

**BIOL 330 / ES 344**  
**STUDY DESIGN AND DATA ANALYSIS**  
**University of Victoria – Spring 2020**

**Instructor:** Dr. Terri Lacourse – [tlacours@uvic.ca](mailto:tlacours@uvic.ca)  
Cunningham 155a  
Office hours: By appointment

**Lectures (ECS 124):** Tues, Wed, Fri 11:30 AM–12:20 PM

**Lab Instructor:** Dr. Neville Winchester – [winchest@uvic.ca](mailto:winchest@uvic.ca)

**Labs:** Tues, Wed, Thurs: 2:30–5:20 PM; Thurs 8:30–11:20 AM

**Textbook:** Whitlock, M. & Schluter, D. 2015. The Analysis of Biological Data. 2<sup>nd</sup> Ed. Roberts & Co.

**Course website:** BIOL 330 / ES 344 on [coursespaces.uvic.ca](https://coursespaces.uvic.ca)

**Learning Objectives:** *At the end of the course:*

1. You demonstrate an ability to frame appropriate and testable hypotheses for a set of data.
2. You demonstrate an ability to analyze and interpret a set of data in a statistically sound way, so that your interpretation will withstand scrutiny as being a logical and appropriate hypothesis test and interpretation of the data.

**Assessment of Grades:**

Midterm Exam	20%	February 7
Lab Quizzes	15%	Three quizzes, each worth 5%
Research Project	25%	Presentation 5% (week of March 23), Report 20% (due April 6)
Final Exam	40%	During Exam Period: April 6-24 (Date set by University)

**Important Notes:**

- 1) Students are responsible for keeping track of the grades they receive on exams, tests and assignments.
- 2) No supplemental midterm exams will be offered. If you miss the midterm (due to an emergency or medical reason with original documentation), then the final exam grade will be used in place of the midterm in the final grade assignment.
- 3) The last date for course withdrawal without academic penalty (F) is 29 February 2020.
- 4) Students who do not complete all exams, tests and assignments, including the research project, will be given a final grade of N and will not be permitted to write the final exam.
- 5) Final grades will be assigned on the basis of UVic's official grading scale with F and N as per university regulations.
- 6) The University has a strict Policy on Academic Integrity, which includes provisions for the "Unauthorized Use of an Editor". All students are required to familiarize themselves with this policy: [web.uvic.ca/calendar2020-01/undergrad/info/regulations/academic-integrity.html](http://web.uvic.ca/calendar2020-01/undergrad/info/regulations/academic-integrity.html)

## BIOL 330 / ES 344 Course Schedule – Spring 2020

The schedule of lecture topics is subject to revision as the course progresses.

Week of	Lecture Topics	Relevant Text Chapters and Interleaves	Lab
Jan 6	Introduction; Types of data; Random sampling	1 Interleaf 2	Sample Design & Term Projects
Jan 13	Describing & Displaying Data; Estimating Uncertainty	2, 3, 4	Fern Lab: Field Sampling & Data Collection
Jan 20	Probability; Hypothesis testing; Normal distribution	5, 6, 10 Interleaf 3	t-test Lab 1 <b><i>Project Description DUE</i></b>
Jan 27	Confidence limits; t-tests	11, 12	t-test Lab 2
Feb 3	Experimental design; <b><i>Midterm Exam February 7</i></b>	14 Interleaf 5, 6	<b>LAB QUIZ #1</b> Work on Research Projects
Feb 10	Violating test assumptions; Non-parametric tests	13	ANOVA Lab 1
Feb 17	<i>Reading Break</i>		
Feb 24	ANOVA	15	ANOVA Lab 2
March 2	Correlation; Regression	16, 17 Interleaf 4	<b>LAB QUIZ #2</b> Regression Lab 1
March 9	General linear models; ANCOVA	18	Regression Lab 2
March 16	Binomial distribution; Chi-square goodness-of-fit; Contingency analysis	7, 8, 9	<b>LAB QUIZ #3</b> Work on Research Projects
March 23	Computer-intensive methods; Effect size; Meta-analysis	19, 21 Interleaf 10	<b><i>PROJECT PRESENTATIONS</i></b>
March 30	Likelihood; Knowing which statistical test to use; Review	20 Interleaf 7	NO LABS <b><i>PROJECT REPORT DUE APRIL 6 by 12:30pm to Biology office (CUN 202)</i></b>