

University of Southern California
BISC 530: Advanced Seminar in Plankton Biology (2 units)

Instructor:

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Focus Area: Plankton community structure and dynamics in marine and freshwater systems, with an emphasis on eukaryotic plankton.

Meeting Time and Place: Mondays 10:00-12:00 (AHF 259)

Readings: Published primary literature posted on course blackboard site. For those lacking background – readings in basic invertebrate biology text recommended.

Course Description and Objectives

In BISC 530 students will gain an overview of the major organismal groups inhabiting plankton ecosystems. The course emphasizes the morphologies, life histories and trophic activities and relationships among major taxa. Lectures, laboratory activities and field trips are designed to expose students to the breadth of planktonic organisms.

The course structure reflects class, field and laboratory-based learning that is common in biological oceanography and environmental science. Lectures will provide overviews of the biology and ecology of major plankton lineages (bacteria, phytoplankton/protozoa, and micro-, meso- and macrozooplankton), methodology for studying these assemblages, our present state-of-knowledge regarding food web structure, and the biogeochemical significance of the various groups. The field component of the course will focus on hands-on experience collecting and observing various planktonic groups, and comparison of planktonic communities from different ecosystems. We will examine the similarity and uniqueness of environments with respect to the dominant taxonomic groups, trophic structure and overall biological processes. There will be a few lab-based demonstrations (or hands-on use).

Requirements:

Attendance: Students are required to attend all lectures and the weekend field trip. Opportunities for field-work will integrate knowledge learned in class and are considered an essential part of the course. Some standard classes will be cancelled to account for weekend field trips.

Evaluation:

Final Exam: There will be a mid-term and final presentations, incorporating material from lectures (including audiovisual presentations), discussions, laboratory exercises and reading assignments.

Lab Assignments: The WMSC and/or Lake Arrowhead field trip weekends are integral to the course. The WMSC field trip is scheduled for Oct 21-23. Students will participate in

sampling in both marine and freshwater systems in and around Catalina Island. The samples will be analyzed during the weekend. The class will self-organize into specific groups that highlight aspects of the dataset they feel are important as a group for a overall presentation that is divided into sub-topic presentations (with overall intro and conclusion sections). The class will cooperate and collaborate to analyze large datasets. During presentations, highlighted data is related to the other datasets, for interpretation. This has worked remarkably well in past years.

Grading:

Field/lab exercises (10%)
 Class and field participation (15%)
 Individual research presentation (25%)
 Midterm and Final Exams (25% each)

<u>Date</u>	<u>Topic</u>
Aug 26	Class overview and introduction to the plankton.
Sep 2	NO CLASS (Holiday).
Sep 9	Bacteria, cyanobacteria, archaea and viruses.
Sept 16	CLASS DEFFERED (TBD).
Sept 23	CLASS DEFFERED (TBD). Micro (protistan) zooplankton
Sept 30	Eukaryote Phototrophs and Heterotrophs.
Oct 7	Mixed nutrition in the plankton
Oct 14	Harmful algal blooms
Oct 21	Metazoa: Crustacea
Oct 28	MIDTERM
Nov 4	Gelatinous zooplankton: Ctenophores, Cnidarians, Rotifers.
Nov 11	Gelatinous zooplankton: Urochordates, Chaetognaths, Molluscs, Polychaetes
Nov 18	Demersal plankton
Nov 25	Food webs and methods of study
Dec 2	Student presentations (approved topic)
Dec 16	FINAL EXAM (8:00-10:00am)

Policies:

1. Academic honesty and integrity are paramount characteristics! Dishonesty in any form is not tolerated.
2. The Final Exam date and time is set by the University and is firm. If a student misses an exam due to a true emergency (with an acceptable documentation), a make-up exam will be scheduled. The Final Exam date and time are set by the University and cannot be changed (http://www.usc.edu/academics/classes/term_20113/finals.html)
3. Re-grading of exams: Exams submitted for possible re-grading must be turned in to the instructor with a written concise explanation of the problem, and will be accepted only within one week of when the exam is returned to the student.
4. No special assignments for extra credit are given.
5. Challenges to the final grade must be made within 6 weeks after final grades are assessed.
6. Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) in the Fall 2011 semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to instructors as early in the semester as possible.