

Communicating Ocean Sciences to Informal Audiences 2018

Integrative Biology C100
Earth and Planetary Science C100
Geography C146

Communicating Ocean Sciences to Informal Audiences

Spring 2018 Course Information

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Course Description: For undergraduate and graduate students interested in improving their ability to communicate their scientific knowledge by presenting science activities in a museum setting. The course will combine instruction in inquiry-based science teaching methods with an outreach practicum at the Lawrence Hall of Science. Students will practice communicating scientific knowledge, and receive mentoring on how to improve their presentations.

Prerequisites: One course in introductory biology, geology, chemistry or marine science, interest in ocean science, and enthusiasm for teaching science.

Meeting Time: Fridays 9:30 AM–12:15PM (9:30 AM is the actual start time) at the Lawrence Hall of Science in Room 150, on C-level.

Note: Students planning to take the Hill (H) shuttle line from Hearst Mining Circle in front of Evans Hall should take the shuttle leaving at 8:40 or 9:10AM. The return trip leaves the Hall at 12:27PM and arrives back at the Mining Circle at 12:40PM.

Other Required Dates:

Friday, April 13, 2018. Monterey Bay Aquarium trip. A full-day field trip is planned. More information, maps and transportation options will be provided as we get closer to the trip date. Participation in the field trip is mandatory. If you know in advance that you can't attend, contact the instructors asap.

Saturday April 21, 2018. Cal Day. Must be present for the presentation.

Friday April 27, 2018. Ocean Sciences Day. Last day of class is required.

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Required Texts:

Marine Sciences. For marine sciences content, we will use the 8th edition of *Marine Biology*. **Previous versions (5-7) of the book are also fine.** Talk with instructors if you need assistance getting a copy of this book.

1. Castro, P and ME Huber. Marine Biology, 8th ed. McGraw-Hill Higher Education.

Learning Sciences. For learning sciences content, we will use the following two books from the National Academies Press. Assigned chapters can be downloaded from the Resources section of the course bCourses site or directly from the National Academies Press website (<http://www.nap.edu/>). Additional readings from the learning sciences can also be downloaded from the Resources section of the course bCourses site.

2. Fenichel, M and HA Schweingruber. (2009) Surrounded by Science: Learning Science in Informal Environments. The National Academies Press.
3. Michaels, S., Shouse, A. and Schweingruber, H. (2007) Ready, Set, SCIENCE!: Putting Research to Work in K–8 Science Classrooms. The National Academies Press.

Requirements:

- Assigned readings and participation in class discussions and activities
- Completion of online and written assignments
- Observing and presenting activities at the Hall and on Cal Day (with a partner each time)
- Development (with a partner) of a hands-on science activity to use in the museum with museum visitors
- Participation in peer review of presentations

Grading:

You will be graded on your Participation (18%), Understanding (50%), and Application (32%). Participation in whole-class and small group discussions is very important in this course. Your understanding of the learning research and science briefings will be assessed primarily through written assignments, and your Application of these ideas will be assessed mainly through presentations both inside and outside of class. See below for more information on assignments and point values.

1000 points total

PARTICIPATION & PRESENTATIONS

1. PARTICIPATION (18% overall grade)

(20 points x 9 sessions = 180 points)

Every class session will have a participation grade (except the 5 sessions dedicated to in-class presentations, midterm or field trip during class time). Participation grades will include, as appropriate:

- **Quick Writes** - During class, you will be given questions about science content &/or pedagogy based on in-class experiences and outside-of-class readings. No make-ups for Quick Writes.
- **Individual Participation** - Participation in class discussions, both in whole-class and small group, is very important and will count toward your course grade.
- **Attendance**

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2. PRESENTATIONS

Outside of class time – 6 occasions (150 points total).

- You and your partner will present 6 times throughout the semester: 3 times will be using already developed COSIA activities; 3 times will be using the activity you and your partner are developing.
- Each presentation will be a 2-hour time block between the hours of 10am–2pm on weekdays (closed on Mondays) or between 10am–4pm on weekends. Hall staff will observe your presentations and provide feedback to improve your activity and presentation skills. (You will not be able to receive feedback on Sundays.)
- You must schedule your presentation times in advance using the online The Lawrence Hall of Science Volunteer Information Center:
<https://www.volgistics.com/ex/portal.dll?FROM=11959>
- Schedule one presentation during each of the following weeks:
 - i. Feb 3-8 – COSIA activity (15 pts)
 - ii. Feb 10-15 – COSIA activity (15 pts)
 - iii. Feb 17-22 – COSIA activity (15 pts)
 - iv. Mar 10 - Apr 5 – Your own activity (15 pts) [Includes Spring Break]
 - v. Apr 7 - Apr 19 – Your own activity (15 pts)
 - vi. Apr 21 – Your own activity @ Cal Day (75 pts)

3. Presentations during class time – 3 occasions (175 points total).

- You and your partner will present your own activity during class time 3 times throughout the semester. Schedule of presentation times
 - i. Mar 9 – Try out your activity in classroom (25 pts)
 - ii. Apr 6 – For peer feedback on the museum floor (25 pts)
 - iii. Apr 27 – Final presentation on museum floor Ocean Sciences Day (125 pts)

WRITTEN ASSIGNMENTS

Submit all written assignments through bCourses; do not email assignments to the instructors. Name files as follows: LastName_FirstName_AssignmentName.doc

1. Informal Environments Observation Worksheet – 20 points, due Feb 2

- Visit a museum, aquarium or science center (e.g. Oakland Museum, Chabot Space & Science Center, CA Academy of Sciences, or the Hall). Observe visitors interacting with exhibits, educators and each other.
- Complete the worksheet.
- This is an individual assignment.

2. Midterm Exam – 160 points, in class Mar 2

- There will be a short written exam on the learning research, science briefings, and readings that have been assigned thus far in the class.

3. Activity Design Starter & Science Concept Paper -- 150 points, due Mar 16

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- **Activity Design Starter.** You will receive guiding questions to help you and your partner design your own activity. For an example, see the *Design Starter Example* in the bCourses Resources section. (Talk to your partner about your plan)
 - **Science Content Paper.** Write a science content paper (2,000 words, in 12-point font) on the science concept(s) that you would like to focus on for your activity. See instruction sheet for more details.
 - Upload word document into bCourses.
 - This is an individual assignment.
4. **Field Trip to the Monterey Bay Aquarium – 40 points, April 13**
- a. Whole day field trip to the Monterey Bay Aquarium.
 - b. During your visit, you will observe visitors as they interact with Aquarium staff and exhibits, and record your observations. You will also participate with the class in a discussion with Aquarium staff and evaluators.
 - c. Submit your observation and reflection notes at the end of the trip.
5. **COSIA Final Paper – 125 points, due Apr 27**
- There are two parts to this final paper.
 - i. Part 1 is a partner assignment. It details the final design of your activity. You should work on this part with your partner since this is the activity you have been building together (approximately 5-7 pgs).
 - ii. Part 2 is an individual assignment. It is an opportunity for you to demonstrate your understanding of the ideas from this course by providing a written review of your own activity, which includes responding to feedback from your peers and instructors (1,500 words, 12pt font).
 - Submit the assignment as a Word Document via bCourses.
 - This is an individual submission.

Course Participation

Participation in class discussions, both in whole-class and small group, is very important in this class and will count toward your course grade. Participation will be assessed throughout the semester. Participating in discussion does not necessarily mean talking a lot. See the Course Participation page in bCourses for more information.

Late and Make-Up Policies:

- Late written assignments will be accepted up to 5 calendar days after the due date, however 10% of the total possible score will be deducted for each calendar day that the assignment is late.
- In-class presentations are mandatory. If you know in advance that you cannot be present, contact the instructors to ask about scheduling a make-up. This opportunity is at the discretion of the instructors and will depend on the reason for your planned absence.

Conflicts between extracurricular activities and course requirements:

For student athletes, student musicians, those with out-of-town interviews, and other students with activities (e.g., classes missed as the result of religious holy days) that compete with academic obligations: It is the student's responsibility to notify the

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instructors in writing by the second week of the semester of any potential conflicts and to recommend a solution, with the understanding that an earlier deadline or date of examination may be the most practicable solution. It is the student's responsibility to inform him/herself about material missed because of an absence, whether or not formally excused.

<http://teaching.berkeley.edu/academic-calendar-and-student-accommodations-campus-policies-and-guidelines#conflicts>

Disabilities:

Accommodation will be made for those with disabilities. Contact the Disabled Students' Program (<http://dsp.berkeley.edu/>), 260 César Chávez Student Center, 642-0518 (p), 642-6376 (tty) for more information. Then make an appointment to see us, or stop by during office hours, if you like.

Limits to Confidentiality

As UC employees, all course instructors and tutors are Responsible Employees. We are required to report incidents of sexual violence, sexual harassment or other conduct prohibited by university policy to the Title IX officer. Confidential resources include the CARE Advocate Office (<http://sa.berkeley.edu/dean/confidential-care-advocate>).

Reminder of the Berkeley campus code of conduct

The student community at UC Berkeley has adopted the following Honor Code: "As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others." (see <http://asuc.org/honorcode>)

Review the campus code of conduct (<http://sa.berkeley.edu/code-of-conduct>), with attention to what constitutes plagiarism (<http://sa.berkeley.edu/conduct/integrity>): "Plagiarism is defined as use of intellectual material produced by another person without acknowledging its source, for example:

- Wholesale copying of passages from works of others into your homework, essay, term paper, or dissertation without acknowledgment.
- Use of the views, opinions, or insights of another without acknowledgment.
- Paraphrasing of another person's characteristic or original phraseology, metaphor, or other literary device without acknowledgment."