

## SYLLABUS

BIOL 301L: Marine Ecology and Evolution Laboratory  
<http://www.biology.hawaii.edu/301>

### Syllabus

#### Lab Location

Dean Hall, Ground floor, Room 6

<u>Lab Coordinator</u>	<u>Office</u>	<u>Phone</u>	<u>E-mail</u>
Dave Strang	Dean Hall 7	956-4746	strang@hawaii.edu

<u>Teaching Assistants</u>	<u>Office</u>	<u>Phone</u>	<u>E-mail</u>
Anuschka Faucci			anuschka@hawaii.edu
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#### Lab Sections

301L 002: Tuesday 1:30-4:30

301L 003: Wednesday 1:30-4:30

301L 004: Thursday 1:30-4:30

#### webpage

<http://www.biology.hawaii.edu/301>

#### Lab Manual and Statistical software

- The Bio 301L Lab Manual, 3<sup>rd</sup> Edition. Available at EMA Campus Copy in the Campus Center. Phone: 941-1098
- We will be using the software: Minitab, version 12.1 for all statistical analyses. Minitab 12.1 is installed on all PCs in the Dean Hall 6 and the Dean Hall Computer Lab. If you'd like your own copy, you can buy or rent this software at a significant academic discount on the web at: <http://estore.e-academy.com/index.cfm?loc=main>.

#### Introduction

The lab exercises in BIO 301L are designed to illustrate ecological and evolutionary marine processes. At the same time the labs give you hands on experience in *the process of science*: designing experiments, collecting data, analyzing results in a rigorous statistical framework, and communication through effective writing. You will be working in real marine environments and with real marine organisms. Labs will give you insights into how marine organisms function, their relationship with their physical and biological environments, and ecological and evolutionary processes in the sea.

#### Field Trips

Labs involve trips to near shore environments around Oahu, as well as a cruise on the coastal oceanography vessel "KLAUS WYRTKI." Announcements concerning the kinds of conditions you can expect will be made in lecture the week preceding a field trip. We will provide transportation to all field sites. If you wish to meet us on site, you are welcome to drive yourself, just let your TA know in advance.

## Grading

### 1. Final Grade Breakdown.

Assignment	Total Points	% of Total
1 Aquarium Worksheet	5	2
8 Lab Assignments @ 15 pts each	120	56
2 Lab Reports @ 35 pts each	70	33
Class Participation	20	9
Total	215	100

- Lab Assignments and Reports: Due at the beginning of lab as indicated on the Schedule. Late assignments can be handed in to the Biology Department Program Office (Dean 2), but 10% of total points will be deducted for each day late. In some of the labs you will collect data in pairs; in others you will share a class data set. Regardless, all submitted work must be your own. Plagiarism or cheating in any form will not be tolerated and has serious consequences. For more details on what defines proper academic conduct consult the University Conduct Code at: <http://www.hawaii.edu/student/conduct/imper.html>.
- Class Participation: Attendance and kokua towards your classmates and TA earns you points here. Please help contribute to a positive learning environment. Good class participation will earn you 15 points, going the extra mile will allow you to earn up to 20 points towards your final Class Participation grade.

## Attendance

Attendance is mandatory, and your TA will take attendance before each lab. You will be deducted 5 participation points for any unexcused absence. Additionally, you will not be allowed to turn in assignments or lab reports if you do not attend lab. *ONLY* in extenuating circumstances will students be allowed jump ship and attend another lab with prior clearance from *BOTH* TAs. Please consult your TAs **ahead of time** if you have any attendance issues.

## Lab Safety

- No eating, drinking, or smoking in Lab.
- Close-toed shoes are required in Lab.
- For field trips you will need shoes that can get wet. Old running shoes or diving booties will work fine.
- Follow all TA instructions on handling all chemicals and reagents.
- Wear safety glasses and lab coats when instructed.
- Wash your hands during and after each lab.

## More kokua: Lab clean up and equipment care

You are responsible for returning the Lab in the condition you found it. You will be using a variety of research quality instruments, electrical equipment, and reagents that should be treated with care. You must do your absolute best to keep equipment in good working order. If something is missing or broken, please report it to TA so they can arrange for replacement or repair.

### Additional helpful references (not required)

#### Invertebrates:

- Barnes, R.S.K., P. Calow, and P.J.W. Olive 1988. The invertebrates: a new synthesis. Blackwell Scientific, Boston.
- Brusca, R. C. and G. J. Brusca. 1990. Invertebrates. 2<sup>nd</sup> Edition. Sinauer Associates, Sunderland, Mass.
- Hoover, J. P. 1998. Hawaii's Sea Creatures, a Guide to Hawaii's Marine Invertebrates. Mutual Pub., Honolulu, HI

#### Zooplankton and invertebrate larvae:

- Todd, C. D., M. S. Laverack, and G. Boxshall. 1996. Coastal Marine Zooplankton: A Practical Manual for Students, Cambridge University Press. New York.

#### Vertebrates/Fish:

- Hoover, J. P. 2003. Hawaii's fishes: a guide for snorkelers, divers, and aquarists. Mutual Pub., Honolulu, HI.
- Pough, F.H., Heiser, J.B., and W. N. McFarland. 1996. Vertebrate Life. 4<sup>th</sup> Edition. Prentice Hall, New Jersey.
- Randall, J. E. 1996. Shore fishes of Hawai`i. University of Hawai`i Press. Honolulu, HI.

#### Algae:

- Dawes, C. J. 1998. Marine botany. John Wiley. New York

#### Hawaiian Natural History:

- Ziegler, A. C. 2002. Hawaiian natural history, ecology, and evolution. University of Hawai`i Press. Honolulu, HI.

#### Biological Oceanography:

- Lalli, C. M. and T. R. Parsons. 1997. Biological oceanography, 2<sup>nd</sup> Edition. Butterworth Heinemann, Oxford.

#### Phylogeny/Tree of Life:

- Tree of Life Web Project: <http://www.tolweb.org/tree/>
- University of California, Berkeley Museum of Paleontology, Discover the History of life: <http://www.ucmp.berkeley.edu/exhibit/phylogeny.html>

#### Statistics:

- Sokal, R. R. and F. J. Rohlf. 1995. Biometry: the principles and practice of statistics in biological research. W. H. Freeman, New York.
- Zar, J. H. 1999. Biostatistical analysis. Prentice Hall, New Jersey.
- Gotelli, N. J. and A. M. Ellison. 2004. A primer of ecological statistics. Sinauer Ass. Sunderland, Massachusetts.