



MACS 310: Marine Science and Society

Course Details

Professor: Dr. Nina Whitney, whitnen@wwu.edu, office phone: 360-650-2039, website: nwhitney.science

Office Hours: Thursdays, 11:00-12:00pm or by appointment, Arntzen 404

Teaching Assistant: Omololu Okedoyin, okedoyo@wwu.edu, Office Hours: Mondays 10:30-12:30,
Environmental Science commons

Class Meetings Time and Place: Tuesday and Thursdays, 3:00-4:50pm, 410 Interdisciplinary Science Building

Textbook: Most readings will be provided online on our Canvas page. We will have one required book:

Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming by Naomi Oreskes and Erik M. Conway. Bloomsbury Press, 2010. You can purchase a hard-copy of this book or you can access an eBook through our Canvas page for \$7.60 The fee will be automatically charged to your account. If you do not wish to use the eBook, you need to opt-out via the link on Canvas in order to not get charged the fee.

Credits and Writing Proficiency: 3 credits, 2 WP

Course Description

In this course, we will examine the current and historical role of marine science in society along with the role of society in marine science. We will begin by investigating the history of modern marine science and the ethical dilemmas associated with that history. We will then start to develop a deeper understanding of societal problems within marine science, how they affect those in the profession, and how they influence the public perception of scientists. We will explore the role marine scientists play in shaping the understanding of complex scientific issues like global climate change, sustainability, pollution, environmental justice, and social justice. The course will involve two writing projects and you will have the opportunity to develop your written and oral argumentation skills through multiple discussions, papers, and presentations. This course has 2 Writing Proficiency points, which means that you will have the opportunity engage in peer review and to revise your written assignments. It also means that >50% of your grade will be based on your writing, in various forms.

Course Outcomes

By the end of the course, you will be able to:

1. Understand why science, including marine science, involves controversy.
2. Understand the strengths and limitations of marine science research related to solving societal issues.
3. Gain an awareness of how issues of equity and social justice are inextricably linked to the marine scientific enterprise.
4. Gain skill in developing and expressing scientific arguments in oral and written form.

Expectations and Accommodations

Classroom conduct and accommodations: Much of this class will be discussion based. Some of these discussions will be centered on potentially controversial or emotionally difficult topics. Please be respectful of your peers: You are a diverse set of students with a range of backgrounds and perspectives and you are all welcome. I will strive to make our classroom a safe place where all feel welcome and heard. Remember that you cannot possibly be an expert on someone else's experiences or understand what they may or may not have gone through in their past. Listen when your peers are talking. If you disagree, do so respectfully and offer your own evidence for why you have a different opinion. If there is a topic that hits too close to home for whatever reason or the conversation takes a direction you are not comfortable with, please feel free to speak up or, if you are not comfortable with that, leave the room. I will obviously do my very best to make sure everyone is comfortable in the class and that we keep discussions civil and informed. But I am also not an expert on your experiences and I carry my own experiences that may make me sensitive to certain discussions but unfortunately oblivious to others. Please feel free to reach out if you ever feel uncomfortable or if there is something you think I could do better to make our classroom as safe and comfortable a place as possible. This includes any accommodations that you may need for any physical or mental health reasons or for religious reasons. I want to work with you to make this classroom a place where you can learn and thrive.

Academic Integrity: I will hold you to the highest standard of academic integrity. In particular, I will not tolerate plagiarism in any form, be it copied text in your writing without proper citations or presenting ideas as your own in discussion without citing your sources. If I find that you have plagiarized any part of an assignment that you turn in, you will be reported to University officials and receive an automatic 0 on the assignment, even if you "only" plagiarized a small portion of your assignment. You all know how easy it is to google text that I suspect you did not write: If you plagiarize, I will find out. Just don't do it. In class we will talk more about what specifically constitutes plagiarism, how to cite your sources properly etc.

Assignments

Participation: A large part of this course will be discussion based: I do not plan to give any long lecture presentations. Therefore, your participation in our discussion is critical. If no one participates, no one will learn. A significant part of your grade will therefore be participation. I know participating in a class can be challenging for some, especially us introverts out there (I am certainly one of these students who found it very challenging to make myself speak up in class discussions). Come talk to me if you're struggling to speak up in class. Make a goal to speak at least once per class if you find participating challenging. That being said, participation is not just contributing through talking, it's also contributing through listening and engaging with



what your peers are saying. Take notice when you feel like you are talking a lot in class: It's great that you are engaged and have opinions about the topics we are covering but if you notice you are dominating the conversation, exercise some self-restraint and let your peers participate.

If you are going to miss a class, please message me (via Canvas, email, or Microsoft Teams) beforehand. You are given two excused absences without it impacting your grade. If you are unable to join in person for whatever reason but could do so virtually, please message me beforehand to get permission and then you can use the Zoom link on the Canvas page (this is not encouraged and will only be allowed in exceptional circumstances: It's important to attend class in-person to get the most out of the class discussions etc.). If you need to miss more than two classes for whatever reason, your participation grade will decrease by 5% points per missed class. However, these can be made up if you submit a 1-2 page summary of your reaction to the readings for that class, your response to the discussion questions, and your reaction to the Discussion Leaders' summary of the discussion post (posted on Canvas within a week of the class Discussion). This can be submitted up until the last day of classes.

Discussion leaders: Students will be assigned to groups of 3 students to lead the discussion on readings for the day. Your group will lead the discussion once this quarter (you will sign up for a day to lead the discussion after the first class). We will cover aspects of what makes a good discussion leader in the beginning of class. Discussion leaders don't necessarily have to speak a lot or the most during a discussion but you are expected to keep the conversation on track, know the readings inside and out so you can answer any content questions from your peers, provide background that was not directly in the readings that may help the discussion, fill in with additional questions when the class discussion seems to stall, and make sure that everyone is participating and that no one is dominating the conversation. As discussion leaders, you and your groupmates will be expected to develop **4-5 questions to post on Discussion section of the Canvas page at least 24 hours in advance** of the class where you are leading the discussion. After the discussion, you and your groupmates need to write and post a **1-2 page summary of the discussion** and the main talking points, to be posted in the Discussion section of the course Canvas page for other students to look back on and refresh their memory of what we talked about that day. This should not be a transcript of the discussion but instead a synthesis of what was discussed. These will be due 1 week after your group discussion. Your discussion grade will be a group grade based on the questions you submit (25%), your leadership during the in-class discussion (50%), and your discussion summary (25%).

Writing assignments: There will be two writing assignments in this course, one due around mid-term and one due by the last week of class. I will provide more details on each writing assignment separately but, briefly, the first (2500 words max.) will focus on a biography/literature review of a marine scientist who did not (or does not) get the recognition that they deserve for their science, whether it be because of their race, ethnicity, gender, sexuality etc. The second will focus on the how marine science research benefits society i.e., how is marine science research used in society (2500 words max). I strongly believe in not just assigning you these papers so that you get a grade. I truly hope that your writing will improve throughout the course from practice, peer

review, and my feedback. You will receive feedback from your peers during two peer-review workshops (one for each paper). One class period after each peer-review workshop, a draft of your paper will be due on Canvas. I will give these papers back to you within a week with a grade and feedback. The grade of your draft will be 25% of the paper grade, while the final draft (due on March 15th) will be 75% of the paper grade for each paper.

Peer-Review: An important component of marine science (and all science) is peer-review: Experts in the field assessing manuscripts, funding proposals etc. before the data are published or a proposal is funded. There are many reasons for this: To check the quality of the science, to assure that the assertions of the scientists are backed up by their data, to assess whether the methods used to collect their data are tested and solid, to ensure that the appropriate previous studies have been cited, to assess the novel aspects of the science, and to check that the science is communicated in an understandable and succinct way. In this class, you will have the opportunity to review your peers writing assignments, both to provide feedback so that your peers can improve their writing, and to practice peer-review. You'll do this during class time and provide both edits on their draft themselves (due by the end of class) and a written summary of your comments, due to your peers and on Canvas by midnight of the day of the workshop. You'll be assigned 2 papers to look at for each peer-review workshop.

Presentation: Oral presentations are important both in research science and in a multitude of other marine science careers that you may be interested in. They can be nerve-wracking, but it is also very possible to practice oral presentations and improve your oral presentation skills. As a class, we'll discuss what makes a good presentation. You will give one, 15 minute (12 minute presentation, 3 minutes for questions) oral presentation using PowerPoint slides during this class, either on your mid-term writing project or your final writing project. You'll sign-up for a presentation slot at the beginning of the quarter so we have about half the class give presentations half-way through the quarter and the other half given presentations at the end of the quarter. I will give you ample feedback on your presentations in the hopes of giving you some tips on how to improve for the future: You'll get a chance to practice your presentations skills again in MACS 496 for those of you taking it next quarter or next Spring.

Grading

Individual class participation	15%
Leading discussion (groups will receive the same grade)	10%
Midterm writing assignment (both draft and final contribute to grade)	25%
Final writing assignment (both draft and final contribute to grade)	25%
Oral presentation	15%
Peer review assignments	10%

Grading Schema

A	93-100%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%



C+	77-79%
C	73-76%
C-	70-72%
D+	67-69%
D	63-66%
D-	60-62%
F	<59%

*your grade will be rounded UP to the nearest percentage to determine letter grade

Resources

There are many resources on campus that I encourage you to take advantage of, both directly related to this class and tangentially related through mental health services: I know you are more than just a student in my class and I want to make sure you have all possible resources available you to help you succeed, in my class and at Western. Western’s library in general is a great resource. I’ve included several resources from the WWU library on our Canvas page under the “Course Resource” Module. These include a Library Course Guide developed by our science libraries specifically for this course. In addition, check out the [Hacherl Research and Writing Studio](#) on the 2nd floor Haggard Hall. There, you can get help on many skills relevant to this class related to writing and researching.

I also want to encourage you to check out Western’s counseling services (<http://www.wwu.edu/counseling/>) if you have any mental health concerns. I know college can be a very stressful and emotionally draining time. I also realize that we have a mental health crisis and that a lot of us, myself included, struggle with mental health challenges. Don’t be afraid to ask for help! I am always happy to talk but please know that I am not a trained psychiatrist so will refer you to the appropriate resource. You should also know that I am required to report any sexual discrimination, including sexual violence, to Western’s Title IX coordinator so while I want to be there for you if you are struggling with any form of sexual discrimination or violence, anything you tell me has to be reported.

Course schedule

Week	Date	Activity	Assignment Due/Returned
1	Thursday, January 5	Course overview	
2	Tuesday, January 10	The problematic history of modern marine science	Assigned readings; Review Library SPOT tutorials and course guide on Canvas
	Thursday, January 12	Marine science and racial discrimination	Assigned readings

3	Tuesday, January 17	Marine science and gender discrimination	Assigned readings; Watch the movie Picture a Scientist
	Thursday, January 19	Marine science impacts on society	Assigned readings
4	Tuesday, January 24	Sample ethical considerations in marine science; Discussion of Oral Presentations	Assigned readings
	Thursday, January 26	Guest Speaker: Omololu Okedoyin on Marine Pollution	
5	Tuesday, January 31	Peer review workshop for midterm paper	Drafts of papers due to peers; Peer review summaries due by midnight on Canvas
	Thursday, February 2	Midterm paper presentations	Drafts of midterm papers due to Nina
6	Tuesday, February 7	Midterm paper presentations	
	Thursday, February 9	Merchants of Doubt, part I discussion	pp. 1-168 of Merchants of Doubt; Midterm papers returned
7	Tuesday, February 14	Advocacy in Marine Science	Assigned readings
	Thursday, February 16	Advocacy workshop	Assignment on advocacy
8	Tuesday, February 21	Guest Speaker: Nik Matsumoto Grah from Suquamish Tribe Fisheries	
	Thursday, February 23	Peer review workshop for final paper	Drafts of papers due to peers; Peer review summaries due by midnight on Canvas
9	Tuesday, February 28	Merchants of Doubt, part II discussion	pp. 169-274 of Merchants of Doubt; Drafts of Final Paper due to Nina
	Thursday, March 2	Guest Speaker: Dr. Shawn Arellano on Parachute Science	Assigned readings
10	Tuesday, March 7	Final paper presentations	Final papers returned
	Thursday, March 9	Final paper presentations	
11	Finals Week: Wednesday, March 15		All writing assignments due by 1:00pm; There will be no exam