

Fisheries Science Syllabus and Course Outline

NRES 463/863

Instructor

Mark Pegg
402 Hardin Hall
472-6824
mpegg2@unl.edu

Office Hours: Mondays 9:00 a.m. - 12:00 p.m. or by appointment.

Time and Place:

- Lecture: T, R 12:30-13:45 24 Hardin Hall
- Laboratory: October 14-18 Cedar Point and/or other locales

Textbook and Other Reading Materials:

- Hubert, W.A., and M.C. Quist, editors. 2010. Inland fisheries management in North America, 3rd edition. American Fisheries Society. Bethesda, Maryland.
- Lecture and Laboratory handouts (available in class).

Optional Materials:

- Pflieger, W.L. 1997. Fishes of Missouri. Missouri Department of Conservation, Jefferson City, Missouri (for laboratory use).
- Willis, D.W., and B.R. Murphy, editors. 1996. Fisheries Techniques, 2nd edition. American Fisheries Society. Bethesda, Maryland.

Course Description:

This course will deal with techniques used to collect fish and habitat data, quantitative methods for assessing fish populations, and application of the data for fish management needs in freshwater systems. We will also focus on improving critical thinking and writing through in-class and independent study.

This is an ACE 10 area course. The intended outcomes of ACE 10 courses are as follows: “**ACE 10.** Generate a creative or scholarly product that requires broad knowledge, appropriate technical proficiency, information collection, synthesis, interpretation, presentation, and reflection.”

Objectives and Outcomes

1. Subject Matter—increase understanding of
 - a. scientific methodology of fishery science,
 - b. essential characteristics and qualities of aquatic habitats,
 - c. major aquatic resource problems (e.g., habitat degradation, problem animals, acid rain, over-exploitation), and
 - d. strategies and techniques for management of freshwater, anadromous, and marine fisheries.
2. Skills—Students will be involved in activities that will either be an introduction to or an opportunity to enhance skills in:

- a. writing a manuscript in rigid journal format,
- b. meeting scheduled deadlines (i.e., learning to get jobs done on time),
- c. statistical analysis of fishery data,
- d. hands-on experience with fisheries equipment (e.g., seines, nets, traps, and electrofishing),
- e. assessing fish stocks and fish communities.
- f. address current and relevant problems faced by fisheries biologists

Lecture Attendance

Students are responsible for understanding the material covered in class, but attendance will not be taken during lectures. However, you will be responsible for all materials presented and discussed in class as well as specifically referenced chapters in the textbook. Some exercises and supplementary information will likely only be attained during lecture.

Assigned Readings

The required readings are from the text or handouts.

Laboratory

The mandatory laboratory excursion will focus on hands-on field and lab techniques that are commonly used in the fisheries profession. Specific details of the field excursion will be discussed in class. However, you should be prepared to be outside for much of the excursion so bring clothes and other items as appropriate. Only the most extreme weather conditions (e.g., lightning) will prevent going out on the water. We have an assorted selection of chest waders, but their integrity cannot be guaranteed. Therefore, if you have your own waders you may want to use them.

Cedar Point and other UNL or state-owned facilities used during the laboratory are strictly alcohol free. Failure to comply with this policy will result in automatic failure of the course.

Grading and Grading Policy:

A: 90-100% B: 80-89% C: 70-79% D: 60-69% F: < 60%

Plus/minus grades may be used in some circumstances, but will be determined on a case by case basis. The above percentages may be adjusted downward; however, only by attaining these percentages can you be assured of receiving a desired grade.

Task	Points
Lecture Exams	350
Assignment 1	20
Assignment 2	20
Assignment 3	75
Assignment 4	50
Field Excursion Efforts	100
Management Report	285
Total Points	800

There will be three scheduled exams during the semester. The final exam will primarily focus on materials covered after Exam II, but will also include more comprehensive information from the

entire semester. Exams will consist of short answer and essay questions that will include topics covered in the lecture, text, handouts, and lab experiences.

No makeup exams will be given. A student that misses an exam must request a makeup exam in writing prior to the exam time. If the reason for missing the exam is acceptable, a makeup exam may be given during the finals week (date and time to be arranged). The makeup exam will not be the same exam as given to the rest of the class. Anyone who misses an exam and fails to arrange for a makeup exam will receive 0 points for the exam.

Academic dishonesty will not be tolerated...period. See the University of Nebraska-Lincoln's Student Code of Conduct for additional information <http://stuafs.unl.edu/ja/code/index.shtml>.

Students with Disabilities. The School, College, and University endorse PL 101-336, the Americans with Disabilities Act of 1990. Any student who, because of a disability, may require some special arrangements in order to meet course requirements should contact the instructor as soon as possible to request necessary accommodations. Students should present appropriate verification from the Office of Services for Students with Disabilities (SSD). No requirement exists that accommodations be made prior to completion of this approved University process.

Laboratory Schedule:

Activities will include, but may not be limited to, the following:

- Electrofishing (boat and backpack)
- Seining
- Hoop and trap netting
- Gill netting
- Mark-recapture sampling
- Telemetry
- Age and growth data collection
- Habitat Assessments

Lecture Schedule (The lecture schedule is tentative and may be modified as necessary):

Date		Topic	Assignments	Chapter	
Aug	23	Introductions			
	25	Introduction & process - Fish Mgt		IFM – CH 5	
	30	Funding and legal aspects		IFM – CH 4	
Sept	1	Introduction to pop. dynamics		IFM – CH 2	
	6	Gears – Passive & Active	#1 - IACUC	3	
	8	Gears – Electrofishing & others		4	
	13	Aquatic habitat		6 & 7	
	15	Aquatic habitat – Guest Lecture		8,10,18,19	
	20	Length-Weight indices	#2 – Figures/tables	15	
	22	L-W indices (problem sets)		15	
	27	Age & Growth		16	
	29	EXAM I			
	Oct	4	Age & Growth		16
6		Marking & Tagging		12	
11		Role of Hatcheries	#3 – Length Index	IFM – CH 9	
13		Fish Culture/Hatchery Skills		Guest Lect.	
14-18		Field Excursion			
20		No Class			
25		NGPC mission and activities		Guest Lect.	
27		Population Estimation	#4 – Age and growth		
Nov		1	Regulating Harvest		IFM – 7
		3	EXAM II		
	8	Ecological Integrity/Food Webs		20	
	10	Ecological Integrity/Food Webs			
	15	Socioeconomics		Guest Lect.	
	17	Outreach & Education		Guest Lect.	
	22	Undesirable/Invasive species			
	24	No Class – Thanksgiving Break			
	29	Farm Pond Management	#5 – Paper due		
	Dec	1	Lakes and Reservoirs		
6		Rivers and Streams			
8		Review			
	16	FINAL EXAM – 7:30-9:30 a.m.			
Final Exam – 150 points (Comprehensive but focus on last third of semester)					

Important Dates:

September 6	Assignment #1 due
September 20	Assignment #2 due
September 29	Exam I
October 11	Assignment #3 due
October 27	Assignment #4 due
October 28	Draft Management Report (for peer review - optional)
November 3	Exam II
November 11	Peer-review comments due
November 29	Final Reports Due
December 16	Final Exam (07:30 – 09:30)