Ichthyology
Biology 530, 530L, 592J
Fall 2013

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Lecture: Monday & Wednesday 1:00-1:50 pm Magnolia Hall 4111
Lab/Field: Monday & Wednesday 2:00-4:45 pm Magnolia Hall 4111 & Field Sites

Course website: www.csun.edu/~msteele/classes/Ich530/ichthyology.htm

Reading Materials

Lab/Field: Guide to the Coastal Marine Fishes of California (California Fish & Game Fish Bulletin 157), Miller and Lea 1972.
or...
A Field Guide to the Pacific Coast Fishes, Eschmeyer, Herald, and Hamman.

Other required reading: Electronic files (pdf) of research papers will be provided on the course website

Supplemental Books (optional, but very helpful):
- Dictionary of Root Words and Combining Forms, by D. Borror.

Other Materials

**You must have a basic dissecting kit for laboratory exercises**
**a lab notebook is required**
**Course Objectives:** This course provides a general overview of the biology of fishes, including aspects of their evolution, taxonomy, anatomy, physiology, behavior, natural history, ecology, management, and conservation. Laboratory and field studies complement and expand on concepts covered in lecture, and will expose you to a wide variety of techniques used to study fishes. When you complete this course, you should (1) have a broad understanding of the biology of fishes; (2) be able to identify major taxonomic groups of fishes; (3) be able to identify most local fishes; and (4) understand how to apply a broad array of field and laboratory techniques to the study of fishes.

**Course Overview:** This course will combine a series of lectures with extensive hands-on laboratory and field work to teach you about fishes. My intention is to involve you as an active participant – in lectures and in field and lab studies – because doing something is the best way of learning it. The three portions of the course (lecture, lab, and field) are integrated and you must take them all this semester.

In lectures you will learn fundamental concepts in fish biology. You are encouraged and expected to ask questions during lecture. We will cover material in your textbook, assigned research papers, and outside material. You will learn how to do research on fishes with a series of laboratory and field research projects. You will learn methods for studying ichthyology in the lab and field; you will learn how to analyze and present the data you have collected; and you will learn how to write clear, effective, scientific research reports.

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**Grading:**

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<th>Component</th>
<th>Percent of Grade</th>
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<tr>
<td>Midterm Exam</td>
<td>15</td>
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<tr>
<td>Final Exam</td>
<td>20</td>
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<tr>
<td>Lecture Pop Quizzes</td>
<td>5</td>
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<tr>
<td>Lab Practical 1</td>
<td>15</td>
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<tr>
<td>Lab Practical 2</td>
<td>15</td>
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<tr>
<td>Field Study Report</td>
<td>8</td>
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<tr>
<td>Independent Research Report</td>
<td>10</td>
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<tr>
<td>Skull &amp; Skeleton Prep</td>
<td>2</td>
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<tr>
<td>Field/Lab Study Question Sets</td>
<td>10</td>
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<tr>
<td>Participation in Lab &amp; Field Studies</td>
<td>(20% of grade for 530L &amp; 592J)</td>
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<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
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**Grades for the 3 parts of the class (530, 530L, & 592J):** You will receive one grade the lecture class (BIOL 530) and a single, separate grade for the lab and field studies classes (530L and 592J). For 530L and 592J, 20% of your grade will be based solely on attendance and participation in field and lab studies, and the other 80% is based on all the other components listed in the table above. If you attend every lab activity and field trip and participate actively, you will get the full 20%.

**Exams:** There will be 2 exams, a midterm and a final. The final will be cumulative. The exams will consist of short answer (one word to one short paragraph), true/false, multiple choice, and graphs and other figures. These exams will be designed
to test your ability to synthesize information from lecture and think logically about the implications of this information. Answers will be graded on factual content, logic, and clarity. The exams will be based entirely on material covered during lecture. I expect you to read the assigned chapters and research papers to help you understand the material presented during lecture. **There are no make-up exams.** In *exceptional cases*, and if arrangements have been made *in advance*, exams (but not pop quizzes or lab practicals) may be taken at a mutually agreed upon time (usually before the rest of the class).

**Lab practical exams:** There will be two lab practicals. For these you will be required to identify local species, as well as important families and higher groupings (e.g., orders), and anatomy (e.g., fins, scales, organs, and bones). You will be required to identify both dead and live fishes. Because of the substantial amount of time required to set up lab practicals, **there will be no make-ups.**

**Skull & Skeleton Preparation:** You and a partner will remove the soft tissues from a fish, disarticulate the skull and skeleton, and reassemble it with labeled bones.

**Pop quizzes:** There will be 5 short pop quizzes at the end of certain lectures, on material presented in that lecture. These will be short-answer format and should take no more than 10 minutes. **No make-up quizzes will be offered.**

**Questions sets:** Also, for each field or lab study we conduct, there will be a question set to answer based on your findings. These are not meant to be difficult. They are designed to help you extract the major findings of the activity.

**Reports:** You will be required to write 2 papers in the form of published scientific papers. One of these papers (the lab report) will be based on a field study that we conduct together as a class. The second paper, the research report, will be an independent effort on your part. You will have the choice of conducting an independent research project (in the field or lab) or an extensive, synthetic literature review on a topic of your choice. In either case, when you have completed your research project, in addition to writing the paper, you will give a 10-minute oral presentation of your findings (as one would at a scientific meeting). We will discuss the format and expectations for these papers and presentation in more detail later in the semester.

Your grade will be based on your percentage of the total possible points you earn. The following cutoffs are a guideline, but I reserve the right to lower them.

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<tr>
<th>Percent</th>
<th>Letter Grade</th>
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<td>90-92</td>
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**Exam Dates:**
- **Midterm:** October 16, 1:00 – 1:50 pm
- **Final:** December 11, 12:45 – 2:45 pm
Field Trips:
There will be several field trips during the semester and they are all mandatory. Most of these trips will extend beyond normal class hours and one is on a Friday. You will not be able to make up missed field trips. The field trips are designed to teach you how to study fishes in nature and are essential for your understanding and appreciation of the subject matter. If you have conflicts that will prevent you from participating in any of these field trips, please talk to me as soon as possible.

Come prepared for field trips. Be prepared to get cold, wet, or muddy, depending on what we’re doing. Bring suitable footwear and clothing, and a pencil and your lab notebook for data collection. For example, on the RV Yellowfin you must wear closed-toed shoes; for beach seining you must wear dive or surf booties, or old tennis shoes; for some activities you might want to wear a wetsuit. If it rains or you get wet in the surf, you must still be able to collect data. If you are unsure what items you will need, contact the GA or me. Field outings will last 3+ hours, so bring water, snacks, and sunscreen.

A note about field activities: The field activities that are part of this class can be physically taxing, and may place you some distance from help if you have a medical problem. If you have serious concerns about your ability to participate in the field activities, please talk to me as soon as possible.

Attendance:
This is an intellectually challenging and time-demanding course. Students with other time-consuming responsibilities (e.g., heavy course loads, jobs > 20 hr/wk, athletics, music groups, etc.) should seriously consider whether they will be able to meet these demands. You are expected to attend and actively participate in every lecture, lab, and field experience. You will not be able to make up missed lab or field activities.

Communication:
Outside of class time, we will communicate with you via your CSUN email account. If you do not normally use this account, please configure your CSUN account to forward your messages to your preferred account. You can expect me to respond to your email within 24 hours (except on weekends – 48 hours).

Your best source of course information is the course website. Check the schedule on the website regularly because occasionally we may have to change the schedule due to bad weather or other unforeseen complications. Also, pdf files of required readings for lecture (scientific papers), pdf’s of PowerPoint lectures, class assignments, directions to field sites, and data from our field studies are downloadable from the website.

Expectations: You can expect me to be punctual, to treat you fairly, to return your graded assignments in a timely fashion, and most importantly, to treat you with respect. In return, I expect you to treat other students, the GA, and me with respect and do everything you can to ensure a comfortable learning environment. For example, jokes or comments made in poor taste that make any member of the class uncomfortable will not be tolerated. Use of cell phones, tablets, or computers during class for any purpose other than those directly related to the class (e.g., note taking) is not allowed.
Policies:

- **Cheating** on an exam will result in failure of the course and may result in further University discipline. The CSU policy states: “Cheating or plagiarism in connection with an academic program at a campus is listed as an offense for which a student may be expelled, suspended, or given a less severe disciplinary action.”

- **Plagiarism** will result in your failing the assignment. Plagiarism is “intentionally or knowingly representing the words, ideas, or works of another as one’s own in any academic exercise”. Don’t do it. Remember to give full credit to authors that you cite in your research reports. If you are unsure about what constitutes plagiarism, ask me or the GA.

- **Late assignments lose 10% per day**, i.e., the most you can receive for an assignment that is one day late is 90% of its point value, 2 days late 80%, etc.

- **Punctuality**: expect to start on time.

- Students with **disabilities** must register with the Center on Disabilities and complete a service agreement each semester. Staff within the Center will verify the existence of a disability based on the documentation provided and approved accommodations. Students who are approved for test taking accommodations must provide an Alternative Testing Form to their faculty member signed by a counselor in the Center on Disabilities prior to making testing arrangements. The Center on Disabilities is located in Bayramian Hall, room 110. Staff can be reached at 818-677-2684.

- The Biology Department **withdrawal policy** states: "Unrestricted withdrawals are permitted only until the end of the third week. Thereafter, requests to drop a class will be honored only when a verifiable serious and compelling reason exists and when there is no viable alternative to withdrawal. Poor performance is NOT an acceptable reason for withdrawal. During the last three weeks of the semester withdrawals will not be approved except when a student is withdrawing from ALL classes for verifiable medical reasons."