

FAS 2024: Sustainable Fisheries

SPRING 2024 (FAB 105, Period 5: 11:45-12:35, on MWF)

Instructor: Dr. Debra J. Murie

Main Office: Program of Fisheries and Aquatic Sciences, School of Forest, Fisheries, and Geomatics Sciences, 7922 NW 71st Street, Gainesville

Office Hours: Wednesday (3-4 pm) via Zoom (zoom address will be provided to all class participants via our Canvas course site); or by prior arrangement (call or email to set up a time to meet or zoom).

Contact: Please email me at dmurie@ufl.edu or use the Canvas message/inbox feature for fastest response.

My phone out at Fisheries, (352) 273-3601, is equipped with Voice IP, so if you leave a message then I will receive it as an email notification. I will respond within 24 hrs, but most likely earlier unless I am in the field.

Email: dmurie@ufl.edu

Format: In-person (face-to-face)

Teaching Assistant: Mr. Eric Bovee, Fisheries and Aquatic Sciences, bovee15@ufl.edu ; Office hours to be arranged. Please use the Canvas message/inbox feature for the fastest response.

Prerequisites: none

Course Description:

Fish biology, ecology, and habitats relevant to sustainable fisheries on both a global and regional (Florida) scale. Follows the fisheries occurring from cold, mountain rivers to the depths of the ocean, with a focus on resource use. Special topics are covered along this aquatic highway, including invasive species, aquaculture, dams and reservoirs, fisheries bycatch, climate change, and marine protected areas. Intended for non-science and science majors.

This is a General Education course (3 credits of Biological Sciences).

Recommended Text (Not required):

Moyle, Peter B. 1995 (paperback). Fish: An enthusiast's guide. University of California Press, Berkeley, CA. 272 pp.

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Learning Outcomes:

On completion of this course, students should be able to:

- Discuss and explain general fish biology and basic fisheries concepts with both non-scientists and fisheries professionals alike
- Compare and contrast fish biology, fish habitats, and fisheries that occur in freshwater, estuarine, and marine waters on a regional, national, and global scale
- Understand the processes of large-scale weather patterns, such as El Nino, in relation to fisheries and food webs
- Discuss the basic principles of fisheries sustainability and management options used in regulating fisheries

Course Format:

This course is offered for three (3) credits every Spring semester. It consists of three hours of lecture each week and the course meets the requirements for Biology (B) under the general education guidelines.

Lectures are based on PowerPoint presentations to facilitate the use of visual representation of fishes, habitats, and fisheries. PowerPoint outlines of lecture topics will be posted to our Canvas site and should be printed out or downloaded prior to class. It will be your responsibility to take notes to accompany these outlines and to get lecture notes from a classmate if you miss any lectures. The course plan and syllabus are subject to change in response to guest lecturer, student, and instructor needs. Any changes will be clearly communicated in advance through Canvas.

Course Assessments:

Exams: Lecture exams will be based on material given during class lectures. Supplemental readings from the recommended textbook (Fish: An enthusiast's guide by Peter Moyle) will aid in understanding this material. Exam questions may include multiple-choice, matching, true/false, brief explanations, short answers, and paragraphs.

Exams will be given on a quarterly basis and constitute 75% of the final grade. Quarterly exam material is not generally cumulative unless specifically indicated in later lectures. The exam grade will be calculated based on the final quarterly exam (Quarterly Exam D), which everyone must take (25% of final grade), and the best two out of three of Quarterly Exams A, B, or C ($25\% \times 2 = 50\%$ of final grade).

Project: For the project, you will choose a fish species (either freshwater or marine) that is harvested (recreationally or commercially) and combine sources of information about this fish into your project. You will need to provide information on: 1) relevant biology of the harvested fish species;

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2) the distribution and habitat of the fish; and 3) its fishery and management. Your project can be put together as a narrated PowerPoint, a poster, a poem, a music video, a children's book, a cooking show, or whatever drives you creatively while pushing your critical thinking! Projects must be done in groups of 3 students. We will facilitate you finding project members with an interest in the same fish species. The project will be graded based on both required content and effective presentation. Projects will be uploaded to our Canvas site and available for viewing online and you will provide anonymous, peer evaluations of at least three of the projects. Further information and a grading rubric will be provided during the course. (15% of final grade).

In-class Quizzes: To grasp the comparative aspect of the course, which is based on visiting different habitats and fisheries along an aquatic highway, it is important that you consistently attend lectures. To facilitate this, you will be given in-class quizzes on a random basis throughout the course. These quizzes will consist of 2-4 questions (multiple choice, fill in the blank, short answer) that will be handed out at the beginning of the lecture, answered during the lecture, and handed in at the end of the lecture. The best 10 of 15 quizzes given during the course will count towards 10% of your final grade. Please note: Due to the large number of in-class quizzes given over the semester relative to the number that count towards your quiz grade, any individual in-class quiz that is missed (for any reason) will be assigned a zero. Exceptions will be made for any extenuating circumstances (i.e., extended/chronic illness, UF-sanctioned athletic events, etc.) extending to two or more consecutive lectures with appropriate documentation.

This course follows UF grading policies for assigning grade points (<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>)

Grade assignments for this course are based on the following: A (93-100%), A- (90-92.9), B+ (86-89.9%), B (82-85.9%), B- (78-81.9%), C+ (74-77.9%), C (67-73.9%), C- (63-66.9%), D+ (59-62.9%), D (55-58.9%), D- (51-54.9%), and F (<50.9%), and will be comprised of:

Activity	Exam	Percent of Final Grade	Notes
Quarterly Exams	A (25%)	50	Lowest of Exam A, B, or C will be dropped
	B (25%)		
	C (25%)		
Quarterly Exam D		25	Required
Project		15	Required
In-class Quizzes		10	Required
TOTAL		100	

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Late Submissions and Make-up Requests:

It is the responsibility of the student to access lecture outlines and complete in-class quizzes, exams, and the project to maintain satisfactory progress in the course. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

<https://gradcatalog.ufl.edu/graduate/regulations/>

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing or late assignments (i.e., the project). Any late submissions due to technical issues MUST be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You must e-mail me within 24 hours of the technical difficulty.

For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352- 392-4357 (option 2).

Communication Courtesy and Professionalism:

Overall, please conduct yourself in a professional manner and give consideration to your fellow classmates. Respect for individual differences and alternative viewpoints will be maintained in this class at all times. Although you are welcome to use your computer to take notes during class, please do not use electronic devices (e.g., cell phones, computers, iPads) to perform activities (e.g., texting, Facebook, web surfacing) that can distract your neighbors or interrupt the class. The instructor reserves the right to request that you leave if you engage in distracting behavior.

Course Communication and Technology Requirements:

Course information will be posted on Canvas (<http://elearning.ufl.edu>) and will allow you day-to-day access to lecture outlines, assignments, and your grades.

Technology requirements for this course include:

- A computer or mobile device with high-speed internet connection.
- A webcam, headset and/or microphone, and speakers.
- Latest version of web browser. Canvas supports only the two most recent versions of any given browser. [What browser am I using?](#)

Course Evaluation:

At the end of the semester, students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via

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<https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Academic Honesty:

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."*

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in this course (e.g., exams, quizzes) unless the instructor provides explicit permission for you to collaborate on course tasks (e.g., projects). Projects will be checked for plagiarism using iThenticate. Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated and will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

Inclusive Learning Environment:

This course embraces the University of Florida's Non-Discrimination Policy, which reads,

The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act.

If you have questions or concerns about your rights and responsibilities for an inclusive learning environment, please see the instructor or refer to the Office of Multicultural & Diversity Affairs website: <http://multicultural.ufl.edu>.

Services for Students with Disabilities:

The Disability Resource Center (0001 Reid Hall, 352-392-8565, <http://www.disability.ufl.edu>) coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability

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related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

It is important for a student to share their accommodation letter with their instructor and discuss their access needs as early as possible in the semester. Accommodations are not retroactive and you must therefore submit the documentation letter prior to submitting assignments or scheduling exams. Students should therefore contact the Dean of Students Office as soon as possible in the term for which they are seeking accommodations.

Student Life, Wellness, and Counseling Help

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on-campus for students having personal problems or lacking clear career and academic goals which interfere with their academic performance. These resources include:

Health and Wellness

- *U Matter, We Care*: If you or someone you know is in distress, please contact umatter@ufl.edu or 352-294-2273 during business hours, or the Counseling and Wellness Center at 352-392-1575, or <http://www.umatter.ufl.edu/> to refer or report a concern and a team member will reach out to the student in distress.
- Counseling and Wellness resources: visit <http://www.counseling.ufl.edu/cwc/> or call 352-392-1575 for information on crisis services as well as non-crisis services.
- Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need.
- University Police Department: Call 352-392-1111 (or 9-1-1 for emergencies).
- UF Health Shands Emergency Room/Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SE Archer Road, Gainesville, FL.

Academic Resources

- Career Connections Center: Reitz Union, Suite 1300, 352-392-1601. Career assistance and counseling services <http://career.ufl.edu/>

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Campus Helping Resources:

For issues with technical difficulties for e-learning in Canvas, please post your question to the Technical Help Discussion in your course, or contact the UF Help Desk at:

- Learning-support@ufl.edu; (352) 392-4357, select option 2; <http://elearning.ufl.edu>
- Library Help Desk support <http://cms.uflib.ufl.edu/ask>
- SFFGS Academic Hub <https://ufl.instructure.com/courses/303721>

Software Use:

All faculty, staff and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Student Complaint Process:

The School of Forest, Fisheries & Geomatics Sciences cares about your course experience and we will make every effort to address course concerns. Your first point of contact should be the Academic Coordinator or the Undergraduate Coordinator for the program offering the course. You may also submit a complaint directly to UF administration (<https://registrar.ufl.edu/complaint.html>)

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Date	Day	Lecture #	Lecture Topic	Instructor	Text Pages
8-Jan	M	1	Introduction to course/schedule/grading	Dr. Debra Murie	
Part I. Tools of the Trade					
10-Jan	W	2	What is a sustainable fishery and a stock? Range and diversity of fishes	Dr. Debra Murie	1-11, 65-98
12-Jan	F	3	Basic external features of fishes	Dr. Debra Murie	13-34
15-Jan	M		Martin Luther King Jr. Day: No class		
17-Jan	W	4	Feeding lifestyles	Dr. Debra Murie	26, 35-40, 61-62
19-Jan	F	5	Feeding lifestyles	Dr. Debra Murie	26, 35-40, 61-62
22-Jan	M	6	Fish and their senses	Dr. Debra Murie	1-3, 25-26, 63-64
24-Jan	W	7	Breathing in water and air; internal water balance	Dr. Debra Murie	5, 35-42
26-Jan	F	8	Muscles; swimming and buoyancy; catch and release	Dr. Debra Murie	42-44
29-Jan	M	9	Reproduction and reproductive lifestyles	Dr. Debra Murie	41-42, 54-61
31-Jan	W	10	Reproduction and reproductive lifestyles: Age and Growth	Dr. Debra Murie	41-42, 54-61
2-Feb	F	11	Age and growth	Dr. Debra Murie	21-23, 33
5-Feb	M	12	Catching fish: gear and fish behavior	Dr. Debra Murie	
7-Feb	W		QUARTERLY EXAM A	Dr. Debra Murie	
9-Feb	F	13	What happens to a fish stock when you fish it?	Dr. Debra Murie	
Part II. The Aquatic Highway: Fish, Habitats, and Fisheries					
12-Feb	M	14	Environmental factors and fish distribution and abundance	Dr. Debra Murie	99-115
14-Feb	W	15	Coldwater fisheries in streams, rivers, and lakes	Dr. Debra Murie	116-129
16-Feb	F	16	Warmwater fisheries in streams, rivers, and lakes	Dr. Debra Murie	131-162
19-Feb	M	17	Eutrophication or "What's that green stuff in the water?"	Dr. Debra Murie	131-162
21-Feb	W	18	Invasive aquatics	Dr. Jeff Hill	
23-Feb	F	19	Aquaculture and Fisheries	Dr. Courtney Ohs	
26-Feb	M	20	Florida bass fisheries	Mr. Drew Dutterer	
28-Feb	W	21	The good and the bad about dams and fisheries	Dr. Debra Murie	
1-Mar	F	22	Migration and stocks without borders	Dr. Debra Murie	49-52, 206-209
4-Mar	M		QUARTERLY EXAM B	Dr. Debra Murie	
6-Mar	W	23	Coastal habitats important to fisheries: Estuaries as nurseries	Dr. Debra Murie	163-171
8-Mar	F	24	Fisheries Projects (No lecture, please use this lecture time to work on your fisheries project with your group)	Dr. Debra Murie	
11-15 March		Spring Break: No classes			
18-Mar	M	25	Coastal habitats and fisheries: Salt Marshes and Mangroves	Dr. Debra Murie	180-183
20-Mar	W	26	Coastal habitats and fisheries: Seagrasses and Sand Beaches	Dr. Debra Murie	179-180, 191-192
22-Mar	F	27	Coastal habitats: Warm and cold-water coral reef fisheries	Dr. Debra Murie	197-210
22-Mar	F		Fisheries Project due (uploaded no later than 11 pm)		
25-Mar	M	28	Coastal habitats: Coastal temperate reef fisheries	Dr. Debra Murie	186-188
27-Mar	W	29	Coastal habitats and fisheries: Rocky intertidal and kelp forests	Dr. Debra Murie	173-179, 184-189
29-Mar	F	30	Fisheries production and large-scale climate events: EL Niño	Dr. Debra Murie	
1-Apr	M	31	Fisheries of the continental shelf and slope (Pelagic)	Dr. Debra Murie	192-195
3-Apr	W		QUARTERLY EXAM C	Dr. Debra Murie	
5-Apr	F	32	Fisheries of the continental shelf and slope (Pelagic)	Dr. Debra Murie	192-195
8-Apr	M	33	Sharks and their fisheries	Ms. Ashley Wechsler	
10-Apr	W	34	Fisheries of the continental shelf and slope (Demersal)	Dr. Debra Murie	
12-Apr	F	35	Bycatch	Dr. Debra Murie	
15-Apr	M	36	Alaskan Pollock fishery	Mr. Eric Bovee	
17-Apr	W	37	Climate Change/Global Warming and Fisheries Impacts	Dr. Debra Murie	
19-Apr	F	38	Fisheries management; Marine Protected Areas as a fisheries tool	Dr. Debra Murie	
22-Apr	M	39	Sustainable Fisheries Wrap-up Discussion and Review	Dr. Debra Murie	
24-Apr	W		QUARTERLY EXAM D (or in scheduled final exam time on May 3rd)	Dr. Debra Murie	
3-May	F		QUARTERLY EXAM D (Final exam time 8:00-9:00 a.m. in FAB 105)	Dr. Debra Murie	