Kingsborough Community College
The City University of New York
Department of Physical Sciences
EPS 3200 – OCEANOGRAPHY (WITH LABORATORY)
Syllabus

EPS 3200 – OCEANOGRAPHY (4 crs. 6 hrs.) Factors that have a major influence on the physical and chemical structure of the oceans includes tides, waves, currents, oceanographic instrumentation and coastal oceanography. Course includes a laboratory component. ---- Prerequisites: Passed, exempt, or completed developmental course work for the CUNY Assessment Tests in Reading, Writing, and ACCUPLACER CUNY Assessment Test in Math or Department permission ---- ----Required Core: Life and Physical Sciences ------Flexible Core: Scientific World (Group E)

Section: SECTION NUMBER Time: LECTURE AND LABORATORY SCHEDULE FOR SECTION
Room: ROOM (S) FOR SECTION
Instructor: INSTRUCTOR FOR SECTION Email: EMAIL ADDRESS FOR INSTRUCTOR FOR SECTION
Office Hours: OFFICE HOURS FOR INSTRUCTOR FOR SECTION

Source materials: ***Essentials of Oceanography***, 11th **or** 12th or latest edition, by Alan P. Trujillo & Harold V. Thurman, Prentice Hall, 2013-2017

Student Learning Outcomes Students will:

- Recognize that many scientific disciplines contribute to the study of the oceans
- Explain physical ocean features using the Theory of Plate Tectonics.
- Identify physical features of the sea floor such as its topography, sediment type and distribution, or available resources.
- Describe the properties of water, emphasizing how these properties change in presence of salt.
- Compare and contrast oceanic circulation to atmospheric circulation.
- Explain the physical forces that affect circulation and stratification of the ocean.
- Analyze the forces that influence waves and tides.
- Distribution of the marine life in the ocean.
- Compare factors that influence coastal environments.

Topical Outline Lecture: (Approximate and subject to change upon notification)

Week	Topics	Book Chapter(s)
1	**Introduction to "Planet Earth"**Earth's Oceans, Early Exploration, Middle Ages, Voyages of Discovery, Scientific Inquiry, the Beginnings of Solar System & Earth, Formation of the Oceans, Origin of Atmosphere, Lithosphere & Asthenosphere, Age of the Earth, Radiometric Dating & Geologic Time	Chapter 1 pp. 3 - 33
2	**Plate Tectonics and the Ocean Floor** Early Evidence for Crustal Motion, History & Evidence of a Theory, Breakup of Pangaea Paleomagnetism, Magnetic Reversals, Plate Boundary Types, Hot Spots, & Seamounts	Chapter 2 pp. 35 - 73
3	**Marine Provinces** Bathymetry, Measuring the Depths, Continental Margins, Continental Shelf & Slope, Ocean Floor, Ridges, Rises & Plains, Trenches, & Hydrothermal Vents	Chapter 3 pp. 75 - 95
4	**Marine Sediments** Types of Sediment, Organic & Inorganic, Distribution, Manganese Nodules,Phosphates, Carbonates & Other Resources	Chapter 4 pp.100 - 120
5	**Water and Seawater** Properties of the Water Molecule, Boiling & Freezing Points, Salinity, Salt Variationswith Depth, Hydrologic Cycle, CO_2 as a Buffer, Thermocline, Pycnocline & Desalinization Processes	Chapter 5 pp.129 - 159
6	**Air-Sea Interaction** Earth's Seasons, Distribution of Solar Radiation & Heat Flow, Movement in the Atmosphere Coriolis Effect, Wind Belts, Circulation Cells, Intense Ocean Storms, Hurricanes, Sea Ice, Icebergs, & Wind Power	Chapter 6 pp.161 - 191

7	**Ocean Circulation** Measuring Currents, Origin of Ocean Surface Currents, Eckman Spiral, Coastal Up Welling & Down Welling, Ocean Circulation, El Nino & La Nina, Thermohaline Circulation & Energy Sources	Chapter 7 pp.193 - 229
8	**Waves and Water Dynamics** What Causes Waves, Wave Characteristics, Wave Motion & Speed, Deep Water Waves, Wave Interaction, Wave Height & Steepness, Shallow Water Waves, Surf Zone, Reflection & Refraction, Tsunami, & Wind Energy	Chapter 8 pp.231 - 259
9	**Tides**Tide Generating Forces, Tidal Bulges & Cycles, Types of Tides, Tidal Bores, & Using Tidal Energy	Chapter 9 pp.261 - 283
10	**The Coasts: Beaches and Shoreline Processes** Beach Terminology, Movement of Sand, Eroding Shorelines, Barrier Islands, Emerging & Submerging Shorelines, Types of Coasts, & Coastal Protection	Chapter 10 pp.285 - 311
11	**Coastal Ocean** Estuaries, Wetlands, Marine Pollution, Major Oil Spills, Effects of DDT, PCBs, & Plastics	Chapter 11 pp.313 - 343
12	**Marine Life and the Marine Environment** Classification of Organisms, Types of Kingdoms, Phytoplankton, Zooplankton, Nektonic & Benthonic Organisms & Marine Environment Divisions	Chapter 12 pp.345 - 369
13	**Final Exam** - As per official College Final Schedule	

Laboratory

Date	Topic	Requirements
Lab 1	The Metric System	Hand in
Lab 2	Plate Tectonics	Hand in
Lab 3	Ocean Floor and Tectonics	Hand in
Lab 4	Sediments	Hand in
Lab 5	Ocean Water Part 1	Hand in
Lab 6	Ocean Water Part 2	Hand in
Lab 7	Ocean Circulation	Hand in
Lab 8	Waves	Hand in
Lab 9	Tides	Hand in
Lab 10	Beach Erosion	Hand in
Lab 11	Salinity in Estuaries	Hand in
Lab 12	Student Presentations	Presentation

Evaluation:

- 3 Exams – 20% each

Exams are definition, problems, short answer, and essay. Once side of a 3x5 index card filled with notes may be created and used for an exam.

- Homework/Presentation - 20%

- Laboratory - 20%

You are responsible for being in laboratory on time. Laboratory assignment cannot be made up. Laboratory reports, unless otherwise specified, must be turned in at the end of class. As part of your laboratory final, you may bring all laboratory reports to class to assist you on your final.

Grades will be awarded as follows: 93% or above=**A**; 90-92.99%=**A-**; 87-89.99%=**B+**; 83-86.99%=**B**; 80-82.99%=**B-**; 77-79.9%=**C+**; 73-76.99%=**C**; 70-72.99%=**C-**; 67-69.99%=**D+**; 63-66.99%=**D**; 60-62.99%=**D-**; <60%=**F**

Missed Exam/Laboratory/Lecture/Assignment Policy

Attending all classes is mandatory. The textbook is a guide for the course additional material will be covered during lecture meetings. If you miss class, you will miss out on taking notes and this ***will*** affect your ability to study for tests and quizzes. If you miss an opportunity to demonstrate your knowledge of the subject matter by missing a duly scheduled exam,

laboratory or other assignment, the grading scheme does not apply. Your grade will be determined at the discretion of the instructor. By missing a duly scheduled exam, laboratory or other assignment, you accept and recognize that the instructor must determine your grade within the context of determining the grade of students who did not miss a duly scheduled exam, laboratory or other assignment. Instructor Make-up Policy: SUGGESTED: NO MAKE-UP EXAMS, NO MAKE-UP LABORATORIES OR NO MAKE-UP OTHER ASSIGNMENTS. FINAL EXAM WEIGHTED WITH PENALTY (0-100%) FOR MISSED WORK

Conduct: Students are required to follow *The Student Code of Conduct* as stated in the *Student Handbook*.

Accessibility: Access-Ability Services (AAS) serves as a liaison and resource to the KCC community regarding disability issues, promotes equal access to all KCC programs and activities, and makes every reasonable effort to provide appropriate accommodations and assistance to students with disabilities. You must contact Access-Ability Services if you require such accommodations and assistance. Your instructor will make the accommodations you need, but you must have documentation from the Access-Ability office for any accommodations.