Integrative Biology C100
Earth and Planetary Science C100
Geography C146

Communicating Ocean Sciences to Informal Audiences

Spring 2016 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.

Field Trip: A full-day field trip to Monterey Bay Aquarium is planned for Friday, April 22, 2016. 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.

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 (15%), Understanding (50%), and Application (35%). 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.

Late and Make-Up Policies:

- Late assignments will be accepted. Ten percent 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 presentation; the opportunity to make up the presentation is at the discretion of the instructors.

Campus Policies and Guidelines:

- Accommodation of religious creed. It is the official policy of the University of California at Berkeley to permit any student to undergo a test or examination, without penalty, at a time when that activity would not violate the student's religious creed, unless administering the examination at an alternative time would impose an undue hardship that could not reasonably have been avoided. Requests to accommodate a student's religious creed by scheduling tests or examinations at alternative times should be submitted directly to the faculty member responsible for administering the examination by the second week of the semester. The link to this policy is available in the Religious Creed section of the Academic Calendar webpage: http://registrar.berkeley.edu/DisplayMedia.aspx?ID=Religious%20Creed%20Policy.pdf

- Conflicts between extracurricular activities and academic requirements. The Academic Senate has established Guidelines Concerning Scheduling Conflicts with Academic Requirements to address the issue of conflicts that arise between extracurricular activities and academic requirements. They specifically concern the schedules of 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. The guidelines assign responsibilities as follows:
    - It is the instructor's responsibility to give students a schedule, available on the syllabus in the first week of instruction, of all class sessions, exams, tests, project deadlines, field trips, and any other required class activities.
    - It is the student's responsibility to notify the instructor(s) in writing by the second week of the semester of any potential conflict(s) 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 he/she has been formally excused.

  The link to the complete guidelines is available on the Academic Senate website: http://tinyurl.com/schedconflictguidelines

930 points total

PARTICIPATION & PRESENTATIONS

1. **Quick Writes – 36 points (6 points each), 6 times throughout semester**
    - At the start of each class, you will be given ~5 minutes to answer a question about the week's reading assignment. No make-ups for Quick Writes.
2. **Class Participation – 56 points, throughout the semester**
    - Participation in class discussions, both in whole-class and small group, is very important in this class and will count toward your course grade.
3. **Attendance – 44 points, throughout the semester**
    - 24 points for class attendance (12 classes x 2pts each)
    - 20 points (10 points each) for attendance on field trip and guest speaker day
4. **Presentations outside of class time – 6 occasions (125 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 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 6-11 – COSIA activity (15 pts)
        ii. Feb 13-18 – COSIA activity (15 pts)
        iii. Feb 20-25 – COSIA activity (15 pts)

iv. Mar 19-Mar 31 – Your own activity (15 pts) *[1 week is Spring Break]*
v. Apr 9-Apr 21 – Your own activity (15 pts)
vi. Apr 16 – Your own activity @ Cal Day (50 pts)

5. **Presentations during class time – 3 occasions (160 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 11 – Try out your activity in classroom (25 pts)
     ii. Apr 1 – For peer feedback on the museum floor (25 pts)
     iii. Apr 29 – Final presentation on museum floor Ocean Sciences Day (110pts)
6. **Field Trip to the Monterey Bay Aquarium – 40 points, April 22**
   - Whole day field trip to the Monterey Bay Aquarium.
   - 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.
   - Submit your observation and reflection notes at the end of the trip.

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 – 30 points, due Feb 5**
   - 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. **Science Concept Paper – 125 points, due Feb 26**
   - Write a 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.
3. **Midterm Exam – 160 points, in class Mar 4**
   - There will be a short written exam on the learning research, science briefings, and readings that have been assigned thus far in the class.
4. **Activity Design Starter -- 25 points, due Mar 11**
   - 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.
   - This is a partner assignment.
5. **COSIA Final Paper – 125 points, due Apr 29**
   - 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.