



FW204 - INTRODUCTION TO FISHERY BIOLOGY (3 CREDITS)
COURSE SYLLABUS – FALL 2023

- I. Lecture:** Time: Place:
Monday 2:00 – 2:50 p.m. 231 Wagar Building
Wednesday 2:00 – 2:50 p.m. 231 Wagar Building
Laboratory Thursday 2:00 – 4:50 p.m. 250 Natural Resources Building (or as specified)
- Instructor:** Dr. Chris Myrick 235 Wagar 491-5657
Chris.Myrick@colostate.edu
Office hours: 11:00 AM – 11:50 AM Monday and Wednesday, or by appointment
- Teaching assistant:** Kim Nichter Location TBD
kim.nichter@colostate.edu
Office hours: 10:00 – 10:50 AM Tuesday and Thursday, or by appointment

II. Required Materials

- Fisheries Techniques, 3rd edition¹
- Supplemental readings (Canvas or handed out in class)²

III. Recommended Materials

- Chest waders and wading shoes; neoprene is best for electrofishing, but breathable materials will work³
- Flash drive for saving your work

IV. Grading Policy

Midterm Exam (October 16 ^h)	(15%)
Final Exam (Thursday December 14 th)	(30%)
Homework, lab reports	(15%)
Online Quizzes	(15%)
Fisheries Management Fact Sheet (term project)	(15%)
Participation/Discretionary pts	(10%)
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Total	(100%)

Random fish #1: Northern Redbelly Dace (*Chrosomus eos*)

Course grades will be determined using the standard CSU scale (including +/-) in the Canvas Learning Management System.

No makeup exams or exercises will be given. If you miss an exam I must approve a valid excuse from you before the exam begins or you will get a zero. You may call my office (970-491-5657) in an emergency and leave a message on my voicemail or send me an email

¹ Available at the Campus Bookstore or online from the AFS at <https://fisheries.org/bookstore/all-titles/professional-and-trade/55067c/>

² Students are expected to have completed the readings prior to the assigned class period. .

³ Breathable waders made with GORE-TEX or similar materials work fine for most fish sampling; however, when electrofishing, there is a slight possibility of getting shocked through the material. See Fisheries Safety Handbook pg. 17 for more information.



(chris.myrick@colostate.edu). All assignments are due at 11:59 PM on the specified due date unless otherwise specified. Assignments turned in after the start of the class period will be penalized by 10% per day until they are worth 50% of their original value.

V. Office Hours

Chris Myrick: Monday and Wednesday 11:00 a.m. – 11:50 a.m., or by appointment
Kim Nichter: 10:00 – 10:50 AM Tuesday and Thursday, or by appointment

VI. Course Goals

This course has 3 primary goals. First, students will be introduced to basic concepts of fisheries biology that will be developed in greater detail in subsequent classes (e.g., FW400, FW401, FW402, FW405). Second, students will be exposed to an array of fisheries biology methodologies (both theoretical and practical) including study design, sampling techniques, and report writing. Finally, through interactions with representative speakers from the university, government agencies and private industry, students will gain a perspective of available job opportunities and possible career paths within the fisheries field.

VII. Prerequisites

None

VIII. AFS Meeting Attendance

One of the most important professional development activities that fisheries biologists participate in is the attendance of professional society meetings. The premier professional society for fisheries biologists in the United States is the American Fisheries Society, which has a number of different sections (e.g., Student, Education, Fish Culture, Physiology), divisions (Western, Southern, etc.), and chapters (Colorado-Wyoming, California-Nevada, etc.). Random fish #2: Northern Pike (*Esox lucius*) Although there are no state chapter or division meetings scheduled during the course, there is an active student subunit here at CSU. The Student Subunit has been very active over the past 22.5 years and brings very good speakers to their bimonthly meetings. All students are required to attend **at least 2 meetings** where speakers are giving presentations. You are to write a 1-page summary (typed, double spaced) of each presentation to be turned in through Canvas by the last week of the semester. Students are *encouraged* to attend as many AFS meetings as possible and to participate in their activities because of the benefits of being involved with your professional society. There may also be opportunities to attend the FWCB Departmental Seminar to listen to presentations by graduate students or professionals on fisheries issues; these may be used as alternatives to the AFS Student Chapter meetings (check with course staff first). You may visit the Student Chapter website at <https://warnercnr.colostate.edu/student-organizations/american-fisheries-society/>

The Fish, Wildlife, and Conservation Department seminars are listed here:

<http://warnercnr.colostate.edu/fwcb-news-and-events/department-seminars>

*If you have a valid reason for not being able to attend any meetings, please see the instructor during the **first three weeks** of the course for an alternate credit assignment.*

IX. Mandatory Saturday Field Trips

There are three **mandatory** Saturday field trips. The first field trip (Field-based Creel Census Exercise) will be a half-day lab sampling and creel census exercise at College Lake on September 16th. The



second mandatory field trip is a half-day Field-Based Lake Sampling Exercise on College Lake on September 23rd. The third and final Saturday field trip, the Stream Practical Day, will be a half-day o team sampling effort on the Poudre River on Saturday, October 7th.

All students are expected to attend for the duration of the field trips...if you normally work on weekends, ask for the day off, or find someone to cover for you (*besides the educational value, these field trips are a lot of fun!*)!

X. Course Canvas Page

The course Canvas page is your primary source for course information, assignments, announcements and supplemental course files (e.g., extra readings, copies of lab data, etc.) and also has links to useful sites. Be sure to check the Canvas daily for new material.

XI. Academic Integrity⁴

We take academic integrity seriously. At minimum, academic integrity means that no one will use another person's work as their own. The CSU Writing Center defines plagiarism this way:

Plagiarism is the unauthorized or unacknowledged use of another person's academic or scholarly work or using an artificial intelligence system (e.g., ChatGPT) to complete your work. Done on purpose, it is cheating. Done accidentally, it is no less serious. Regardless of how it occurs, plagiarism is a theft of intellectual property and a violation of an ironclad rule demanding "credit be given where credit is due."

Source: (Writing Guides: Understanding Plagiarism.

<http://writing.colostate.edu/guides/researchsources/understandingplagiarism/plagiarismoverview.cfm>.

If you plagiarize in your work you could lose credit for the plagiarized work, fail the assignment, or fail the course. Plagiarism could result in expulsion from the university. Each instance of plagiarism, classroom cheating, and other types of academic dishonesty will be addressed according to the principles published in the CSU General Catalog (see page seven, column two:

<http://www.catalog.colostate.edu/FrontPDF/1.6POLICIES1112f.pdf>).

Of course, academic integrity means more than just avoiding plagiarism. It also involves doing your own reading and studying. It includes regular class attendance, careful consideration of all class materials, and engagement with the class and your fellow students. Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community.

While you will not be required to sign the honor pledge, we will ask each of you to write the following statement on your lab reports and term paper.

"I have not given, received, or used any unauthorized assistance."

In-Class Behavior

Dr. Myrick, the guest lecturers, and his teaching assistant work hard to provide you with a high-quality educational experience. In-class disturbances and distractions, including texting, ringing cell phones, etc., detract from that experience and we consider them highly disruptive and disrespectful. Therefore, you are asked to **silence** your cell phone before the start of any lecture or laboratory session. If your

⁴ Dr. Greg Dickinson, CSU, developed the Academic Integrity statement used here and gives permission for other CSU instructors to use parts or all of this statement in their own syllabi.




phone does ring during class, you will be asked to leave the room for the remainder of that class period. Any other in-class behavior that is deemed unacceptable or distracting to your fellow students will also result in your being asked to leave the class for the remainder of that period.

Copyrighted Course Materials

Please do not share material from this course in online, print, or other media. Course material is the property of the instructor who developed the course. **Random fish #3: Iowa Darter (*Etheostoma exile*)** Materials authored by third parties and used in the course are also subject to copyright protections. Posting course materials on external sites (commercial or not) violates both copyright law and the CSU Student Conduct Code. Students who share course content without the instructor’s express permission, including with online sites that post materials to sell to other students, could face appropriate disciplinary or legal action.

XII. Course Schedule

(Lecture and Laboratory – subject to frequent but not random modification – see course Canvas site for updated assignments, labs, quizzes, and due dates)

Date	Lecture topic	Lab topic	Readings
21-Aug	Introduction - What is fisheries biology?		
23-Aug	Sampling strategies		Ch. 1
24-Aug		<ul style="list-style-type: none"> • Sampling strategies - Simple Sampling Exercise • MS-Excel Introduction (self-paced exercise) 	Ch. 1, Ch.2
28-Aug	Safety in Fisheries Work		Ch. 3 Also read AFS Fisheries Safety Handbook (on Canvas)
30-Aug	Invasive Species - a growing threat to global fisheries		Invasive Species Definitions; CPW information on invasive species
31-Aug		<ul style="list-style-type: none"> • Being a Colorado Fisheries Biologist (Tyler Swarr - CPW NW region species conservation biologist) 	no reading
4-Sep	Labor Day - No Class		
6-Sep	Fish measurement		Ch. 14
7-Sep		<ul style="list-style-type: none"> • Lab #1: Morphology, and identification of local fishes (Location TBD) 	
11-Sep	Lakes & Reservoirs I: physical characteristics & processes		Ch. 4
13-Sep	Lakes & Reservoirs II: sampling fishes & plankton		Ch. 6; Ch. 7; Ch. 9



14-Sep		<ul style="list-style-type: none"> • Human Dimensions in fisheries biology • Lab #2 - designing a basic creel survey (prep for Saturday field trip) 	Ch. 21
16-Sep	Field-based creel census exercise - College Lake (Mandatory)		Ch. 19
18-Sep	Discussion of creel census data		review Ch. 19
20-Sep	Lecture - Fish Aging & Fish Growth		ch. 15
21-Sep		<ul style="list-style-type: none"> • Handling lake sampling gear - net repair/deployment - boating safety/preparation - field gear decontamination • Preparation for Lake Practical Day 	Ch. 15
23-Sep	Lab #3 - Field-based lake sampling exercise - College Lake (Mandatory)		
25-Sep	Using length, weight, and structural data		Ch. 15
27-Sep	Water chemistry basics for fisheries biologists		Ch. 5 (pp. 163 - 170)
28-Sep		<ul style="list-style-type: none"> • Fishes: tagging & marking • Lab: introduction to fish tagging methods 	Ch. 11
2-Oct	Streams: physical sampling		Ch. 4
4-Oct	Streams: biological sampling & introduction to aquatic invertebrates		Ch. 8
5-Oct		<ul style="list-style-type: none"> • Handling stream sampling gear - introduction to backpack shocking (equipment/safety) - familiarization w/sampling gear 	Ch. 8
7-Oct	Lab #4: Stream Practical Day (MANDATORY) Backpack shocking & habitat measurement Stream fish and invertebrate ID		
9-Oct	Discussion of Poudre River data; past data trends; exam review if necessary/desired		
11-Oct	Electrofishing in fisheries		Ch. 8 Reread AFS Fisheries Safety Handbook
12-Oct		Review for Exam 1	TBD
16-Oct	EXAM 1 - COVERS LECTURES + READINGS AND CONCEPTS FROM LABS		
18-Oct	Fish culture: introduction; role of fish culture in fisheries management		Heidinger 1999 (on course Canvas site) or TBD
19-Oct		<ul style="list-style-type: none"> • Lab #5: Goldfish population estimation - Part 1 (LSC Lagoon) 	Ch. 8



23-Oct	Roles of hatcheries in fisheries management in CO - (Brandon White - CPW Asst. Chief of Hatcheries)		No reading
25-Oct	Fish culture II: design of culture systems & common culture techniques		Stickney 2009 (on course Canvas site)
26-Oct		Field trip to CPW Bellvue Hatchery, Laporte, CO (meet on N side of Wagar at 2:00 PM) - tentative	
30-Oct	Fishes: handling & transport		Ch. 5 (pp. 163 - 170)
1-Nov	Introduction to fish physiology		No reading
2-Nov		Lab #5: Goldfish population estimation - Part 2 (LSC Lagoon)	See Canvas
6-Nov	Fish Physiology II		No reading
8-Nov	Fish Physiology III: practical applications		
9-Nov		Lab #6: Introduction to basic fish culture plumbing (FFL)	
13-Nov	TBD		
15-Nov	Climate change impacts on fisheries (lecture & discussion)		Roessig et al. 2004 (abstract) Ficke et al. 2007 (abstract) (both on course Canvas site)
16-Nov		Managing instream connectivity (Myrick) Practical stream restoration (Kondratieff - may be online)	
Thanksgiving Break (11/20-11/27)			
27-Nov	Aquatic Conservation Biology at CPW (Lecturer TBD)		TBD
29-Nov	Managing Gold Medal Fisheries in Colorado (Kendall Bakich)		TBD
30-Nov		Stream and lake reclamation - rotenone projects Guest Lecturers - Ben Felt (CPW NW region senior aquatic biologist) Lab #7: Planning a reclamation project	
4-Dec	No in-person class - topics TBD		
6-Dec	Warm lakes and shallow rivers - life as an eastern plains CPW biologist (Mandi Brandt - CPW area biologist)		Management summaries for N. Sterling & Jumbo Reservoirs.



7-Dec	Final course review
14-Dec	Final Exam - Comprehensive (11:50 AM - 1:50 PM)

XIII. COVID-19 Information

All students are expected and required to report any COVID-19 symptoms to the university immediately, as well as exposures or positive tests (even home tests).

- If you suspect you have symptoms, or if you know you have been exposed to a positive person or have tested positive for COVID (even with a home test), you are required to fill out the [COVID Reporter](#).
- If you know or believe you have been exposed, including living with someone known to be COVID positive, or are symptomatic, it is important for the health of yourself and others that you complete the online [COVID Reporter](#). Do not ask your instructor to report for you.
- **Random fish #4: Black Bullhead (*Ameiurus melas*)**
- If you do not have internet access to fill out the online [COVID-19 Reporter](#), please call (970) 491-4600.
- You may also report concerns in your academic or living spaces regarding COVID exposures through the [COVID Reporter](#). You will not be penalized in any way for reporting.
- When you complete the [COVID Reporter](#) for any reason, the CSU Public Health Office is notified. Students who report symptoms or a positive antigen test through the [COVID Reporter](#) may be directed to get a PCR test through the CSU Health Network's medical services for students.

For the latest information about the university's COVID resources and information, please visit the CSU [COVID-19 site](#).