

FISH 315 FRESHWATER FISHERIES TECHNIQUES MAYMESTER 2020

Instructor

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Course Description

An introduction to laboratory and field sampling methods in aquaculture, limnology, and fisheries biology. An emphasis will be placed on the proper care and use of laboratory equipment and field sampling gears, as well as the development of sampling protocols for collecting representative, non-biased fisheries and aquatic sciences data. Prerequisites: FISH 110, STAT 200, and FISH 288 or permission of instructor. 3 credits (2 + 3).

Course Goal and Learning Objectives

The goal of this course for students is to understand the basic principles and practices associated with sampling gears, sample collection and handling, and data processing and analysis techniques for freshwater fishes in aquatic ecosystems in Alaska. The specific learning objectives for this course include:

1. To increase understanding of basic principles and develop proficiency using techniques associated with freshwater fish culture systems and the assessment of physical habitat, water quality, lower trophic levels, and fish populations in lentic and lotic environments.
2. To provide practical experience in aquatic resource assessment, data analysis and reporting, and decision-making as it pertains to the sampling and data analysis of fish culture systems and aquatic ecosystems.
3. To improve critical thinking, written and oral communication, and professional skills relative to fisheries and aquatic science sampling considerations and issues.

Special Needs

The Office of Disability Services (203 WHIT; 474-7043) implements the American with Disabilities Act and insures that UAF students have equal access to the campus and course materials. Students with disabilities can be assured that they will be provided with reasonable accommodation. If you need course adaptations or accommodations because of a disability, please contact the instructor to make the necessary arrangements. If extra instruction on equipment usage, explanation of course concepts, or assistance with data analyses is required, the student is encouraged to contact the instructor and/or teaching assistant. Every qualified student is welcome in my classroom. As needed, I am happy to work with you, disability services, veterans' services, rural student services, etc., to find reasonable accommodations. Students at this university are protected against sexual harassment and discrimination (Title IX), and minors have additional protections. As required, if I notice or am informed of certain types of misconduct, then I am required to report it to the appropriate authorities. For more information on your rights as a student and the resources available to you to resolve problems, please go the following site: www.uaf.edu/handbook/.

Reading Assignments

The required text for this course is Fisheries Techniques, Third Edition by Zale, Parrish, and Sutton. In addition, supplemental lecture outlines, handouts, and reading materials will be provided by the instructor and will also serve as required readings for lecture/laboratory topics, class discussions, and in-class instructional activities. Note that Blackboard will not be used since this is an accelerated, Maymester course.

Scientific Writing Style

The sampling plan must follow the "Guide for Authors" requirements as outlined in American Fisheries Society journals. Information obtained from the Internet is not considered to be a valid source of scientific

information and will not be accepted for your sampling plan assignment.

Sampling Plan Assignment

One major assignment that will be completed is the collection and analysis of invertebrate, fish, and habitat survey data from an area lake or stream, and a written report of your findings. Data collection will be conducted as a team project (two to four teams, each consisting of three to four students). The report will include the following three sections: methods, results, and population status (100 points; due Thursday, May 14). The components of the fisheries assessment report must follow the "Guide for Authors" requirements outlined in *Transactions of the American Fisheries Society* or *North American Journal of Fisheries Management*. In addition, each team will also give an oral presentation of their report to the class on Thursday, May 14 (maximum of 30 minutes; 50 points). Students will be required to evaluate themselves and other members of their team regarding their effort and contribution to the overall project (50 points; due with your management report). The complete assignment value is 30% of your total grade.

Laboratory Exercises

Eleven laboratory exercises (25 points each; 275 points total; 40% of the final course grade) will be given out as assignments that will be directly relevant to laboratory or field-trip activities. In some cases, these exercises can be completed prior to the end of the lab period in which they were assigned. However, if an assignment cannot be finished within the allotted time period, it will be due no later than the beginning of next lab period.

Exams

A final exam will be administered on the last day of class and is valued at 125 points (20% of the final course grade). In all cases, students will not be allowed to retain copies of the final exam.

Class Participation

Because this is a techniques course, your participation and attendance are essential components of the learning process. Be sure to dress appropriately and bring all required waders, clothing, food, water, sunscreen, etc., to each designated class or laboratory period. To provide incentive for each individual to attend, be prepared for, and participate in all activities, this component of your grade is valued at 125 points (10 points per day plus an additional 25 points for attitude; 10% of the final course grade). Points will be assigned at the discretion of the instructor.

Sampling Gear

For this course, you will be required to supply your own chest waders, boots, and raingear. These items are all available locally from suppliers such as Sportsman's Warehouse, Fred Meyer, Wal-Mart, etc. In addition, you should always dress appropriately (e.g., warm clothes, messy clothes) for all field and laboratory activities, and should always bring food, water, and a change of clothes should you get wet or dirty. Failure to properly prepare for field or laboratory activities will not excuse you from participation.

Grading

All assignments are due at the beginning of the next laboratory period from which they were assigned. **Late assignments will be docked 10% of the total point value for each day late and missed exams will be assigned a zero score.** If you cannot take the final exam or turn in an assignment, it is your responsibility to contact the instructor prior to the date in question.

Component	Points Available	Percentage of Total
Sampling Plan	225	30%
Laboratory Exercises (11)	275	40%
Exam	125	20%
Class Participation	125	10%
TOTAL	750	100%

Grades will be assigned using a plus-minus system based on the following scale:

A > 94
 A- 90-93
 B+ 87-89
 B 83-86
 B- 80-82
 C+ 77-79
 C 73-76
 C- 70-73
 D+ 67-69
 D 63-66
 D- 60-62
 F < 60

Honor System

All assignments and exams are to be entirely your own work, unless you receive specific instructions to the contrary. All aspects of your course work are covered by the UAF honor code, which can be located at the following URL: http://www.uaf.edu/catalog_06-07/academics/regs3.html#Student_Conduct. Any suspected violations (e.g. cheating, plagiarism) will be promptly reported and appropriate action(s) will be taken. In addition, you will receive a zero for that assignment or exam; two such violations and you will automatically fail this course. Honesty in your academic work will develop into professional integrity. The faculty and students of the University of Alaska Fairbanks will not tolerate any form of academic dishonesty.

UAF IACUC

The animal related activities in this course have been reviewed and approved by the Institutional Animal Care and Use Committee (IACUC) of University of Alaska Fairbanks (UAF). If you have any animal welfare concerns, please contact the IACUC at 907-474-7800.

FISH 315 FRESHWATER FISHERIES TECHNIQUES
Tentative Schedule

<u>Date</u>	<u>Lecture Topic</u>	<u>Lab Topic</u>	<u>Readings</u>
May 04 (a.m.)	Course Overview; Sampling Concepts	UAF IACUC Safety in Aquatic Sampling; First Aid; Boat Trailer Backing	FT 79-100; Handouts
(p.m.)	Fisheries Investigations; Data Management Protocols; Sampling Plan Teams; Marking and Tagging of Fish	Care and Handling of Fishes; Fish Anesthesia; Length and Weight; Marking and Tagging of Fish	FT 1-14; 15-20; 163-221; 637-642; 653-654; 521-572; Handouts
May 05	Invertebrate Sampling Gears; Lotic Habitat Sampling; Active Sampling Gears;	Field Trip –TBD; Stream Habitat Assessment; Water Quality Measurements; Invertebrate and Fish Collections	FT 267-304; 101-161; 453-519; Handouts
May 06	Lentic Habitat Sampling; Passive Sampling Gears;	Field Trip – TBD; Lake Habitat Assessment; Water Quality Measurements; Invertebrate and Fish Collections	FT 223-265; 101-161; 363-451; Handouts
May 07	Electrofishing; Electrofishing Safety	Field Trip – TBD; Fish Collections	FT 305-361; Handouts
May 08	Sampling with Toxicants; Fisheries Acoustics; Biotelemetry/Biologging	Field Trip – TBD Radio Telemetry Tracking of Fish	FT 573-595; 597-636; 819-881; Handouts
May 11 (a.m.)	Fish Health Assessment; Hematological Methods	Necropsy-Based Health Examination; Blood Collections	FT 176-192; Handouts
(p.m.)	Structural Indices; Condition Indices	Structural/Condition Indices of Fish	FT 637-676; Handouts
May 12 (a.m.)	Fish Aging Procedures	Aging Sample Preparation	FT 677-695; Handouts
(p.m.)	Estimation of Fish Growth	Age and Growth Analysis	FT 695-731; Handouts
May 13 (a.m.)	Invertebrate Identification	Invertebrate ID/Enumeration	Handouts
(p.m.)	Fish Food Habits	Assessment of Fish Food Habits	FT 733-779; Handouts

May 14 (a.m.)	Fish Hatchery Procedures	Fish Hatchery Tour	Handouts
(p.m.)	Class Discussion	Sampling Plan Presentations	None
May 15 (a.m.)	Final Exam	Final Exam	None