FAS 6932: Trophic Ecology of Fishes

Instructor: Dr. Debra J. Murie

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

Office Hours: Please email me with your questions or concerns. I will respond within 24 hrs during the week and within 48 hrs during the weekend. Many times I may be able to respond to your emails quicker but if I am in the field then I will not be able to respond until later at night or early the next morning.

Telephone: (352) 273-3601: My phone at Fisheries is equipped with Voice IP so if you have to leave a message then I should receive it as an email notification and I will respond as soon as possible.

E-mail: dmurie@ufl.edu

Course Description:

Trophic ecology of fishes, including: food habit analyses, food chains and webs, trophic cascades, isotopic analysis of trophic pathways, foraging behavior, prey selection, digestion and evacuation of prey, estimating consumption, feeding bioenergetics, tradeoffs among feeding, growth & reproduction, bioaccumulation, and a discussion-based introduction to ecosystem-based trophic models.

Prerequisites: Biology of Fishes (or equivalent) and STA 6166 (or equivalent)

Course Outcomes:

On completion of this course, students should be able to:
- Discuss and explain central concepts in fish trophic ecology
- Critically evaluate the primary literature on trophic ecology of fishes
- Apply metrics and models of trophic dynamics to interpret feeding ecology of fishes

Course Communication:

Course information will be posted on our Canvas site and allow you day-to-day access to modules, the discussion board, assignments, and grades. All due dates will be posted on our Canvas site. Information on how to use the Canvas site can be accessed at: https://lss.at.ufl.edu/

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Course Format:

This course is offered for 3 credits in the Spring semester. It consists of 12 modules with associated activities. Each module has narrated PowerPoint lectures in combination with a weekly assignment that is either: 1) a written review of a journal article; 2) a group discussion of a journal article posted to an online discussion board; or 3) a homework exercise applying the metrics or models discussed in the lectures. There are no formal exams in this course.

Please note: The modules, reviews, group discussion boards, and lab exercises have a schedule of completion so that everyone progresses through the course sequentially and everyone is able to contribute significantly to the group discussions in particular.

Primary Literature Reviews:
   A selected journal article from the primary peer-reviewed literature will be posted to our Canvas site, along with a review assignment based on this paper. The review assignment is based on discussing 2-3 directed questions on the methods used, interpretation of the results, biases introduced, etc., rather than a summary of the entire paper. Reviews average around 3 double-spaced pages (with a maximum of 5 pages). There will be 5 reviews worth 50 points each.

Group Discussion:
   A selected journal article from the primary peer-reviewed literature will be posted to our Canvas site and will act as a focal point for a group discussion on our online bulletin board. Each student is expected to participate fully by contributing to the ongoing discussion board a minimum of five times during the open comment period. Your grade for each group discussion will be based on the level of your contribution to the discussion thread, with quality preferred over quantity of postings. For example, responding to a point posted by another student will facilitate the discussion, but starting a brand new thread of discussion or questioning will earn you higher points. I will periodically be injecting points as well to move the discussion forward. There will be 5 discussion threads worth 50 points each.

Homework Exercises:
   Several modules will have lab exercises associated with them that require calculations and interpretation of data. Students will work through the exercises and upload their responses online as a written document. There will be 5 homework exercises worth 100 points each.

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Course Grading:

Activity	Points

Primary Literature Reviews.................5 @ 50 pts
Discussion Threads ....5 @ 50 pts
Homework exercises.........................5 @ 100 pts
Total.. 1000 pts

Late Assignments: Review and homework assignments that are posted to our Canvas site later than the due date and time will be decreased by 10% per day (any portion of 24 hr after the due date, and thereafter). The group discussion bulletin board will close on the due date and time and therefore no additions can be made after it closes. If you have a legitimate reason (e.g., in hospital, jail, jury duty, etc.) for having a late assignment then please contact me before it is due so that we can work out an alternative arrangement.

Grade	%	Points
A	93-100	930-1000
A-	90-92.9	900-929
B+	86-89.9	860-899
B	82-85.9	820-859
B-	78-81.9	780-809
C+	74-77.9	740-779
C	67-73.9	670-739
C-	63-66.9	630-669
D+	59-62.9	590-629
D	55-58.9	550-589
D-	51-54.9	510-549
E	<51	<510

Recommended Text:

There is no required texts for this course. Reviews and discussion boards will be based on papers from the primary literature.

Academic Honesty:

As a result of completing the registration form at the University of Florida, every student has signed the following statement: "I understand that the University of Florida expects it students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this

commitment may result in disciplinary action up to and including expulsion from the University."

All students are expected to follow the University of Florida Honor Code.

UF Counseling Services:

Resources are available for students having personal problems or lacking clear career and academic goals which interfere with their academic performance. These resources include:

1. University Counseling Center, 301 Peabody Hall, 392-1575, personal and career counseling; www.counsel.ufl.edu (Links to an external site.)
2. Student Mental Health, Student Health Care Center, 392-1171, personal counseling; www.shcc.ufl.edu/smhs/ (Links to an external site.)
    a. Alcohol and Substance Abuse Program (ASAP)
    b. Center for Sexual Assault / Abuse Recovery & Education (CARE)
    c. Eating Disorders Program
    d. Employee Assistance Program
    e. Suicide Prevention Program
3. Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual assault counseling; and
4. Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling; www.crc.ufl.edu/ (Links to an external site.)

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.

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

Module #	Module Opens:	Module Topic	Lecture Topics within Module	Reading Assignment	Discussion Assignment	Homework Exercise	Reading Assignment Due	Discussion Board Due	Homework Exercise Due
1	6-Jan-15	Introduction to Course	Introduction to course: topics, assignments, grading, outcomes	None	Yes	None		11 Jan by 2300 h EST	
2	6-Jan-15	Food Habit Analysis: Quantifying Composition	Identifying prey; quantitative methods of analysis; biases	Yes	None	None	16 Jan by 1700 h EST		
3	16-Jan-15	Metrics of Food Habit Analysis	Niche breadth, overlap, similarity analysis	None	None	Yes			23 Jan by 1700 h EST
4	23-Jan-15	Food Chains and Food Webs	Chains versus webs, trophic levels, trophic pyramids	None	Yes	None		30 Jan by 1700 h EST	
4 Cont'd	30-Jan-15	Food Chains and Food Webs	Bottom-up versus Top-down control; trophic cascades	Yes	None	None	6 Feb by 1700 h EST		
5	6-Feb-15	Isotopic Analysis of Trophic Pathways	Isotope analysis of prey and trophic levels; isotope mixing models	None	None	Yes			13 Feb by 1700 EST
6	13-Feb-15	Foraging Behavior	Optimal foraging; foraging arenas; prey selectivity; predator-prey size relationships	None	None	Yes			20 Feb by 1700 h EST
7	20-Feb-15	Digestion and Evacuation of Prey	Factors of differential digestion of prey; digestion indices; evacuation models	None	None	Yes			27 Feb by 1700 h EST
		UF Spring Break: No classes							
8	6-Mar-15	Estimating Food Consumption in the Field	Chronology of feeding; consumption models	None	Yes	None		13 March by 1700 h EST	
9	13-Mar-15	Bioenergetics	Field versus lab consumption rates; bioenergetic schemes and models	Yes	None	None	20 March by 1700 h EST		
9 Cont'd	20-Mar-15	Bioenergetics	Field versus lab consumption rates; bioenergetic schemes and models	None	None	Yes			27 March by 1700 h EST
10	27-Mar-15	Growth and Reproductive Tradeoffs based on Consumption and Energy Storage	Patterns of lipid and protein use and storage; overwintering survival; stunting; skip-spawning	yes	None	None	3 April by 1700 EST		
11	3-Apr-15	Bioaccumulation through the food chain	Bioaccumulating substances; bioaccumulation and biomagnification factors	None	yes	None		10 April by 1700 EST	
12	10-Apr-15	Ecosystem Models Based on Trophic Analyses	Ecosystem-based Fisheries Management; OSMOSE; Ecopath with EcoSim; Atlantis	Yes	Yes	None	22 April by 1700 EST	22 April by 1700 EST	

***Weekly schedule of topics subject to change.