



## FW 301 Ichthyology Laboratory

### COURSE OUTLINE - SPRING 2017

#### Time and Place

Monday or Wednesday 1:00-2:50pm or 3:00-4:50pm 107 Wagar

#### Instructors

Dr. Austin Happel, [Austin.Happel@colostate.edu](mailto:Austin.Happel@colostate.edu), 111 Wagar M, W 11:00-11:45 AM, or by appointment

Mr. Tim D'Amico, [twdamico@rams.colostate.edu](mailto:twdamico@rams.colostate.edu), by appointment

Mrs. Kasey Pregler, [kasey.pregler@gmail.com](mailto:kasey.pregler@gmail.com), by appointment

#### Course Goals

1. Learn basic external and internal anatomy of fish, and understand how fish biologists use characters to identify and classify fish.
2. Learn to identify on sight, and know the common and scientific names of all fishes of Colorado and all the families of U.S. freshwater fishes. Be able to identify other North American freshwater fishes (750+ species) with the aid of scientific keys.
3. Gain a basic understanding of the ecology of fishes and aquatic ecosystems.

#### Prerequisites

A beginning course in basic biology (BY103 or Z110) and FW300 or concurrent registration.

#### Required Materials

- Textbook: [Peterson Field Guide to Freshwater Fishes](#).
- See also <https://taurus.cnr.colostate.edu/projects/cofishguide/>
- Slides and other materials will be posted each week on Canvas; you are responsible for obtaining, reading and bringing them to lab; you will find it very useful to do so.

#### Recommended Materials:

- Basic tools for examining, measuring, and dissecting fish: dividers, ruler, scalpel, scissors, probe, a hand magnifier, and a digital camera (preferably with macro capability). The last two items will be the most important to have throughout the semester for examining specimens.
- Rubber gloves will be provided if you would like to use them.

#### Structure of Lab Periods:

There will be a short quiz each week covering the previous week's material or current assigned reading (you can drop your lowest quiz grade). The TA's will present on this week's topic and hand out any necessary documentation. Afterwards, students are free to work through the lab material for the week. Please, PLEASE, read the following rules. **Points will be deducted from those who break these rules:**

#### LABORATORY RULES

1. ABSOLUTELY NO SMOKING is allowed inside the lab, or where specimens are stored. (Smoking is prohibited in all areas of the Wagar Building). The alcohol in which specimens are preserved is flammable.
2. PLEASE BE CAREFUL WITH THE SPECIMENS!  
Many of the specimens were difficult to obtain and would be hard, if not impossible, to replace. If you damage key characteristics other students will have difficulty finding them. Handle the specimens with respect and care, being cautious not to rip fins or other structures, especially with probes.
3. ALWAYS RETURN FISH TO THE CONTAINER FROM WHICH THEY CAME!  
It takes many hours to sort the collection for your use. Please do not mix the fish up. If you are in doubt about the identity of a fish or where it goes, please ask us!
4. WORK WITH ONLY A FEW FISH AT A TIME.  
**Specimens dry out quickly**, so put a little water in your pan and cover the specimens with wet paper towels while you are working with them. You may want to compare several species, but do not spread too many out on your tray. This way the specimens are not damaged and you can easily return each to the proper container.



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### Grading Policies

With Latin names of any species, **Correct spelling is essential**, and points will be deducted for incorrect spelling. Points will be apportioned according to the following percentages:

<b><u>Item</u></b>	<b><u>%</u></b>	<b><u>Pts</u></b>
Weekly quizzes + Field Trip	30%	150 (15 pts. Each)
Exam I	20%	100
Exam II	20%	100
Exam III	30%	150
<b>Total</b>	<b>100%</b>	<b>500</b>

**No makeup exams, quizzes or activities will be given.** If you must miss one of these due to sickness or personal tragedy, your GTA must be consulted **before** the event begins—email or call, and leave a message if necessary! Otherwise, you will receive a zero for the event. You must take quizzes and exams in the lab session for which you are registered.

### Academic Integrity

No academic dishonesty will be tolerated. This course will adhere to the Academic Integrity Policy of the General Catalog and the Student Conduct Code. At a minimum, violations will result in a grading penalty in this course and a report to the Office of Conflict Resolution and Student Conduct Services is likely. You will be asked to sign the Honor Pledge.

### How to do well in Ichthyology Laboratory

Attend class regularly--quizzes and exams stress material presented and worked with during class. Stay to the end of class, take your time to get to know the specimen, quiz each other, and have fun. Take photos of distinguishing characters of each fish, develop flashcards to review appearance, terminology and nomenclature (SPELLING!). Review or even re-copy your notes after each lab – it is an effective strategy for learning. Hand writing notes has been shown to increase retention of material, especially if you synthesize it and write it rather than copy it down. Use the resources on the web to assist with your learning.

### Course Web Page

This course will be run using the CANVAS web service. Please check it regularly as TAs and Dr. Happel will routinely update it with helpful material.



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### LABORATORY SCHEDULE - SPRING 2018

Monday	Wednesday	Topic	Quiz
15-Jan	17-Jan	No class	
22-Jan	24-Jan	1 Introduction to fish diversity	
29-Jan	31-Jan	2 External anatomy of fishes	1
5-Feb	7-Feb	3 Internal anatomy of fishes (dissection)	2
12-Feb	14-Feb	4 Fishes and their ecosystems	3
19-Feb	21-Feb	5 Functional anatomy of fishes	4
26-Feb	28-Feb	<b>Exam 1</b>	
5-Mar	7-Mar	6 Agnatha through Clupeiformes	5
12-Mar	14-Mar	<i>No class, Spring Break</i>	
19-Mar	21-Mar	7 Cyprinidae (March 19 = last day to W drop)	6
26-Mar	28-Mar	8 Catostomidae through Osmeridae	7
2-Apr	4-Apr	<b>Exam 2</b>	
9-Apr	11-Apr	9 Salmonidae through Cottidae	8
16-Apr	18-Apr	10 Perciformes	9
23-Apr	25-Apr	11 Field trip assignment, course evaluation	
30-Apr	2-May	<b>Exam 3 (FINAL IN-LAB EXAM)</b>	