

# Course Syllabus

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## **FISH 323: Conservation and management of aquatic resources**

**Autumn 2018**

### **Lecture:**

MWF 11:30 – 12:20

**Lab:** M or T: 13:30 – 15:20, FISH 136

### **Professor:**

Tim Essington

### **Teaching Assistant**

Elizabeth Ng

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FSH 318B

FSH 314

### **Office Hours:**

Essington – Thursday 1:30 - 2:30; Friday 2:30 - 3:30

Ng - Wednesday 10:30 - 11:30; Thursday 10:30 - 11:30

### **Overview**

This class will provide you skills and conceptual knowledge to understand, evaluate and critique contemporary issues in aquatic natural resource management and conservation, with a strong focus on fisheries. This includes an overview of fisheries and fishery systems, developing understanding of population dynamics, identifying alternative management systems and policy instruments. We also emphasize the development of computer-based data analysis skills, formal writing and critical analysis of scientific literature.

### **Course Goal:**

Develop skills and understand concepts needed to apply critical scientific analysis to contemporary issues in management and conservation in aquatic ecosystems.

### **Learning Objectives**

- (1) Understand and apply key conceptual concepts relevant to population dynamics of fished populations, and demonstrate this understanding by interpretation of graphs, predicting and explaining population dynamics, and comparing population outcomes under alternative harvest strategies.
- (2) Apply systems thinking to predict and explain consequences of drivers and management on fishery systems
- (3) Identify the management bodies and policy instruments used to regulate human uses of aquatic resources, and list relative strengths and limits of each.
- (4) To write a well-organized, well-reasoned, and clear analysis of a scientific article

(5) Evaluate scientific basis of, and explain the causes of contemporary problems

(6) Form informed opinion about the status, threats, and future of aquatic resources, and articulate these opinions by providing scientific evidence.

*Lectures* will provide background, context, and opportunities to apply course material to novel problems. *Lab* sessions will be held in the SAFS Rm 136 computer room. Here you will work on exercises that allow you apply material from lecture or provide you with skills for the paper assignments.

This is a designated writing- intensive course. You have two writing assignments – the first is a critical analysis of a scientific article, the second is a policy briefing that reviews the scientific evidence surrounding a contemporary policy decision.

### Grade breakdown

<u>Midterm Exam</u>	20%	Oct. 29
<u>Final Exam</u>	25%	Dec 12
<u>Lab Assignments</u>	20%	<i>Due on the Thursday / Friday 5:00 pm of each week</i>
<u>Learning Paragraphs</u>	5%	<i>Due on Friday of each week</i>
<u>Paper 1 – Paper critique</u>	10%	Due Oct 24
<u>Paper 2 -Policy Briefing</u>	20%	Due Nov 19
Individual Paper (15%)		
Group presentation (5%)		<i>In lab</i>
<i>Optional Resubmission</i>		up to 80% of deducted points. Due Dec 7

Your final grade will be based on the total percentage of points:

Lower %	Upper %	Letter Grade	Lower Grade	Upper Grade
98	100	A+	4.0	4.0
94	97	A	3.8	3.9
90	93	A-	3.5	3.7
87	89	B+	3.2	3.4
84	86	B	2.9	3.1

80	83	B-	2.5	2.8
77	79	C+	2.1	2.4
74	76	C	1.8	2.0
70	73	C-	1.4	1.7
67	69	D+	1.1	1.3
64	66	D	0.8	1.0
60	63	D-	0.0	0.7

I reserve the option to lower the grade cutoffs (i.e. curve) which would result in you receiving a higher score than what is indicated above. In no cases will you receive a lower score than what is indicated in the above table.

### **Exams**

The midterm exam will be held during one of the class sessions, the final exam is held during the University-designated time. You may expect synthetic, challenging questions during the exam – there will not be any questions that you can just “look up”. You may bring a 8.5 x 11 sheet with condensed notes with you to exams.

### **Learning Paragraphs**

I am interested in keeping tabs on how you are learning the course material and correcting problems early. For that reason, you will be required to submit a short (3-4 sentence) learning paragraph each week in response to a question that I will pose. Any “good faith” answer is given full credit – responses that convey little or no effort will not be given credit. I will announce these each week in lecture and also post on canvas

### **Course Resources**

All course information will be made available to you via the canvas website at: [canvas.uw.edu](https://canvas.uw.edu). All assignments will be submitted through the canvas site and graded assignments will be returned electronically.

### **On-line Video Lectures**

To maximize the benefits of in-person class time, videos that cover preparatory material will be posted on-line. Videos will be announced in class but approximate schedule is given below. You are expected to view the lectures prior to the designated class period, and each has a required quiz that you must take to demonstrate that you watched the video. The following class period will begin with a review and Q&A based

on the lectures, and then work into advanced application of the lecture topics.

### **Strategies for success**

The most important thing you can do is become an active participant in the class. This means attending lectures and thinking critically about the material being presented (i.e., don't just write down the bullet points!). Ask yourself "does this make sense: does this concept "fit" into my own understanding? How does this concept apply to other material in the course?" Being an active participant also means being engaged in course activities (labs, discussions).

A lucky handful of us are naturally gifted writers – the rest of us have to work for it. Good writing comes from lots of practice and revision. Some say "there is no such thing as good writing, only good re-writing". The best student papers will be those that are prepared well in advance of the due date and then revised before being submitted. Be your own worst critic!

### **Course policies**

Late Assignments: All assignments are graded under consideration of the amount of time allotted for them. Late assignments will be penalized 10% for each day that they are late. You will not receive credit for assignments submitted 3 or more days after the deadline.

We also recognize that sometimes life gets in the way of academics. Each student has one "freebie extension" that you can apply to an paper assignment (maximum 3 days) or lab assignment (maximum 1 day) of your choice. To use the extension, all you need to do is contact one of the instructors BEFORE the due date, explain why you need an extension, and when you plan on turning in the assignment.

Note that the second paper allows for a resubmission. You can earn up to 80% of deducted points from your first submission. So if your score the first round was 12/15, and you resubmit and your score is now 15 / 15, your final grade will be  $12 + (15 - 12) \times 0.80 = 14.4$ . You cannot re-earn points deducted because of late penalties.

To request academic accommodations due to disability, please contact Disabled Student Services indicating your needs and inform me as soon as possible about special accommodations. Disabled Student Services, 448 Schmitz, Box 355839, 206-543-8925 (Voice/TTY), [uwdss@u.washington.edu](mailto:uwdss@u.washington.edu) (<mailto:uwdss@u.washington.edu>)

Plagiarism, cheating, and other academic misconduct are serious violations of your contract as a student and will not be tolerated. In writing your papers, you cannot use material (text, figures etc.) or ideas from sources other than your own without providing a citation to the original source. Direct quotation of someone else's writing must be formatted as such (although direct quotations should generally be avoided in this course).

We will use "Veracite" for the writing assignments. This tool gives you an score that you can see immediately. We encourage you to submit early and if the score indicates too little original writing, you can revise.

**It is your responsibility to know and follow the University of Washington Student Conduct Code as mandated by the Washington State Legislature.**

## Course Schedule (subject to change)




Week	Date	Day	Lecture Topic	On-Line Lecture	Lab Topic	Assignments Due
1	9/26	W	1. Class overview			
	9/28	F	2. Conservation in the Anthropocene			
2	10/1	M	3. Fisheries as a social-natural system		Strategies for reading primary scientific literature	
	10/3	W	4. Concepts of Population Dynamics I	Concepts in Population Dynamics {REQUIRED}		
	10/4	Th				M Lab Due
	10/5	F	5. Concepts of Population Dynamics II			T Lab Due
3	10/8	M	6. Stock concept and Recruitment	Stock - Recruitment Relationships {REQUIRED}	How to critique a paper	
	10/10	W	7. Practicum: Regime shifts and population status			
	10/11	Th				M Lab Due
	10/12	F	8. Assessing population status	Abundance Indices and Catchability {REQUIRED}		T Lab Due

Week	Date	Day	Lecture Topic	On-Line Lecture	Lab Topic	Assignments Due
4	10/15	M	9. Paper 1 Assignment; Population responses to climate change		Harvest control rules	
	10/16	W	10. Vulnerability to climate change			
	10/18	Th				M Lab Due
	10/19	F	11. Northern Cod			T Lab Due
5	10/22	M	12. What is management?	Typology of management tools {REQUIRED}	Growth Overfishing in Tunas	
	10/24	W	13. Management Approaches and Tools in Fisheries			<b>Paper 1 Due</b>
	10/25	Th				M Lab Due
	10/26	F	14. Fisheries Management Systems			T Lab Due
6	10/29	M	<b>MIDTERM</b>		Fish Banks Game	
	10/31	W	15. Midterm review; Natural resource economics			
	11/1	Th				M Lab Due
	11/2	F	16. Natural Resource			T Lab Due














Week	Date	Day	Lecture Topic	On-Line Lecture	Lab Topic	Assignments Due
			Economics			
7	11/5	M	17. Practicum: rights - based approaches		Fisheries Economics	
	11/7	W	18. Assignment 2. Bycatch- The Issues			
	11/8	Th				M Lab Due
	11/9	F	19. Bycatch - solutions			T Lab Due;
8	11/12	M	VETERANS DAY	Excel 101 {OPTIONAL}	Short Tailed Albatross Status T Lab only this week	
	11/14	W	20. Habitat and Habitat Protection			
	11/15	Th				
	11/16	F	21. Practicum: Tuna Dolphin Problem			T Lab Due
9	11/19	M	22. Ocean Acidification: causes and consequences	Ocean Carbon Chemistry {REQUIRED}	M lab only this week.	Paper 2 Due
	11/21	W	23. Super Special Bonus Lecture			M Lab Due
	11/22	Th	THANKSGIVING BREAK			











Week	Date	Day	Lecture Topic	On-Line Lecture	Lab Topic	Assignments Due
	11/23	F	THANKSGIVING BREAK			
10	11/26	M	24. Marine Protected Areas		Presentation Preparation	
	11/28	W	25. Conservation Case Study: Whaling			
	11/30	F	26. Conservation Case Study: Coral Reefs	Read Required Paper		
11	12/3	M	27. Futures for Aquatic Resources		<i>Presentations</i>	
	12/5	W	28. Finale and wrap-up			
	12/7	F	Review for final		Revision Due	<b>Optional Paper 2 Resubmission</b>

## Course Summary:

Date	Details	
Fri Sep 28, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323889">Learning Paragraph 1 (https://canvas.uw.edu/courses/1221066/assignments/4323889)</a>	due by 11:59pm
Mon Oct 1, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323874">Pre-Lab Week 2 Quiz (https://canvas.uw.edu/courses/1221066/assignments/4323874)</a>	due by 1:30pm
Thu Oct 4, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323900">Reading and Summarizing Scientific Literature (https://canvas.uw.edu/courses/1221066/assignments/4323900)</a>	due by 5:00pm



Date	Details	
Fri Oct 5, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323892">Learning Paragraph 2 (https://canvas.uw.edu/courses/1221066/assignments/4323892)</a>	due by 11:59pm
Thu Oct 11, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323885">Critical Analysis of Scientific Literature (https://canvas.uw.edu/courses/1221066/assignments/4323885)</a>	due by 5:00pm
Fri Oct 12, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323893">Learning Paragraph 3 (https://canvas.uw.edu/courses/1221066/assignments/4323893)</a>	due by 11:59pm
Thu Oct 18, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323886">Evaluating Harvest Strategies (https://canvas.uw.edu/courses/1221066/assignments/4323886)</a>	due by 5:00pm
Fri Oct 19, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323894">Learning Paragraph 4 (https://canvas.uw.edu/courses/1221066/assignments/4323894)</a>	due by 11:59pm
Wed Oct 24, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323879">#1- Paper Analysis and Critique (https://canvas.uw.edu/courses/1221066/assignments/4323879)</a>	due by 5:00pm
Thu Oct 25, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323882">Age-Structured Populations and Fishing (https://canvas.uw.edu/courses/1221066/assignments/4323882)</a>	due by 5:00pm
Fri Oct 26, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323895">Learning Paragraph 5 (https://canvas.uw.edu/courses/1221066/assignments/4323895)</a>	due by 11:58pm
Mon Oct 29, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323899">Midterm (https://canvas.uw.edu/courses/1221066/assignments/4323899)</a>	due by 11:59pm
Thu Nov 1, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323888">FishBanks Game (https://canvas.uw.edu/courses/1221066/assignments/4323888)</a>	due by 5:00pm
Fri Nov 2, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323896">Learning Paragraph 6 (https://canvas.uw.edu/courses/1221066/assignments/4323896)</a>	due by 11:59pm
Thu Nov 8, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323884">Bioeconomics of Open Access Fisheries (https://canvas.uw.edu/courses/1221066/assignments/4323884)</a>	due by 5:00pm
Fri Nov 9, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4484873">Optional Extra Credit (https://canvas.uw.edu/courses/1221066/assignments/4484873)</a>	due by 5:00pm
Fri Nov 9, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323897">Learning Paragraph 7 (https://canvas.uw.edu/courses/1221066/assignments/4323897)</a>	due by 11:59pm
Thu Nov 15, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323883">Albatross Extinction Risk (https://canvas.uw.edu/courses/1221066/assignments/4323883)</a>	due by 5:00pm

Date	Details	
Fri Nov 16, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323898">Learning Paragraph 8 (https://canvas.uw.edu/courses/1221066/assignments/4323898)</a>	due by 11:59pm
Mon Nov 19, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323881">#2: Policy Analysis (https://canvas.uw.edu/courses/1221066/assignments/4323881)</a>	due by 5:00pm
Fri Nov 30, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323890">Learning Paragraph 10 (https://canvas.uw.edu/courses/1221066/assignments/4323890)</a>	due by 11:59pm
Fri Dec 7, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323891">Learning Paragraph 11 (https://canvas.uw.edu/courses/1221066/assignments/4323891)</a>	due by 11:59pm
Wed Dec 12, 2018	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323887">Final Exam 1 (https://canvas.uw.edu/courses/1221066/assignments/4323887)</a>	due by 2:30pm
	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323880">#2b- Policy Analysis Presentation (https://canvas.uw.edu/courses/1221066/assignments/4323880)</a>	
	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323877">Abundance Index Video (https://canvas.uw.edu/courses/1221066/assignments/4323877)</a>	
	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323875">Management Tools Video (REQUIRED) (https://canvas.uw.edu/courses/1221066/assignments/4323875)</a>	
	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323876">Population Dynamics. Due WED before LECTURE (https://canvas.uw.edu/courses/1221066/assignments/4323876)</a>	
	 <a href="https://canvas.uw.edu/courses/1221066/assignments/4323878">Stock and Recruitment Video before MONDAY LECTURE (https://canvas.uw.edu/courses/1221066/assignments/4323878)</a>	



