

Sustainable Aquaculture FISH 497D

Fall 2024

Lecture: M/W 9:30-10:20, FSH 109 Discussion: M 10:30-11:20, FSH 213



Introduction

Fish and other aquatic organisms (aquatic foods) are an important source of income, livelihoods, and nutrition around the world. Half of all aquatic foods consumed by people are farmed and aquatic food farming, or aquaculture, is projected to increase. Ensuring aquaculture supports human wellbeing while minimizing impacts on the environment is critical for aquaculture to be considered sustainable.

However, aquaculture includes a wide range of cultivated species, production methods, and farming practices that result in a different types and magnitudes of environmental impacts. Aquaculture is also relatively young in many parts of the world and is one of the fastest growing food subsectors, resulting in rapid changes in these production methods.

This course will explore issues surrounding the sustainability of aquaculture. Students will learn about the range of production systems, foundations of farming aquatic organisms, and dimensions of social and environmental sustainability. Students will also have opportunities to discuss and debate hot topics in aquaculture.

Course Objectives

By the end of the course students will be able to:

- Describe the main types of aquaculture production methods.
- Compare primary environmental impacts associated with different aquaculture systems.
- Critique and defend positions related to contemporary issues in aquaculture.
- Analyze real world data to compare findings with readings.

Instructor: Jessica Gephart

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Bio: Jessica Gephart is an Asst Prof in SAFS. Her research focuses on the intersection of seafood globalization and environmental change, evaluating how seafood trade drives distant environmental impacts, as well as how environmental shocks disrupt seafood trade. Her work brings together global trade, local consumption, and environmental impact data to understand the opportunities and risks of seafood globalization for sustainable production and food security. Dr. Gephart received her PhD in Environmental Science from UVA and completed a postdoctoral fellowship at the National Socio-Environmental Synthesis Center. She served on the Scientific Leadership Team of the Blue Food Assessment, where she co-led the environment and justice chapters and currently serves as a U.S. Science Envoy for the U.S. Dept. of State.

Assessment and Grading

To meet the needs of most students and to focus on the evaluation of comprehension (rather than speed or recall), assessment will generally be take-home and untimed. All assignments are graded via a rubric, which will be available in advance of an assignment deadline. Assessment items are distributed throughout the quarter to ensure you receive early and regular feedback on your progress and to avoid “high stakes” assignments. Please reach out to the instructor if you have any questions about assignment instructions or assessment.

Assessment Item	Rationale	% of Grade
Exit tickets –completion grading, lowest 2 dropped	Exit tickets include practice questions to help identify sticking points and regular opportunities to provide feedback to adjust as needed throughout the quarter.	20%
Quizzes – 8 total, take home, open book/open note, untimed, lowest 1 dropped	Assess comprehension of lecture and reading content, spaced throughout the course.	25%
Group project	Collect and analyze real data to draw conclusions related to farmed versus wild preferences. This provides an opportunity to compare readings to real world observations.	20%
Discussion posts – 1 per week, lowest 1 dropped	Engage with current literature and hot topics in discussions through short reflection posts. This helps prepare you for discussions.	25%
Discussion lead	Work in small groups to lead one assigned discussion section to practice synthesis and presentation skills.	10%

Grading scale

-	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: 60-69%	F: < 60%	

Course policies

Respect

This is a topic that draws upon a wide range of disciplines and requires a transdisciplinary approach. All students will be coming in with different expertise and perspectives, and all students (and the instructor) will likely be learning something new from the readings, discussions, and assignments. While it is appropriate and important to ask probing questions and even to challenge one another, this must be done with respect. To promote meaningful conversations, we need to ensure that we maintain a positive discussion environment. If you have any concerns related to comments, please raise them with the instructor immediately.

Late assignments and absences

It is important to submit work on time so that you are able to receive timely feedback and so you can pace your learning over the quarter. To incentivize students to stay on track in this course, late assignments will be subjected to a late penalty. An assignment submitted past the assignment deadline will be subject to a 10%-point deduction per day, up to a maximum of 50%

of the original point value. This means that assignments submitted 5 or more days late will have 50% of the original point value deducted. For example, if an assignment worth 10 points is submitted one day late, 1 late point will be deducted. If that same assignment is submitted 5 or more days late, 5 points will be deducted. All late assignments are accepted up until the last day of this class.

Participation and discussion are also important for helping you meet the objectives of this class. There is no direct substitute (i.e., make up work) for being present and engaged in class. However, while it is important for students to stay on top of work and participate, there are always situations that arise where students may not be able to do so. To avoid students needing to request extensions or excused absences, the lowest two exit ticket and lowest one quiz, and lowest one discussion post grades will be dropped automatically for every student.

Course Schedule

Each week of the course will be devoted to one major topic related to sustainable aquaculture production, accompanied by a weekly related discussion.

Week	Date	Topic	Readings/assignments due
1	Sep 25	Introduction to course History of aquaculture	None
2	Sep 30	Diversity in aquaculture systems Part I	Discussion 1 reading(s) Discussion 1 reflection
		Discussion 1: Traditional aquaculture practices	
	Oct 2	Diversity in aquaculture systems Part II	Quiz 1
3	Oct 7	Feeds	Discussion 2 reading(s) Discussion 2 reflection
		Discussion 2: Fishmeal	
	Oct 9	Hatcheries and husbandry	Quiz 2
4	Oct 14	Environmental impacts Part I	Discussion 3 reading(s) Discussion 3 reflection
		Discussion 3: On farm impacts	
	Oct 16	Environmental impacts Part II	Quiz 3
5	Oct 21	Environmental impacts Part III	Discussion 4 reading(s) Discussion 4 reflection
		Discussion 4: Supply chain impacts and trade-offs	
	Oct 23	Environmental impacts Part IV	Quiz 4
6	Nov 4	Environmental threats and resilience Part I	Discussion 5 reading(s) Discussion 5 reflection
		Discussion 5: Climate resilience of aquaculture	
	Nov 6	Environmental threats and resilience Part II	Quiz 5
7	Nov 11	Veterans Day – No Class	
	Nov 13	Human health considerations – nutrients and safety	Quiz 6
8	Nov 18	Social sustainability and ethical concerns	Discussion 6 reading(s) Discussion 6 reflection
		Discussion 6: Should we farm octopus?	
	Nov 20	Certification and supply chains	Quiz 7

9	Nov 25	Emerging technologies	Discussion 7 reading(s)
		Discussion: Emerging technologies	Discussion 7 reflection
	Nov 27	Asynchronous – topic TBD	Quiz 8
10	Dec 2	Public perceptions and acceptance	Discussion 8 reading(s)
		Discussion: NIMBY	Discussion 8 reflection
	Dec 6	Course wrap-up	Group project presentations

University Policies

Conduct

The University of Washington Student Conduct Code (WAC 478-121) defines prohibited academic and behavioral conduct and describes how the University holds students accountable as they pursue their academic goals. Allegations of misconduct by students may be referred to the appropriate campus office for investigation and resolution. More information can be found [here](#).

Academic Integrity

The University takes academic integrity very seriously. Behaving with integrity is part of our responsibility to our shared learning community. If you're uncertain about if something is academic misconduct, ask me. I am willing to discuss questions you might have. Acts of academic misconduct may include but are not limited to:

- Cheating: unauthorized assistance in person and/or online for assignments, quizzes, tests or exams, using another student's work without permission and instructor authorization, allowing anyone to take a course, assignment or exam for you without instructor authorization.
- Falsification: intentional use of falsified data, information or records.
- Plagiarism: representing the work of others as your own without giving appropriate credit to the original author(s).
- Unauthorized collaboration: working with each other on assignments without permission.
- Engaging in behavior prohibited by an instructor.
- Multiple submissions of the same work in different courses without instructor permission.
- Deliberately damaging or destroying student work to gain advantage.
- Unauthorized recording, and/or subsequent dissemination of instructional content.

Concerns about these or other behaviors prohibited by the Student Conduct Code will be referred for investigation and adjudication by (include information for specific campus offices). Students found to have engaged in academic misconduct may receive a zero on the assignment (or another possible outcome).

Religious Accommodations

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy

(<https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/>).

Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form

(<https://registrar.washington.edu/students/religiousaccommodations-request/>).

Access and Accommodations

Your experience in this class is important. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. Full participation in this course requires the following types of engagement:

- Lectures: The ability to attend tri-weekly lectures of 50 minutes with >50 other students. The ability to collaborate in teams; includes worksheets, short discussions of data, the ability to talk in public.

If you have already established accommodations with Disability Resources for Students (DRS), please activate your accommodations via myDRS so we can discuss how they will be implemented in this course. If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), contact DRS directly to set up an Access Plan. DRS facilitates the interactive process that establishes reasonable accommodations. Contact DRS [here](#).

Excused Absence from Class Students are expected to attend class and to participate in all graded activities, including midterms and final examinations. A student who is anticipating being absent from class due to a Religious Accommodation activity needs to complete the Religious Accommodations request process by the second Friday of the quarter. Students who anticipate missing class due to attendance at academic conferences or field trips, or participation in university-sponsored activities should provide a written notice to the instructor ahead of the absence. The instructor will determine if the graded activity or exam can be rescheduled or if there is equivalent work that can be done as an equivalent, as determined by the instructor.

Face Coverings in the Classroom

The health and safety of the University of Washington community are the institution's priorities. Please review and adhere to the UW COVID Face Covering Policy.

Medical Excuse Notes

Students are expected to attend class and to participate in all graded activities, including midterms and final examinations. To protect student privacy and the integrity of the academic experience, students will not be required to provide a medical excuse note to justify an absence from class due to illness. A student absence from any graded class activity or examination due to illness must request, in writing, to take a rescheduled examination or perform work judged by the instructor to be the equivalent. Students are responsible for taking any number of examinations for which they are scheduled on a given day and may not request an adjustment for this reason alone.

Safety

Call SafeCampus at 206-685-7233 anytime – no matter where you work or study – to anonymously discuss safety and well-being concerns for yourself or others. SafeCampus's team of caring professionals will provide individualized support, while discussing short- and long-term solutions and connecting you with additional resources when requested.

Sex- and Gender-based Violence and Harassment

UW, through numerous policies, prohibits sex- and gender-based violence and harassment, and we expect students, faculty, and staff to act professionally and respectfully in all work, learning, and research environments. For support, resources, and reporting options related to sex- and gender-based violence or harassment, visit UW Title IX's webpage, specifically the Know Your Rights & Resources guide.