geology Reference

Hamblin, W.K., "The Earth's Dynamic Systems", Burgess Publishing, Minneapolis, MN, 1985. (tEDS)

Gulf Stream References

MacLeish, M., "The Blue God", Smithsonian XXXXX (BG1)

MacLeish, M., "Painting a Portrait of the Stream From Miles Above-and Below", Smithsonian XXXXX . (BG2)

Climate Change References

Burroughs, W.J., "Climate Change: A Multidisciplinary Approach", Cambridge University Press, Cambridge, UK, 2001. (CCaMA)

Bigg, G., "The Oceans and Climate", Cambridge University Press, Cambridge, UK, 2005. (tOaC)

Pugh, D., "Changing Sea Levels", Cambridge University Press, Cambridge, UK, 2005. (CSL)

Earthquakes Reference

Winchester, S., "A Crack at the Edge of the World", Harper Collins Publishers, NY, 2005. (aCEW)

Natural Hazards Reference

Bryant, E., "Natural Hazards", Cambridge University Press, Cambridge, UK, 2005. (NH)

Volcano Reference

Winchester, S., "Krakatoa", HarperCollins Publishers, NY, 2003. (K)

MAR 110: Natural Hazards and the Oceans: Fall 2008 Lectures

Date		Lecture Title	Lec	Readings		Homework Due Date
	LEC			Pinet	Web	
3 Sep W	1	Introduction to Natural Hazards	WB	Chp 1		
5 F	2	Ocean Hazard Energy Sources	DM		HW 1	
8 M	3	Ocean Earth Interior & Bathymetry (T1; HW 1-Eng-Met)	WB	Chp 2		
10 W	4	Plate Tectonics Introduction	WB	Pgs 63-72		
12 F	4b	Plate Tectonics & Earthquakes (T2; HW 2a-Bathy Charts)	WB	Pgs 72-78	HW 2a 2.1-2.4	HW 1 – Eng-Met
15 M	6	**Case Studies: (**Hurricanes) & Earthquakes (videos)	WB	Pgs 78-88		
17 W	5	Plate Tectonics & Quakes	WB	Pgs 259-261	HW 2b 2.5-2.6	
19 F	8	Earthquakes & Tsunamis	WB			
22 M	9	**CS:** "America's Tsunami" (T3; HW 3-Plate Tectonics)	WB	Pgs 95-104	HW 3	HW 2a Ex1– Bathy Charts
24 W	10	Plate Tectonics: Volcanoes	WB	Pgs 104-110		
26 F	11	**Case Study**: Krakatoa	WB			HW 3 – Plate Tectonics
29 M	12	Review #1	WB			
1 Oct W		**EXAMINATION #1**				
3 F	13	Atmosphere/Ocean System (T4; HW 4-Graphs)	DM	Pgs 191-197	HW 4	
6 M		Exam Discussion	VH	Pgs 144-161		
8 W	14	Intro Atmospheric Dynamics (T5a; HW 5-Ocean Props)	DM	Pgs 214-222	HW 5	HW 4 - Graphs
10 F	15	Ocean Conveyor Belt (T5b; HW 5-Ocean Props)	DM	Pgs 198-209		
13 M		COLUMBUS DAY - **NO CLASS**				
14 TUES	16	The Dynamic Ocean	DM	Pgs 209-211		
15 W	17	**Case Study**: The Gulf Stream (T6; HW 6-Ocean Currents)	DM	Pgs 235-244	HW 6	HW 5 - Ocean Properties
17 F	18	Ocean-Generated Weather	DM	Pgs 244-245		
20 M	19	Principles of Ocean Waves	DM	Pgs 247-251		
22 W	20	Wind-Generated Waves & Rogue Waves	DM	Pgs 252-255		HW 6 - Ocean Currents
24 F	21	Shallow Waves & Erosion (T7; HW 7-Ocean Waves)	DM	Pgs 256-261	HW 7	
27 M	22	Standing Waves & Tides	DM	Pgs 267-277		
29 W	23	Hurricanes & Storm Surge(T8; HW 8–Hurricane Damage)	DM	Pgs 212-213	HW 8	HW 7- Ocean Waves
31 F	24	**Case Study:** Hurricane of '38	DM	Pgs 416-417		
3 Nov M	25	Ocean Inundation - **QUIZ**	DM			
5 W	26	**Case Study:** Katrina Flooding	DM			HW 8-Hurricane Damage
7 F	27	Exam #2 Review	DM			
10 M		Veterans Day - **NO CLASS**				
12 W		**RED TIDE – Prof Jefferson Turner** (tentative)	**JT**	Pgs 542-547		
14 F		**EXAMINATION #2**				
17 M		Exam Discussion	VH			
19 W	28	Global Climate Change I (T9; HW 9-Hurricane Forecasts)	WB	Pgs 371-377	HW 9	
21 F	29	ENSO	WB	Pgs 538-541		HW 9-Hurricane Forecasts
24 M	30	CC Cooling (T10; HW 10-ENSO)	DM	Pgs 124-126	HW 10	
26 W		**CLASS CANCELLED**				
28 F		Thanksgiving Break - **NO CLASS**				
1 Dec M	31	CC Cooling/Warming	WB			
3 W	32	Warming, Ice and Sea level	WB	Pgs 542-546		HW 10-ENSO
5 F	33	Anthropogenic Climate Change: Atmosphere/Oceans	WB			
8 M	34	**"** The Inconvenient Truth"	WB			
10 W	35	Section #3 Review	WB/DM			
12 F	36	Final Exam Review	WB/DM			
TBD		**FINAL EXAMINATION**				