

Zoology 4610: Ichthyology

Spring 2019



Lecture (001) TR 12:30-1:45

Lab (002) R 2:00-4:50

Instructor: Brian Sardella, Ph.D.

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Office: N270

Office Hours: Tuesdays 2-3

Prerequisites: BIOL 1150 and CHEM 1100/1102 or Instructor Approval.

Course Learning Outcomes:

- Accurately identify and describe families of fish species native to California
- Recognize unique anatomical and physiological features of fishes and relate them to individual species habitats.
- Participate in data collection during live fish experimentation.
- Develop field skills relevant to fisheries biology.

Required Materials:

Moyle and Cech, *Fishes: An Introduction to Ichthyology*, 5th Edition.

Holyoak, *Ichthyology: A Laboratory Manual* (ISBN-10: 9781493749683)

Any field guide to freshwater and/or marine fishes of the Pacific coast.

Composition Book

Waterproof Field Notebook (ie; Rite in the Rain)

Dissection Kit

Transportation to Field Sites

Other Helpful Materials:

Rain Gear

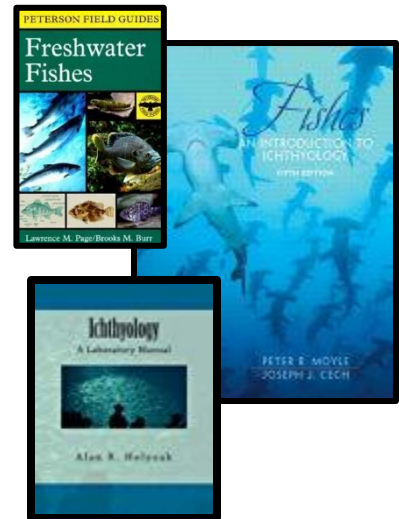
Waders

Wet- or drysuit

Fishin' rod and gear

Fishing License

Positive Attitude!



Attendance: Students are expected to attend all lectures and lab sessions. Please arrive in a timely manner. Special or unforeseen circumstances that arise should be discussed with the instructor to determine the best course of action. There will be **THREE** field trips that are outside of the normally-scheduled time for the class. The main reason for this is the lack of appropriate habitat available within a short distance from our campus. Two of the three off-time field trips will be mandatory, Moss Landing and Tuolumne County; please see the schedule for the dates on these trips. Missing these trips will require the same documentation as an exam. If you do not wish to participate in weekend trips for this course, you are encouraged to withdraw ahead of the census date. There will be several "open field days" on the schedule to make up the time spent outside of normal class time. There will be one voluntary field trip during Spring Break, specifically March 21st -24th, to Malibu, CA.

Exams: Three 100 point in-class lecture exams will be given and will cover lecture material from the corresponding section. There is no final exam for this course. There will be one 100-point lab practical on the last day of lab to cover all lab-based material.

You must have a serious reason that can be documented to miss any exam or practical. Should this occur, the student and professor will develop a plan of action that best suits the circumstances of the absence. No make up exams will be given.

Lab and Field: Lab meets once per week unless otherwise noted and activities will vary greatly from week to week. Lab exercise will cover the morphology, anatomy, and taxonomy of preserved specimens, and will be dispersed throughout the term. Field trips will be rain or shine, and most will involve getting wet (at least a little bit). During these trips, we will also be learning collection techniques, as we work to build our own Ichthyology collection at Stanislaus. We do not have dedicated transportation for any of our field trips, you will be required to provide your own transportation or carpool with another student.

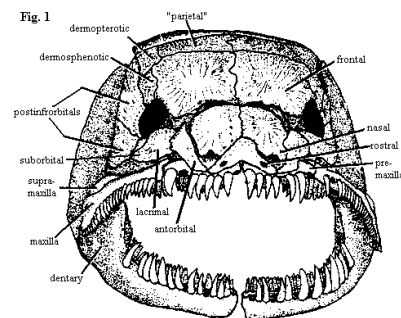
Online Support: We will use Blackboard and/or Google Docs heavily in this course, if you are not experienced with these sites, please take some time to familiarize yourself with how it functions.

- 1) Lab Safety Course: You will be assigned the BioLab safety course on Blackboard (2018-2019-BioLabSafety: BioLabSafety). **If this is on your course list, it must be completed with a 100% score by February 1st or you will be dropped from the course!**
- 2) All assignments will be posted on the Bb page for the lecture course, we will not use the lab page.
- 3) Lecture slides will be posted as a pdf file FOLLOWING each lecture session on the content page.

Assignments: Assignments are available at any time on Bb (except MLML assignment), there due dates are clearly posted as well. The assignments are not designed to be overly burdensome but will require effort to be put in on your part. These are meant to enhance the concepts learned in lecture and lab. No late assignments will be accepted without a serious and compelling reason that can be documented.

Evaluation and Grades:

Three In-Class Written Exams (100 each)	300
Lab Practical	100
MLML Marine Assignment	50
Field Journal/Species List	50
Skull Assignment	25
PISCES Database Assignment	10
<u>Participation</u>	<u>25</u>
Total Points	560



Grading Scale: A percentage of total points will be calculated, and the following scale used:

A: 100-93; A-: 92-90; B+: 89-87; B: 86-83; B-: 82-80; C+: 79-77; C: 76-73; C-: 72-70; D+: 69-67; D: 66-60; F: 59-0

Please take note of the following:

- The cut offs above are absolute, please do not ask to be bumped up because you are close to the next grade level.
- No requests for extra credit assignments or special consideration will be given at the end of the course. Please do not ask!
- The CR/NC grading option is not approved for this course; only letter grades can be earned.

Course Withdrawal Policy: Withdraw after the census date can only be done with a documented serious and compelling reason. The Enrollment Services Office will not sign a withdrawal form otherwise, regardless of the instructor's view. It is highly recommended that if you wish to drop the class, you do so by the census date! A grade of "incomplete" will not be considered under any circumstance. Should you be unable to finish the course past the census date, you must petition for a withdrawal.

Other Course Policies: There will be a zero-tolerance policy for academic dishonesty, this includes, but is not limited to, cheating, plagiarism, and use of course materials in an inappropriate manner such as re-posting online. Violating this policy will result in an immediate failing grade for the course, and subsequent referral to the Student Judicial Affairs Office. See University code of conduct for more info:

<http://www.csustan.edu/judicial-affairs/student-responsibilities>.

Audio recording or video of lectures or any of the lab materials is not allowed unless indicated by the Disabilities Resources Service. Anyone caught in violation of this policy will be referred to judicial affairs and dropped from the course with a failing grade.

Tentative Schedule:

Date	Day	Lecture Topic	Thursday	Lab/Field Activity
29-Jan	T	Course Introduction/Modern Fishes	31-Jan	Introduction to Lab and Field Studies
31-Jan	R	Morphology and Movement		Assignments
5-Feb	T	Morphology and Movement	7-Feb	Lab-External Anatomy and Morphology (H:1,2)
7-Feb	R	Respiration and Circulation		Bone Assignment
12-Feb	T	Boyancy	14-Feb	Lab-Muscles and Internal Anatomy (H: 8, 9)
14-Feb	R	Feeding and Digestion		
19-Feb	T	Growth	21-Feb	Field Payback-NO LAB
21-Feb	R	EXAM I		
26-Feb	T	Sensory Function	28-Feb	Lab-Bones: Disarticulated (H: 10)
28-Feb	R	Sensory Function		Bones Due
5-Mar	T	Reproduction	7-Mar	Field Trip-Woodward Reservoir
7-Mar	R	<i>Field Trip to Woodward Res.</i>		
12-Mar	T	Shoaling and Migration	14-Mar	Field Payback-NO LAB
14-Mar	R	Marine Habitats		<i>Malibu Trip Discussion Session*</i>
19-Mar	T	Spring Break-No Classes	21-Mar	<i>Trip to Malibu-Optional*</i>
21-Mar	R			<i>Thu 3/21-Sun 3/24</i>
26-Mar	T	Freshwater Habitats	28-Mar	Field Trip-Merced River Fish Hatchery
28-Mar	R	<i>Field Trip to Merced River Hatchery</i>		
2-Apr	T	Fish Ecology and Extreme Adaptations	4-Apr	Lab-CA Taxonomy
4-Apr	R	Exam II		BioDiversity Assignment Due
9-Apr	T	Genetics and Speciation	11-Apr	<i>Field Trip to MLML Sat 4/13-Sun 4/14</i>
11-Apr	R	Plan for MLML Trip		<i>NO LAB on TH</i>
16-Apr	T	Jawless Early Ancestors	18-Apr	Lab-CA Taxonomy
18-Apr	R	Chonrichthyes		Skulls Due
23-Apr	T	Chonrichthyes	25-Apr	Lab-Fisheries Career Day
25-Apr	R	Non-Teleost Osteichthyes		
30-Apr	T	Teleosts 1	2-May	Lab-CA Taxonomy and Review
2-May	R	Teleosts 2		<i>Field Trip to Tuolumne Co. Sat 5/4</i>
7-May	T	Conservation	9-May	Lab Practical
9-May	R	Management		Ext Morph., Bones, Anatomy, Taxonomy
14-May	T	EXAM III-Notebooks and checklist due		