

Oceanography (ENVI 294-01)

Macalester College – Fall 2018

Class meetings: T 9:40 – 11.10am, OLRI 241

Instructor: Louisa Bradtmiller lbradtmi@macalester.edu; 651.696.6837; Olin-Rice 249D
Office hours: M and W 9-10 and by appointment via email

Writing Asst.: Ariana Lutze-Jahiel email: alutzeja@macalester.edu; office hours TBD

Course description

The study of oceanography is a multidisciplinary pursuit that applies tools from geology, physics, chemistry, and biology to better understand one of Earth's most unique planetary features. Oceans cover the majority of Earth's surface and were the birthplace of nearly all complex life on Earth. Ocean currents carry heat, nutrients, and carbon around the globe, influencing Earth's climate from global to local scales. However, despite its immense size, the ocean system is also highly sensitive to human impacts such as acidification, overfishing, and pollution. This course will provide an overview of the ocean's physical, chemical, and biological properties and processes and the complex ways in which they interact. We will use oceanographic data to ask and answer questions about modern oceanographic systems. We will also explore human impacts on the oceans in their scientific and socio-political contexts. We will read scientific as well as non-technical writing about the ocean, and write our own oceanographic "stories" in a variety of forms. This course is designed for students with an introductory background in any related discipline, and enthusiasm for approaching science in a multidisciplinary way.

Goals for students

By the end of this course, students should be able to demonstrate the ability to:

- Apply basic principles of geology, physics, chemistry, and biology to topics and systems in oceanography
- Analyze data and use it to make reasonable interpretations
- Integrate data, conclusions, and lines of evidence from multiple sources
- Research a topic relevant to human impacts on the oceans and effectively communicate the results orally and in writing

Required Texts

Earle, Sylvia. Sea Change: A Message of the Oceans. New York: G.P. Putnam's Sons, 1996.

Trujillo, A. and H. Thurman. Essentials of Oceanography. Boston: Pearson, 2016.

Moodle

The class Moodle page will be updated regularly, and should be your first stop for information about readings, assignments, and what to expect in class on any given day. The page is color-coded: anything in green is a reading you should complete before class on the day of the entry, and anything in purple is an assignment due that day. This will require some looking/thinking ahead on your part.

What to expect in class

Attendance

Attendance is at your discretion, although students who attend regularly are likely to be more successful than those who do not. The participation portion of your grade will be based on your contributions to classroom discussions/activities.

Homework

There will be 6 homework assignments throughout the course. Each is designed to reinforce and build on material and concepts introduced through lecture or discussion. We will begin working on each assignment during class time, so you can think of these as mini-labs of sorts. I encourage you to work in groups on these assignments, but each student must turn in their own work, in their own words. This means that you may discuss the answers together, but must write them out yourselves. See me with any questions about what this means- copying will not be tolerated.

This I Believe essay

In the early weeks of class you will write a short personal essay based on the NPR series of audio essays called This I Believe. This assignment has three main purposes: first, it will help me get to know you as a person, and perhaps help you get to know each other. Second, it will help me get to know you as a writer, which will be a big focus of our course. Finally, it provides early practice in writing and revision. Practice is the best way to improve your skills at writing, revision, and really pretty much anything else.

Reflective writing assignments

Approximately every other week I will ask you to write a short (approximately 500 words) reflection about your learning in our course, connections you are making with the material, and other aspects of your academic life. I will also ask you to reflect on your experiences in your first weeks and months of college. These reflections help me know how things are going in the class, and they provide you with more practice writing. They also serve an important purpose in your learning: metacognition, the act of thinking about your own thinking, is an effective and essential tool as you develop the ability to learn more and more independently. These reflections will be graded on a four point scale:

0 – response is missing

1 – a response showing minimal effort either in length (very short) or content (not responding to the prompt)

2 – a very satisfactory response, touching on most or all of the questions posed by the prompt and showing a moderate commitment to self-reflection

3 – an excellent response, touching on most or all of the questions posed by the prompt and showing a deep commitment to self-reflection and its effect on one's learning

Exams

There will be two scheduled exams in this course, spaced roughly evenly throughout the semester (see Moodle for dates). They will cover material from lectures, assignments/activities, discussions, and readings assigned at any point before the date of the exam. The format usually consists of a combination of short answer questions and essays. If calculators are allowed/required, I will let you know well in advance. **Attendance at exams is required- failure to attend will result in a grade of zero for that exam.** I realize that this seems obvious. There are only 3 instances in which you may reschedule an exam: 1) serious illness 2) a family emergency 3) a college sanctioned activity that requires you to be off-campus during the exam. In all cases I will need to see some documentation (i.e. a doctor's note, note from the Dean, etc.), and I ask that you notify me as soon as you know you will miss the exam.

Paper

This course provides instruction in argumentative writing as part of the writing program at the college. We will do this writing in the context of oceanography (of course!). Throughout the semester you will write an individual research paper about a topic of your choosing related to human impacts on the oceans, including advocating for a specific policy position. Papers will be 7-9 pages (double spaced) and require the use of high-quality sources, including peer-reviewed scientific literature. There will be interim deadlines to ensure steady progress on the project, and I will give feedback on a full draft of the paper. There will be ample opportunities for additional feedback. More details about deadlines and specific requirements will be provided on the paper assignment sheet (see Moodle).

The First Year Course

As you can likely tell by now, the FYC is unlike any other course you'll take at Macalester. You live with your classmates, your professor is your adviser, and we will do all kinds of things sprinkled throughout the semester that have less to do with Oceanography and more to do with adjusting to and making the most of your life at Macalester. While this might feel a little disjointed at times, I encourage you to embrace the uniqueness of this course, and I hope that you will look forward to having a fun (and often silly) time together.

Grading

Your final grade for this course will be determined by the number of points you accumulate throughout the semester.

Point distribution	
Participation	70
Reflective writing (7 @ 15 points each)	105
This I Believe essay	55
Assignments (6 @ 20 points each)	120
Paper (including interim assignments)	150
Exams (2 @ 100 points each)	200
TOTAL	700

Other important information

Academic integrity

I take all instances of cheating and plagiarism very seriously. We will discuss each of these in class to some extent, but ultimately it is your responsibility to become familiar with Macalester's policies on what constitutes each of these offenses and to behave accordingly. Instances of suspected academic dishonesty will be handled as outlined in college policies. <http://www.macalester.edu/academicprograms/integrity.html>

Accommodations

Your experience in this class is important to me, and I am committed to creating an inclusive and accessible learning environment. If you have already established accommodations with the Disability Services office, please communicate your approved accommodations to me as soon as possible so that we can discuss your needs in this course. If you have not yet established accommodations, but have a temporary health condition or permanent disability that requires accommodations (this includes but is not limited to: mental health, attention-related, learning, vision, hearing, physical or health impacts), please contact Disability Services to make an appointment: disabilityservices@macalester.edu or 651-696-6974. Disability Services offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s), and the Disability Services staff.

Diversity

It is my intent that students from diverse backgrounds and perspectives be well served by this course, that students' learning needs are addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. I am committed to presenting materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. I appreciate your feedback on this and every aspect of our course, and your suggestions for ways to improve the effectiveness of the course for you personally or for other students or student groups.

Miscellany

If you have concerns about any aspect of this course, please come see me sooner rather than later. I am always interested to hear about how you think the class could be more interesting, and if there's a topic you're just dying to see covered, we'll see if we can fit it in. I will be as accommodating as possible with respect to religious/cultural observances (with appropriate notice). I will respond to email during 'normal business hours'. While it is possible that I will check my email at 2am, I probably won't write you back until the next morning. So, don't wait until the last minute to email with that question about your assignment that's due tomorrow. Laptop use is prohibited in class unless you make special arrangements with me. Cell phone use will not be tolerated- please turn phones all the way off, or put them to sleep (no vibrate!).