SIO 101: California Current Oceanography (Fall Quarter 2015)

Instructors: Lihini Aluwihare (laluwihare@ucsd.edu**),** Vaughan 302
Michael Landry (mlandry@ucsd.edu), Ritter 236
TA: Brandon Stephens (bmsteph@ucsd.edu)

Lectures: Tuesdays/Thursdays, 2:30-3:50 p.m., Vaughan 100
Labs: Wednesdays, 2-4:50 pm (Hubbs 3300 or as noted)

LECTURE NOTES AND READING MATERIALS:

PDF files of the lecture notes and reading materials will be available throughout the quarter via Ted (https://ted.ucsd.edu).

OFFICE HOURS:

We do not have official office hours. Unofficially, we are most available immediately following classes on Tuesday and Thursday. We are also happy to meet you at another time, but please email us to arrange a meeting.

READING ASSIGNMENTS:

Most classes taught by either Landry or Aluwihare will involve a lecture-relevant reading assignment from the current scientific literature. The authors and publication dates of the assigned papers are noted in *italics* on the lecture schedule below. About 1 week prior to each of these lectures, you will be given a handout (via Ted) with specific questions concerning that reading. Your assignment is to address these questions in a **well-crafted essay of no more than TWO double-spaced typed pages**. You are also expected to participate in classroom discussion relating to the readings on lecture day. Essays are **due at the beginning or before class** on the day of each lecture; late essays will be downgraded. Since many of the papers may involve new vocabulary or unfamiliar concepts, you are strongly encouraged to utilize web, wits, or other resources to help prepare your essay and classroom discussion. An exception to this model is expected for the Cavanaugh et al. 2011 paper. Read the paper and write a 2-page article explaining the important findings of this paper to a lay audience (e.g., a newspaper article, examples will be provided on the web).

LAB ASSIGNMENTS:

Scheduled labs are indicated on the course schedule in **bold font**. Several of these labs will have either homework or in-class assignments (noted). Completion of these assignments is required within one week of the lab class (i.e., on or before the following Wednesday). Homework assignments will be graded.

FINAL EXAM:

A closed book final exam will be held on Thursday, December 10th between 3-6 PM (current schedule). Two weeks prior to the exam date, you will be given a list of ~6-8 broad essay-type questions. The exam will be based on three of those questions (randomly drawn on exam day). You are encouraged to prepare for the exam in study groups. Answers to the questions, which may involve the interactions of complex processes or speculations about future environmental changes in the California Current System, can and should be considered in detail, drawing upon anything that we have covered in the class or readings.

COURSE GRADING:

Reading and lab assignments	**40%**
Class attendance and participation	**20%**
Final exam	**40%**

SIO 101 SCHEDULE

24 Sep. Introduction and overview. (Aluwihare & Landry)

WEEK 1

29 Sep. Basin-scale and local circulation (Aluwihare). *Howell et al. 2012*
30 Sep. **Ocean Tracks Lab Module 1 - Upwelling**
1 Oct. Chemicals that support biological production (Aluwihare). *Martz et al. 2014.*

WEEK 2

6 Oct. Phytoplankton and primary production (Landry), *Kahru et al. 2009*
7 Oct. **Phytoplankton lab (Hubbs 3300; homework assignment)**
8 Oct. Harmful algal blooms (Aluwihare), *Lefebvre et al. 2012*

WEEK 3

13 Oct. Plankton food web structure and processes (Landry), *Landry et al. 2009*
14 Oct. **Zooplankton lab (Hubbs 3300; homework assignment)**
15 Oct. Pelagic fisheries (Landry), *Rykaczewski & Checkley 2008*

WEEK 4

20 Oct. Yellowtail tagging project (Noah Ben Aderet)
21 Oct. **Pier sampling and incubation set up (Two sections) (Hubbs 3300)**
22 Oct. Kelp ecosystems (Ed Parnell), *Cavanaugh et al. 2011**

WEEK 5

27 Oct. Benthic marine resources (Landry), *Shanks 2013*
28 Oct. **Incubation termination, sample collection data analysis (Hubbs 3300)**
29 Oct. Carbon cycling in planktonic food webs (Aluwihare), *Brzezinski et al 2015*

WEEK 6

3 Nov. Microbial transformations (Aluwihare), *Santoro et al. 2010*
4 Nov **Data synthesis from Week 4 and 5 labs (Hubbs 3300)**
5 Nov. Nitrogen isotopes in food webs (Aluwihare), *Vokhshoori & McCarthy 2014*

WEEK 7

10 Nov. Hypoxia in the northeast Pacific (Landry), *Koslow et al. 2011*
11 Nov. **Veterans Day**
12 Nov. Ocean acidification (Aluwihare), *Hofmann et al. 2014*

WEEK 8

17 Nov. The El Nino Southern Oscillation (Aluwihare), *Jacox et al. 2015*
18 Nov. **Ocean Tracks Biological Hotspots Module (Center Hall Computing; poster)**
19 Nov. Decadal and long term climate variability (Aluwihare), *Chenillat et al. 2012*

WEEK 9

24 Nov. Biological impacts of climate change (Landry), *Rykaczewski & Dunn 2010*
25 Nov. **No lab**
26 Nov. Thanksgiving

WEEK 10

1 Dec. Human impacts in the SCB (Aluwihare) (*Stapleton et al. 2006)*
2 Dec. **Poster session for Hotspots Module**
3 Dec. Review session 2 (Aluwihare)
10 Dec. FINAL EXAM (3-6 pm; TBA) (Thursday)