What do you see in this image?
Rocket Science 653
Basket Weaving 101
OCN 201: Science of the Sea
Instructors

Eric De Carlo
Geology, Course Coordinator

Glenn Carter
Chemistry and Physics

Erica Goetze
Biology
Teaching Assistants

Rebecca Simpson, Head TA
Sara Coffey
Kristen Fogaren
Arisa Okazaki
Chris Schwartz
Why are you in College?

Education pays in higher earnings and lower unemployment rates*

<table>
<thead>
<tr>
<th>Unemployment rate in 2012 (Percent)</th>
<th>Education attained</th>
<th>Median weekly /yearly earnings in 2008 (Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>Doctoral degree</td>
<td>$1,624 $84,448</td>
</tr>
<tr>
<td>2.1</td>
<td>Professional degree</td>
<td>$1,735 $90,220</td>
</tr>
<tr>
<td>3.5</td>
<td>Master's degree</td>
<td>$1,300 $67,600</td>
</tr>
<tr>
<td>4.5</td>
<td>Bachelor's degree</td>
<td>$1,066 $55,432</td>
</tr>
<tr>
<td>6.2</td>
<td>Associate degree</td>
<td>$785 $40,820</td>
</tr>
<tr>
<td>7.7</td>
<td>Some college, no degree</td>
<td>$727 $37,804</td>
</tr>
<tr>
<td>8.3</td>
<td>High-school graduate</td>
<td>$652 $33,904</td>
</tr>
<tr>
<td>12.4</td>
<td>Some high-school, no diploma</td>
<td>$471 $24,492</td>
</tr>
</tbody>
</table>

*http://www.bls.gov/emp/ep_chart_001.htm
Why are you here taking OCN 201?

To satisfy a Core requirement
  a legitimate reason, but not the best one!

To increase your lifelong ENJOYMENT of the ocean
  The more you know about a subject, the more you can enjoy it
  This is an “OCEAN APPRECIATION” course!

To learn how SCIENCE works
  How does science approach questions about the world?
  What can science tell us about the world?
  What CAN’T it tell us, i.e. what are its limitations?

To learn about the SINGLE BIGGEST FEATURE on the surface of the Earth
  The oceans affect everything on Earth, directly or indirectly, including human affairs
What is Oceanography?

-is a branch of Earth Sciences -- geology, atmospheric sciences...  
-very hard to separate one part from another  
-how do processes of biology, geology, chemistry and physics interact?

We will cover subjects as diverse as the origin of the Universe, traditional Polynesian navigation, waves, and climate change

We will learn about processes as far apart as the center of the Earth and the upper reaches of the atmosphere

We will learn about biology of the oceans from microscopic organisms to whales
Study of our planet is still very young

Geology and Biology have been studied for ~ 200+ years

Oceanography ~ 70-80 years

Much has been learned, but there is still lots to discover ➔ this makes the field exciting!

Some of what we teach may turn out not to be true

Science always challenges existing theories, that’s how they get improved
Scientific theories may challenge certain religious beliefs

It is NOT the goal of science to challenge religion but it is a by-product of specific religions that make assertions about natural phenomena

e.g., the age of the Earth can be measured & it is not 6,000 years old!

Scientific knowledge and theories underpin our entire modern economic system

The massive improvements in the standard of living and the improvements in life expectancy since the 1600’s are both a result of the development of modern scientific theories and their application to our lives
OCN 201 web page

http://www.soest.hawaii.edu/oceanography/courses_html/OCN201/

Or, much easier:
Google: OCN 201

All the class information is posted here

Also links to the lab sections are found here
Class is organized into two lecture sections

Section 1 M/W/Fr 10:30 - 11:20 Phys Sci Auditorium

Section 2 M/W/Fr 12:30 - 1:20 Art 132

5 lab sections on Monday, Tuesday, Wednesday and Thursday

09:00 - 11:50 Marine Science Building 203

1:30 - 4:20 Marine Science Building 203

General Education: Diversification requirements

OCN 201 counts as a physical science requirement (DP)
OCN 201L counts as Laboratory class (DY)
All the instructors are active researchers in the field of Oceanography -- you are learning from experts in the field

All the TAs in the class are graduate students in the Oceanography Department,
    -- all are highly motivated and knowledgeable

Text book -- required


Used copies of 5th or 4th edition, or earlier are O.K. too
Exams

Class is taught in three sections:

Geology

Chemistry and Physics

Biology

There is an exam at the end of each section covering the material taught in that section.
Grading

Each exam is worth 75 points

Tests are a mixture of:
True/false, multiple choice, fill in the blank  = 60
Essay questions  = 15

Final exam is worth the same as the other two
Final grades are on the same curve that has been used for more than 25 years (your parent(s) might have taken this class)

We use plus/minus grading but the distribution is the same

-- There is no grade inflation in this class!

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+/A/A-</td>
<td>12.5%</td>
</tr>
<tr>
<td>B+/B/B-</td>
<td>25%</td>
</tr>
<tr>
<td>C+/C/C-</td>
<td>50%</td>
</tr>
<tr>
<td>D/F</td>
<td>12.5%</td>
</tr>
</tbody>
</table>
We will calculate (approximate) grade boundaries for each exam -- to show you how you are doing

**BUT** -- the only grade that counts is the final one that is based solely on the total number of points you earn this semester

You must take exams when they are scheduled or have a PRE-APPROVED excuse (look at the syllabus **NOW!!!**)

For those with valid excuses a make up exam must be taken within ONE WEEK of original exam

Make up exam is usually significantly harder
Field trip

Everyone in the lecture class MUST take a self-guided field-trip --25 points for the completed worksheet

Those taking lab class MUST take another guided field trip
If you are enrolled in OCN 201L

- **YOU MUST GO TO THE FIRST LAB THIS WEEK**

- You will learn to apply the concepts learned in lecture
- All labs are hands on and meant to reinforce what you learn in lecture
- You will have a selection of GUIDED field trips that span the topics covered in the various sub-disciplines.
- You may go on as many field trips as you like besides the one that is required!
Office hours held in Marine Science Building 113 --the glass walled office on the outside of the building

Labs are held in MSB 203… take the elevator to the 2nd floor and turn left (after the first day… please walk up/down stairs!)
Oceanography in the Southern Ocean...a superb natural laboratory
What is the implication of this ice melting as a result of global warming?
One of the oceanographer's tools
Deployment of bio-samplers in Loihi’s hydrothermal vents
Oceanography lets us calculate how big waves will be and when they will come in...
Oceanographers use pressure maps to predict swell/sea-state.
Studies of coastal erosion

Rocky Point, Dec 2013

What causes beach erosion?

Is it just big surf?

Is big surf related to climate change?

Where is it safe to build?
Oceanographer meets Sashimi...
What causes the red/orange at sunset?
Remember---

This is Oceanography,
It’s meant to be fun!

We do this for a living,
because we enjoy it

We hope you will
enjoy it too!