Oceanography: Global Climate Change **Syllabus**
Fall/ Winter 2010 – 2011 **Dr. John Wnek**

This is a **tentative** list of assignments and topics that will be covered throughout the semester. Please complete the assignments prior to the major unit evaluations. I will check them in your journal books!

Date	**Topic**	**Assignment**
Tue. Sept.7	Welcome and Indoctrination Safety Introduction, Journaling, Navigation	Forms and Texts Turn in Summer Assignment
Wed. Sept. 8	Use of computers, lesson on statistical Analysis and start Navigation Lessons Project Development	Journal Write-up Data Activity
Thurs. Sept. 9	School Closed Rosh Hashanah	Chapter 2 – Begin
Fri. Sept. 10	Navigation and Basic Dead Reckoning Terminology (45 minutes) Project Development	Chapter 2 - SQ #1-4
Sun. Sept. 12	**Beach Plum Festival at Island Beach State Park from 9 a.m. to 3 p.m.**	
Mon. Sept. 13	Navigation - Advanced Excel Work and Graphical Analysis	Chapter 2 SQ #5-10 Analysis Activity
Tue. Sept. 14	Navigation – Advanced and Bathymetry	Chapter 2 SQ #11-14
Wed. Sept. 15	Field Exercise on Navigation and Bathymetry	Chapter 2 SP#1
Thurs. Sept. 16	Bathymetry – How do we measure the Oceans?	
Fri. Sept. 17	Bathymetry Activity Field Collection of Sediment (Ponar Grab) Measuring the Bottom of the Bay	Chapter 12 SQ#1-3
Mon. Sept. 20	Global Climate Change Topics	Chapter 12 SQ#4-5
Tue. Sept. 21	*The Coastal Zones – Types* Categorization, Notes, Coastal Features	Chapter 12 SQ#6-8 Journal Work
Wed. Sept. 22	Lesson on Coastal Features: Independent Work on Coastal Feature	Chapter 12 SQ#9
Thurs. Sept. 23	E**valuation #1 on Navigation and Bathymetry** Project Development	Journal Write-up
Fri. Sept. 24	**First Journal Write-up due today** Independent Work on Coastal Feature	Chapter 12 SQ#10-12

Date	Topic	Assignment
Mon. Sept. 27	Sediment Collection aboard the R/V Sirenia	Field Collection
Tue. Sept. 28	Geological Oceanography: Compositions **Presentations of Coastal Types** **Journal Book Check**	Chapt. 4 SQ#1-3
Wed. Sept. 29	Calcareous & Siliceous Composition **Continued Coastal Presentations**	Chapt. 4 SQ#4-6
Thurs. Sept. 30	Sediment Analysis Laboratory - Use of Sieves - Analysis of Particles - Determining Conductivity	Chapt.4 SQ#7-10
Fri. Oct. 1	Sediment & Seabed Sources : Why are they Where they are in the oceans? The Bay?	Chapt. 4 SQ#11-12

Sunday October 3 is Cattus Island Park's Nature Festival (Volunteers Needed)

Mon. Oct.4	Field Sediment Analysis In field determinations Beach Zones and Beach Analysis	Chapt 3 SQ #2 – 5
Tue. Oct. 5	Overview of deep sea structures	Chapt. 3 SQ#6-10
Wed. Oct. 6	Plate Tectonics and Evidence Global Climate Change	Lab Write-up
Thurs. Oct. 7	Island Beach State Park Student Summit All Seniors will assist with this event	Presentations Continued
Fri. Oct. 8	**Sediments, Tectonics, Beach Composition** **Evaluation #2 Today (60 minute class)**	Start Currents
Mon. Oct. 11	*School Closed for Columbus Day (Landing on San Salvador)*	
Tue. Oct. 12	Start: Surface Currents -Ekman Transport - Upwelling	Chapt. 9 SQ#1-4
Wed. Oct. 13	The Gulf Stream and Major Ocean Currents	Chapt. 9 SQ#5-9
Thur. Oct. 14	Global Currents and Circulation -The Gulf Stream and Global Climate Change	Chapt. 9 SQ#10-12

Fri. Oct. 15	Project Development Day/ Possible Sirenia	Chapt. 10 Read
Mon. Oct. 18	Start Waves aboard the Sirenia (Measurements) - Wave Period - Wave Length - Wave Speed	Chapt. 10 SQ#1-5
Tue. Oct. 19	Deep versus Shallow Water Waves Bring Calculators	Chapt. 10 SQ#6-9
Wed. Oct. 20	Wave Table (Lab on Wave Properties) - Diffraction - Reflection - Refraction	Chapt. 10 SQ#10-12
Thur. Oct. 21	Wave Measurements Write-up on Physical and Geological due tomorrow	Chapt. 10 SQ#13, 15
Fri. Oct. 22	**First Field Write-up on Sediments/Physical Due** Tsunami Day!	
Mon. Oct. 25	**Evaluation #3 on Currents and Tides** Start Tides: In the field tide activity	Chapt. 11 SQ#2 – 6
Tue. Oct. 26	Tides: Causes and Predictions	Chapt. 11 SQ#7-10
Wed. Oct. 27	Tides: Consequences for Global Climate Change	Chapt. 11 SQ#11-14
Thurs. Oct. 28	**<u>Journal Book Check</u>** Tide Predictions Continued Work on Project	Work on Term Paper
Fri. Oct. 29	Project Development Day	Work on Term Paper
Mon. Nov. 1	Start: Properties of Water "Lab-a-thon 2010"	Chapt. 5 Read
Tue. Nov. 2	Happy Election Day! Lab on Heat Capacity	Chapt. 5 SQ#1-4
Wed. Nov. 3	**Major Paper Due Today** Lab on Gases in Salt Water	Chapt. 5 SQ#5-9
Thurs. Nov. 4 Fri. Nov. 5	School Closed for Teacher Convention Use this time for college applications!	

Mon. Nov. 8	Properties of Water Continued	Chapt. 5 SQ#10-13
Tue. Nov. 9	Light in Water Lab Use of Turbidity Units Testing for Optical Brighteners	Chapt. 5 SQ #14
Wed. Nov. 10	Properties of Water: Sound Types of Fog	Study/Review
Thur. Nov. 11	**Evaluation #4 on Tides and Salt Water**	Start Chapt. 6
Fri. Nov. 12	Icebergs and Glacial Ice The future based on Global Climate Change	Chapt. 6 SQ#1
Mon. Nov. 15	Field Day (Measuring pH, Salinity)	Chapt. 6 SQ#2
Tue. Nov. 16	Chemical Oceanography: Seawater pH of Seawater: How, Why and the Future	Chapt. 6 SQ#3 & 4
Wed. Nov. 17	Five Ways to Measure Salinity Lab - Hydrometry - Refractometry - Conductivity - Evaporation - Knudsen Titration	Chapt. 6 SQ#5
Thur. Nov. 18	Field Collection: Sulfates and Marshes	Chapt. 6 SQ#6
Fri. Nov. 19	**Journal Book Check** Lab on 5 methods continued	Chapt. 6 SQ #8, 9
Mon. Nov. 22	Field Day: Nutrients at the start of winter	Chapt. 6 SQ#10-12
Tue. Nov. 23	Nutrients and Seawater: How different are they than freshwater? Eleven Major Constituents in Seawater	Chapt. 6 SQ#13
Wed. Nov. 24	Project Development Day	Work on Project
Thur. Nov. 25 Fri. Nov. 26	Happy Thanksgiving Happy Left-over Day	
Mon. Nov. 29	Field Collection of Gas Data	Chapt. 6 SQ#14
Tue. Nov. 30	**Evaluation #5 on Chemical Oceanography** Analysis of Data and Overview of Seawater and Gases: Implications for Climate Change	Chapt. 8 SQ#1

Wed. Dec. 1	Density of Seawater: Water Types and Water Masses: Lab Set up	Chapt. 8 SQ#2
Thur. Dec. 2	Lab on Densities (Temp/Density Differences)	Chapt. 8 SQ #3,4
Fri. Dec. 3	T-S Diagrams Analysis	Chapt. 8 SQ#5
Mon. Dec. 6	Field Visit to Rutgers IMCS (Tuckerton) Measuring the Ocean Layers	Chapt. 8 SQ#6-8
Tue. Dec. 7	Field Write-up on Rutgers Visit A Comparison of Oceans	Chapt. 8 SQ#9,10
Wed. Dec. 8	Activity of Water Types and Masses	Work on Activity
Thur. Dec. 9	Energy from the Ocean: Ocean Thermal Energy and Feasibility	Chapt.8 SQ#11,12
Fri. Dec. 10	**Journal Book Check**	Chapt. 8 SQ#15
Mon. Dec. 13	Field Activity TBD	Review Chapt. 8
Tue. Dec. 14	Review Chapter 8 on Ocean Circulation Start Ocean Warrior by Paul Watson	Review Chapt. 8
Wed. Dec. 15	**Evaluation #6 on Ocean Circulation**	Project Development
Thur. Dec. 16	Project Development	Ocean Warrior Chapters Assigned
Fri. Dec. 17	Ocean and the Atmosphere	Chapt. 7 Read Section 1
Mon. Dec. 20	Project Development	Find Paper for Journal Review #2
Tue. Dec. 21	Work on Field write-up #2 on Chemical & Physical	Work on Field Write-up
Wed. Dec. 22	Project Development Work on Field Write-up #2 Ocean Warrior Questions	Ocean Warrior Chapters Assigned
Thur. Dec. 23	**Field Write-up #2 Due**	**Ocean Warrior Reading**
	Happy Holidays!	

Mon. Jan. 3	Ocean and Atmosphere: Convection Start Meteorology	Chapt. 7 SQ#1
Tue. Jan. 4	Wind Bands and Convection	Chapt. 7 SQ#3-6 El Nino Article
Wed. Jan. 5	El Nino and Related Articles Ocean Warrior Discussion	Chapt.7 SQ#7-10
Thur. Jan. 6	Global Climate Change Project Development	Chapt. 7 SQ#11-13
Fri. Jan. 7	The Oceans: the Final Frontier Ocean Warrior: the Final Frontier? Take Home Evaluation Assigned Possible Field Day	Chapt. 7 SQ#14
Mon. Jan. 10	Ocean Warrior: Does Passion Mean Results?	Ocean Warrior Readings
Tue. Jan. 11	Work on Project	Readings as Assigned Work on Take-Home
Wed. Jan. 12	Work on Project	Readings as Assigned Work on Take-Home
Thur. Jan. 13	Global Climate Change: Weather Extremes!	Readings as Assigned Work on Take-Home
Fri. Jan. 14	Project Day (Possible Field Day)	Work on Take Home
Mon. Jan. 17	School Closed for Dr. Martin Luther King Jr. Day We will have a volunteer opportunity for those wanting to do service	
Tue. Jan. 18	Project Team Presentation(s)	Work on Take Home
Wed. Jan. 19	**Take Home Evaluation Due (Eval #7)** Project Team Presentation(s)	Project Work
Thur. Jan. 20	Project Evaluations and Critiques	Review for Final
Fri. Jan. 21	Review for Final	
Mon. Jan. 24 +	Final Reviews all Week **Final Journal Book Check**	