BIOL 330 Study Design and Data Analysis
Syllabus   Spring 2023

General Course Information

Welcome to BIOL330! This course is an introduction to statistics and study design from a decidedly biological perspective. Our focus is on helping students build the numeracy skills needed to be a productive (and employable) biologist and, most importantly, to develop an intuition for interpreting numbers and data.

Instructors

Dr. David Punzalan (Lectures, and Course Coordination)
Dr. Neville Winchester (Laboratory Coordination)
Dominique Maucieri, MSc (Laboratory Instructor)
Connor Nelson, MSc (Laboratory Instructor)

Contact Location & Hours

A01 (Lecture) – ECS 124. Tuesday, Wednesday & Friday, 11:30am - 12:20pm
B01 (Lab) - CLE A108. Tuesdays, 2:30-5:30pm
B02 (Lab) - CLE A035. Wednesdays, 2:30-5:30pm
B03 (Lab) - HSD A170. Thursdays, 8:30-11:30am
B04 (Lab) - CLE A035. Thursdays 2;30-5:5:30pm

Intended Learning Outcomes

Upon completing this course, students will be proficient in the use of a subset of statistical tools used in biology, as well as in the interpretation of results of biological studies. Students will be able to confidently design experiments to test hypotheses, as well as make sound inferences based on the results of observational studies. Students will be able to execute basic operations used for data analysis and graphical presentation of data using the 'R' environment. Students will be able to successfully design, conduct independent biological research, and also communicate their results both in written and oral presentation formats.

Assessment

You will have the opportunity to demonstrate your progress and proficiency through various forms of evaluation, including:

Lecture Components (50%)
Test 1	10%
Test 2	10%
Final Exam	20%
Participation (iClicker or BRS)	10%

Laboratory Components (50%)
Quiz 1	5%
Quiz 2	

<u>To pass the course</u>, students must:
1) Write the final **Lecture** exam
2) Write all **Lab** Quizzes and complete all **Lab** Assignments
3) Score a grade of 25 points, or greater, out of a possible 50 in the **Laboratory** component
4) Score a grade of 50 points, or greater, combined across **Lecture** and **Laboratory** components

If either 1 or 2 are not completed, the student will automatically fail the course and receive an

If a student successfully completes 1 and 2 <u>but is not successful in either 2 or 3</u>, they will

<u>About the Instructors and Contact Info</u>

Dave is an evolutionary ecologist, originally hailing from Toronto, Ontario. His love of insect behaviour somehow led him to study evolutionary quantitative genetics, and he is doomed to spend the remainder of his life trying to solve intractable problems surrounding evolutionary constraints and the limits to adaptation. On weekends, he is usually chasing bugs or foraging in the intertidal.

Dr. Neville Winchester is currently a research entomologist and a member of the teaching staff in the Biological Sciences Department at the University of Victoria. His special areas of research and interest include diversity of arthropods, ancient rainforest ecology and conservation biology. As well as doing research in temperate ecosystems, he has done high canopy work in French Guiana, Gabon, Malaysia, Thailand, Costa Rica, Panama (IBISCA), Ethiopia, and is currently involved in a Peruvian Amazon, Tree of Life project.

Dominique is a PhD student in Dr. Amanda Bates' lab where she studies how heat, hunger and habitat loss affect marine invertebrate communities. She has a love for coding and data analysis, but also all things related to our ocean and bats. When she is not doing research, she will probably be around the ocean tide pooling and scuba diving or baking a loaf of bread.

Connor is an entomologist by training with a background in forest conservation, pollinator ecology, and biostatistics. Since finishing his masters in Alberta, he has spent the past couple of years travelling and developing his teaching practice. When he's not teaching or analysing data, he can usually be found in the forest, on the beach, or on a local bike trail.

Instructors are available to meet by appointment and our respective e-mail* addresses are: davidpunzalan@uvic.ca, winchest@uvic.ca, dominiquemaucieri@uvic.ca, connorjnelson@uvic.ca
-mails, and expect a response within 48h.

<u>Course Website and Materials</u>
1) Course website on Brightspace (BRS): https://bright.uvic.ca/d2l/home/269343 Please check this page regularly for important information and announcements.
2) Lectures will be delivered in person or, in case of illness, via Zoom; electronic (.p

5) ***Recommended:*** a laptop for some in-lecture exercises. For labs, Students are encouraged to bring their laptops to the lab where they will also have access to a computer terminal.

6) ***Software:*** R and R studio are already on the computers in the lab and detailed instructions to install thesse on your personal computers will be posted on the Biology 330 BRS page. Microsoft Teams and MS Excel may be required are installed/accessible on lab computers, and may be installed on your personal computer at no cost, via student Microsoft 365: https://www.uvic.ca/systems/support/computerssoftware/microsoft365/index.php

7) ***Recommended:*** iClicker (mobile) for in-lecture assessments/participation grades. It is available at: https://store.macmillanlearning.com/ca/product/iClicker-Student-Mobile-Six-Months-Online/p/1319140173). Students who cannot (or choose not to) purchase iClickers can still participate via alternative assessments administered on BRS.

Appendix & Policies

Territory Acknowledgment
The instructors of BIOL330 are grateful to live and work in the unceded territories of the Lekwungen speaking First Nations, and we support the University of Victoria's official territory acknowledgment: