

EARTH 106-0-01  
THE OCEAN, THE ATMOSPHERE AND OUR CLIMATE  
Lectures: TTh 9:30-10:50 am, Tech L251  
Discussion sections: M 3-4 or Th 4-5, Locy 111  
Blackboard website: <https://courses.northwestern.edu/>

Instructor: Neal Blair

Office Addresses: Tech A228, 2145 Sheridan Road 205; 205 Locy Hall, 1850 Campus Drive

Office Phone: 847- 491-8790 (Tech); 491-5349 (Locy)

E-mail: [n-blair@northwestern.edu](mailto:n-blair@northwestern.edu)

Office Hours: Wed 9-10, Tech A228, or by arrangement

Teaching assistants:	Emily Martin	Dan Li
Office address:	Locy Hall, 10 (Basement)	Locy, 3 (Basement)
Office phone:	847-491-5379	847-867-1109
E-mail:	<a href="mailto:emartin@earth.northwestern.edu">emartin@earth.northwestern.edu</a>	<a href="mailto:danli2013@u.northwestern.edu">danli2013@u.northwestern.edu</a>
Office Hours:	By arrangement	By arrangement

**COURSE DESCRIPTION:** Most of our planet's surface is blanketed by ocean. The dynamic nature of the oceanic environment and how it influences the Earth as a whole will be explored in this course. The interconnectivity of ocean characteristics (chemistry, physics, geology, biology) will be stressed as we attempt to understand how the ocean impacts our lives and we impact it.

**PREREQUISITES:** None

**TEACHING METHOD:** Lectures, discussions and demonstrations

**TEXT BOOK:** Essentials of Oceanography by Tom Garrison.

**EVALUATION METHOD:** In-class activities (~45%), homework (~45%), exam (10%). **Late assignments will not be accepted without prior approval from the professor or teaching assistant.**

TENTATIVE SCHEDULES (As with actual oceanography, schedule may be changed as a result of weather or other factors):

*Lectures (Tech L251)*

<b>Date</b>	<b>Topic</b>	<b>Reading (Garrison chapter)</b>
9/23	Introduction, A brief history	2
9/25	Navigation	2
9/30	Plate Tectonics	3
10/2	Waves (field)	9
10/7	Sediments	5
10/9	Sediments/adaptations (field)	5
10/14	Margins and Basins	4
10/16	Adaptations	12
10/21	Aquatic chemistry	6
10/23	Aquatic physics	6
10/28	Waves	9
10/30	Tides	10
11/4	Coasts	11
11/6	Pelagic communities	13
11/11	Benthic communities	14
11/13	Acoustics	6
11/18	Air-Sea Interactions	7
11/20	Ocean Circulation	8
11/25	Exam	Make-up exam 12/11, 12:00 pm

*Discussion section activities (Locy 111)*

	<b>Activity</b>	<b>Comments/links (exercises posted on Blackboard)</b>
9/25, 9/29	GPS, GIS	Clark St Beach, <a href="#">Google Earth</a>
10/2, 10/6	Plate Tectonics	Magnetic anomalies
10/9, 10/13	Sediments	Clark St Beach, sediment characterization
10/16, 10/20	Biological adaptations and niches	Clark St Beach, organism ID
10/23, 10/27	Conductivity and salinity	Making a conductivity meter
10/30, 11/3	Waves	<a href="#">JAVA applets</a>
11/6, 11/10	Coastlines	<a href="#">JAVA applets</a> and <a href="#">Google Earth</a>
11/13, 11/17	Acoustics	<a href="#">Raven Lite sound analysis</a>
11/20, 11/24	Review	

***Part of your grade will be derived from activities performed and/or assigned in the discussion sections. Attendance is thus critical.***

## **Software applications**

We will be using Google Earth, the Raven Lite sound analysis software package and Dalrymple's Coastal Engineering JAVA applets in this course. All are free, available for download (see imbedded hyperlinks in activity table) and operate on both PC's and Macs. You are not required to download these programs onto your computer but it is encouraged for your convenience. Google Earth will be available on workstations in the Information Commons and Government Documents sections of the main library. Raven will be on one or more computers in the discussion section. The applets are accessible through any computer with an internet connection and browser.

Note: the free Raven license may take several days to arrive via e-mail. If you choose to download it, do so well in advance of the Acoustics activity.

## **Collaborations and Academic Ethics**

Discussion is encouraged between class participants however assignments turned in for grades should be the work of the individual. Sources of information for all work should be carefully cited. Violations of the principles of academic integrity can result in severe penalties, including expulsion from the University. All students should review College guidelines on [Academic Integrity](#).

## **Disability Accommodations**

Any student with a documented disability needing accommodations is requested to speak directly to the Office of Services for Students with Disabilities (SSD) (847-467-5530) and the instructor as early as possible in the quarter (preferably within the first two weeks of class). All discussions will remain confidential.