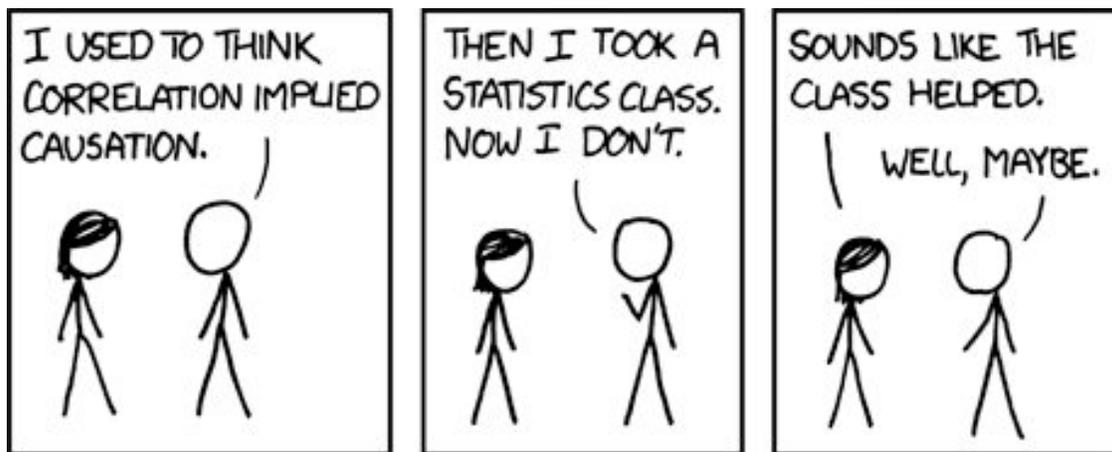


## Introduction to Biostatistics - Honors - WILD 240



Fall Semester 2019

Instructor: Dr. Colter Chitwood

Research Scientist, Stone 112 (Office Hours in Forestry 307)

E-mail: [colter.chitwood@umontana.edu](mailto:colter.chitwood@umontana.edu)

**Class Meeting Times:** Tu/Th, 9:30 a.m. - 10:50 a.m., Stone 106

**Office Hours (Forestry 307):** Tu/Th, 11:00 a.m. - 12:30 p.m., and by appointment

**Course Description:** This class is an introduction to statistical ecology, including probability distributions, hypothesis testing, statistical theory, philosophy of science, and fitting models to data with emphasis on problems in ecological sampling.

**Course Website:** [Moodle](#). If you have not used Moodle in prior courses, "Moodle 101 for Students" is a tutorial that can assist you in learning the basics.

**Prerequisites:** Calculus and/or consent of instructor

**Textbook:** *A Primer of Ecological Statistics, 2<sup>nd</sup> edition*. Gotelli and Ellison (2013). The textbook is to be used as a resource. We will cover some chapters thoroughly and other chapters to a lesser extent. Please read assigned chapters **before** class. Additional readings and materials will be assigned throughout the semester; they will be provided directly from me or will be available through the course website (i.e., Moodle).

**Course Software (required):** Program R (R Core Team 2018). [Available free!](#)

**Course Outcomes:**

- Instill statistical literacy in students
- Familiarize students with the basic concepts of probability, sampling, and different statistical approaches
- Gain experience collecting, managing, and analyzing data for ecological research using Program R and Excel
- (Also, to avoid the cartoon joke by the end of the semester!)

**Tentative Schedule and Required Readings:**

Please complete readings before class each day. (\*denotes guest lecture)

<b>Date</b>	<b>Topic</b>	<b>Readings</b>
27-Aug	Course Introduction and Context	None
29-Aug	Probability	Chapter 1
3-Sep	Probability	Chapter 1
5-Sep	Probability Distributions	Chapter 2
10-Sep	Probability Distributions	Chapter 2
12-Sep	Introduction to R*	TBA
17-Sep	Descriptive Statistics in R*	TBA
19-Sep	Confidence Intervals*	Chapter 3
24-Sep	Hypotheses	Chapter 4
26-Sep	Hypotheses	Chapter 4
1-Oct	<b>Exam 1</b>	None
3-Oct	Experimental Design	Chapter 6
8-Oct	Experimental Design	Chapter 7
10-Oct	Managing Data	Chapter 8
15-Oct	Managing Data*	Chapter 8
17-Oct	Regression*	Chapter 9
22-Oct	Regression	Chapter 9
24-Oct	Analysis of Variance	Chapter 10
29-Oct	Analysis of Variance	Chapter 10
31-Oct	Panel Discussion (Field Studies and Data)	None
5-Nov	<b>Exam II</b>	None
7-Nov	Occupancy	Chapter 14
12-Nov	Abundance	Chapter 14
14-Nov	Abundance	Chapter 14
19-Nov	General Linear Models	TBA
26-Nov	Survival Analysis	TBA
28-Nov	<i>Thanksgiving - University Holiday</i>	None
3-Dec	Model Selection and Inference	TBA
5-Dec	Course Review and Wrap Up	None

**Final Exam:** [Wednesday, December 11, 10:10 a.m. - 12:10 p.m.](#) in Stone 106

**Class Attendance Policy:**

- Attendance is required. Students are allowed one unexcused absence each.
- After the one unexcused absence, the student will lose the attendance and participation points for each day missed.
- If you have a legitimate excuse for missing class (e.g., illness; injury; University event; family emergency; religious, cultural, or ceremonial event), please tell me in advance and be prepared to provide appropriate evidence.
- If you have questions about this policy, please see me.

**Classroom Etiquette and Participation:**

- Laptops are allowed for solving problems, using Program R, or taking notes; however, you are not allowed to use laptops, cell phones, etc. to text, email, tweet, surf the internet, use Facebook, or otherwise disrupt learning opportunities for other students.
- If any classroom activities require cell phones, internet, etc., I will instruct you that they can be used.
- I reserve the right to take away participation points if you disrupt your classmates' opportunities to learn and participate in class.
- During each class period, I will pose a problem or ask a question that you will discuss in teams for about 5 minutes (before discussing with the class as a whole). I will assign teams and will re-assign teams periodically during the semester.
- Your attendance (see policy above) and participation will be assessed by signing your name on the answer sheet your team will submit at the end of each class period.

**Grading:** Grades will be based on 2 mid-term exams, a final exam, weekly homework assignments, attendance, and participation. Homework assignments usually will be assigned on Thursday and due the following Tuesday in class. All homework assignments must be turned in as hard copies; emailed or other electronic files will not be accepted. Late assignments will be penalized 10% for each day late. Attendance and participation points (see policies above) are designed to keep you engaged in the class!

Mid-term Exam 1:	20%
Mid-term Exam 2:	20%
Final Exam:	25%
Homework:	25%
Attendance:	05%
Participation:	05%

**Students with Disabilities Statement:**

- Students with disabilities may request reasonable modifications by contacting me. The University of Montana assures equal access to instruction for students with disabilities in collaboration with instructors and [Disability Services for Students](#), which is located in Lommasson Center 154. The University does not permit fundamental alterations of academic standards or retroactive modifications.



**Student Conduct Code Statement:**

- All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the [Student Conduct Code](#).

**Cultural Leave Statement:**

- Cultural or ceremonial leave allows excused absences for cultural, religious, and ceremonial purposes to meet the student's customs and traditions or to participate in related activities. To receive an authorized absence for a cultural, religious or ceremonial event the student or their advisor (proxy) must submit a formal written request to the instructor. This must include a brief description (with inclusive dates) of the cultural event or ceremony and the importance of the student's attendance or participation. Authorization for the absence is subject to approval by the instructor. Appeals may be made to the Chair, Dean, or Provost. The excused absence or leave may not exceed five academic calendar days (not including weekends or holidays). Students remain responsible for completion or make-up of assignments as defined in the syllabus, at the discretion of the instructor.

**Grading Option Statement:**

- Please note, this class is offered for traditional letter grade only; it is not offered under the credit/no credit option.

**Course Withdrawal Deadlines Statement:**

[Important dates](#) restricting opportunities to drop a course during Fall Semester 2019:

- To 15<sup>th</sup> instructional day (Sep 16) -- Students can drop classes on CyberBear with refund and no 'W' on transcript.
- 16<sup>th</sup> to 45<sup>th</sup> instructional day (Sep 17 - Oct 28) -- Drop requires approval of instructor and advisor; \$10 fee applies; no refund; student receives a 'W' on transcript.
- After 45<sup>th</sup> instructional day (Oct 28 – Dec 6) -- Students are only allowed to drop a class under very limited and unusual circumstances. Not doing well in the class, deciding you are concerned about how the class grade might affect your GPA, deciding you did not want to take the class after all, switching majors, and similar reasons are not among those limited and unusual circumstances. If you want to drop the class for these sorts of reasons, make sure you do so by 5:00 p.m. of the 45<sup>th</sup> instructional day of the semester. Requests to drop must be signed by the instructor, advisor, and Associate Dean (in that order) so if you pursue this request, **leave sufficient time to schedule meetings with each of these individuals** (generally this will take at least 3-5 working days). A \$10 fee applies if approved. Instructors must indicate whether the individual is Passing or Failing the class at the time of request.