BIOL 330 / ES 344
STUDY DESIGN AND DATA ANALYSIS
University of Victoria – Spring 2018

Instructor: Dr. Terri Lacourse – tlacours@uvic.ca
Cunningham 155a
Office hours: By appointment

Lectures (ECS 116): Tues, Wed, Fri 11:30 AM – 12:20 PM

Lab Instructors: Dr. Neville Winchester (Senior Lab Instructor – winchest@uvic.ca)
Geoff Osgood (Teaching Assistant – gjosgood@gmail.com)

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. 2nd Ed. Roberts & Co.

Course website: BIOL 330 / ES 344 on 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 2
Lab Quizzes	25%	Three quizzes worth 5%, 10% and 10%
Research Project	20%	Presentation 5% (week of March 26), Report 15% (due April 6)
Final Exam	35%	During Exam Period: April 9-24 (Date set by University)

Important Notes:

1) No supplemental midterm exams will be offered. If you miss the midterm (due to an emergency or medical reason with original documentation), the final exam grade will be used in place of the midterm in the final grade assignment.

2) Students who do not complete all tests and assignments will be given a final grade of 'N' and will not be permitted to write the final exam.

3) Final grades will be assigned on the basis of UVic's official grading scale with 'F' and 'N' as per university regulations.

4) The last date for course withdrawal without academic penalty ('F') is 28 Febuary 2018.

5) 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, which is described in detail in the University Calendar: *http://web.uvic.ca/calendar2018-01/undergrad/info/regulations/academic-integrity.html*

BIOL 330 / ES 344 Course Schedule* – Spring 2018

Week of	Lecture Topics	Relevant Text Chapters	Lab
Jan 3	Introduction; Types of data; Random sampling	1	NO LABS
Jan 8	Describing & Displaying Data; Estimating Uncertainty	2, 3, 4	Sample Design & Term Projects
Jan 15	Probability; Hypothesis testing; Normal distribution	5, 6, 10	Fern Lab: Field Sampling & Data Collection
Jan 22	Confidence limits; t-tests; Experimental design	11, 12, 14, Interleaf 2, 5, 6	t-test Lab 1 *Project Description DUE*
Jan 29	Experimental design; *Midterm Exam (Feb 2)*	14	t-test Lab 2
Feb 5	Violating test assumptions; Non-parametric tests	13	**LAB QUIZ #1** Work on Research Projects
Feb 12	*Reading Break*		
Feb 19	ANOVA	15	ANOVA Lab 1
Feb 26	Correlation; Regression	16, 17 Interleaf 4	ANOVA Lab 2
March 5	General linear models; ANCOVA	18	**LAB QUIZ #2** Regression Lab 1
March 12	Binomial distribution; Chi-square goodness-of-fit; Contingency analysis	7, 8, 9	Regression Lab 2
March 19	Computer-intensive methods; Effect size; Meta-analysis	19, 21 Interleaf 10	**LAB QUIZ #3** Work on Research Projects
March 26	Likelihood	20	*PROJECT PRESENTATIONS*
April 2	Knowing which statistical test to use; Review and Final exam preparation	Interleaf 7	NO LABS *PROJECT REPORT DUE APRIL 6*

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