

BIOL 432 - Fisheries Management

Fall 2009

Instructor

Dr. Geoffrey B. Steinhart, Assistant Professor

Office: 225 Crawford Hall Phone: 635.2093

Course website: www.lssu.edu/faculty/gsteinhart/GBS-LSSU/BIOL432-Fish%20Management.html

Meeting Times

Lecture: 9:30-10:20 AM, Tuesday and Thursday, 258 Crawford Hall

Lab: 2:00-4:50 PM, Tuesday, 258 Crawford Hall or ARL

Office Hours

Monday 1 - 4 PM and Tuesday and Thursday 10:30 - noon. Please feel free to stop by my office anytime. Other meeting times can be arranged as needed.

Course Description

This course covers the history, theory, and practice of fisheries management. Students will study how biotic and abiotic factors influence fisheries, learn methods of fish collection and assessment, gain experience with quantitative analysis of fisheries data, and learn the principles of fisheries management. Prerequisites: BIOL 280, BIOL 345, and junior status, or permission of the instructor.

Learning Outcomes and Assessment

- Learn the history and process of fisheries management (assessment: exams, management plans)
- Be comfortable with fisheries assessment and management techniques (assessment: field trips, homework, management plans)
- Improve quantitative skills necessary for fisheries research (assessment: homework, exams)
- Provide an understanding of fish responses to environmental changes (assessment: exams, management plans, book report)
- Sharpen critical thinking, written and oral communication, and professional skills related to fisheries resources and management (assessment: book report, management plans, final exam)

Readings

The required text for this course is Fisheries Techniques, Second Edition (FT) by B. R. Murphy and D.W. Willis. An optional book is Inland Fisheries Management in North America, Second Edition (IFM) by C.C. Kohler and W.A. Hubert. Lecture readings not in FT will be available on the course web site.

Participation and Conduct

Learning is an active process, so participation is very important for your success in this course.

Attendance is mandatory for all scheduled periods and **I expect to be notified in advance if you are unable to attend a class.** You will be graded on your participation (100 points, 10% of your grade), so speak up, be courteous, and be active. I want the class to be an open forum for discussion and learning: ask questions! Be critical evaluating what you hear and read, but be polite with your response. Students are expected to treat all students and lecturers with respect. **Use of mobile phones will not be tolerated in class!**

Any books or equipment you borrow must be returned in undamaged condition. Failure to return items, or returning them with undue wear or damage will result in 1) purchasing a new item or 2) the loss of 100 points from your grade.

Key assignments

Book Review (40 pts.): During the semester, you will select and read a popular book on fish or fisheries. The book must contain information relevant to fisheries management. At the end of the term, you will provide a 10-min. oral presentation on the book's topic. **Your presentation must focus on the fisheries management issues** raised in the book (e.g., history of the fishery and/or management, methods, ecology of the organism, human dimensions). Start reading and taking notes on your book early!

Fisheries Management Project (160 pts.): This major project will involve collecting and analyzing data from a local lake or stream. As a group, you will plan sampling, collect data (with help from the class), analyze the data, and develop a management plan. Each person will individually write a management report from the data. You will turn in a draft of your paper (20 pts.), give peer-reviews (20 pts.) and revise your final plan (100 pts.). In addition, each group will present their management plan in a mock stakeholder meeting (20 pts.). Grading and format is discussed in instructions available on the course web site.

Final Exam (200 pts.): The final exam for this course will contain of: 1) a mock job interview, and 2) a management plan. For the mock interview, you must prepare a resume and cover letter, dress appropriately, and answer a series of questions (100 pts.). The management plan will be a take home exam, where you analyze a data set and write status of the fishery report (100 pts.). Details on the exams will be given later.

Grading

Grades will be scored without curving as:

100 ≥ A+ ≥ 97	90 > B+ ≥ 87	80 > C+ ≥ 77	70 > D ≥ 60
97 > A ≥ 93	87 > B ≥ 83	77 > C ≥ 73	60 > F
93 > A- ≥ 90	83 > B- ≥ 80	73 > C- ≥ 70	

All written and lab assignments are due at the start of the period. If you cannot take an exam or turn in an assignment on time because of illness or emergency, it is your responsibility to contact me as soon as possible: except for unusual circumstances, I expect to be notified before the exam or due date. **Late assignments will be docked 10% of the point value for each late day, except at my discretion when there is a documented reason for the medical or personal emergency.**

Honor system

All assignments are to be entirely your own work, unless you are specifically told otherwise. All aspects of your course work are covered by the Honor system. Any suspected violation (e.g., cheating, plagiarism) will be promptly reported and appropriate action(s) will be taken according to Lake Superior State University policies. The faculty and students of Lake Superior State University will not tolerate any form of academic dishonesty.

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policy and equal access laws, disability-related accommodations or services are available to students with disabilities. Students who desire such services should meet with professors in a timely manner, preferably during the first week of class, to discuss disability-related needs. Students are eligible to receive services after they are registered with Disability Services. Proper registration allows Disability Services to verify the disability and determine individual reasonable academic accommodations. Disability Service is located in the KJS Library Room 103, 906-635-2355 (from on campus - 2355).

Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. IPASS is located in the KJS Library, Room 106, (906) 635-2887 or x2294 on campus, or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

Assignments and due dates

Due date	Assignment	Point value
Sep. 29	Lab problem set 1 (size and condition)	50
Oct. 8	Lecture exam 1	100
Oct. 13	Lab problem set 2 (mortality)	50
Oct. 20	Lab problem set 3 (population estimation)	50
Oct. 27	Lab exam	100
Nov. 5	Rough draft of management plan	20
Nov. 17	Management plan peer-review	20
Nov. 12	Lecture exam 2	100
Nov. 24	Management plan presentation	20
Nov. 24	Final fisheries management plan	100
Dec. 1	Lab problem set 4 (age and growth)	50
Dec. 8 and 10	Book review presentations (can be earlier!)	40
Dec. 10	Final take home exam	100
TBA	Mock interview	100
All term	Class participation	100
TOTAL		1000

Laboratory Outline

Date	Topic/Activity	Location	Homework Due
Sep. 1	Fisheries techniques	ARL	Ch. 1, 6, 7 & p. 35-41
Sep. 13-15	Soldier Lake sampling trip	ARL	
Sep. 22	Size and condition	Crawford	
Sep. 25-27	HSC Sampling trip	ARL	
Sep. 29	Mortality estimation	Crawford	Size and condition
Oct. 6	Pendills Creek sampling trip	ARL	
Oct. 13	Population estimation	Crawford	Mortality est.
Oct. 20	Open lab (review, work on plans)	Crawford	Population est.
Oct. 27	Lab exam	Crawford	
Nov. 3	Age and growth I	Crawford	
Nov. 10	Communication and peer review	Crawford	
Nov. 17	Age and growth II	ARL	
Nov. 24	Management plan presentations	Crawford	
Dec. 1	Open lab (work on final exam)	Crawford	Age and growth
Dec. 8	Open lab (work on final exam)	Crawford	

Lecture Outline

Topic	Date	Readings (from FT or web)
Introduction and course description	Sep. 1	Syllabus, Management Plan
FISHERIES MANAGEMENT & ASSESSMENT		
Process of fisheries management	Sep. 3	Process
Population assessment	Sep. 10	Population estimation
Tagging techniques	Sep. 15	Ch. 12
Basic fisheries metrics	Sep. 17	Ch. 15
Stock-recruit relationships	Sep. 22	Growth, p. 484-486 (for lab)
Stock-recruit relationships	Sep. 24	p. 230-253 and 238-251
Fisheries modeling	Sep. 29	Mortality (for lab)
Fisheries modeling	Oct. 1	p. 467-475 and Fish Models
Lecture exam 1	Oct. 6	
FISHERIES MANAGEMENT TOOLS		
Managing with regulations	Oct. 8	Johnson and Martinez 1995
Managing with regulations	Oct. 13	
Stocking for fisheries management	Oct. 15	Jackson et al. 2004
Introduced and undesirable species	Oct. 20	p. 303-310 and 326-328
Endangered species management	Oct. 22	
AQUATIC HABITAT MANAGEMENT		
Lake management	Oct. 27	Schindler et al. 2000
Lake management	Oct. 29	Olson et al. 1998
Stream and river management	Nov. 3	Ch. 16 (for lab)
Ecosystem management	Nov. 5	
Lecture exam 2	Nov. 10	
History and case studies in fisheries management		
History of fisheries management	Nov. 12	History, MI Fish. Manag.
Lake Mendota biomanipulation project	Nov. 17	Lake Mendota paper
Great Lakes management	Nov. 19	
Other case studies	Nov. 24	Pine et al. 2009
PEOPLE MANAGEMENT		
Public relations	Dec. 1	Sharp and Lach 2003, Conflict
Socioeconomics	Dec. 3	
Book review presentations	Dec. 8	
Book review presentations	Dec. 10	
Final exam	TBA	