

STAT 315:  
STATISTICS FOR ENGINEERS AND SCIENTISTS  
Fall 2019

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<b>Instructor:</b>	Dr. Aaron Nielsen	<b>Email:</b>	aaron.nielsen@colostate.edu
<b>Section:</b>	001	<b>Time:</b>	MWF 9:00 – 9:50am
<b>Location:</b>	Wagar 133	<b>Webpage:</b>	<a href="http://canvas.colostate.edu/">http://canvas.colostate.edu/</a>

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**Course coordinator:** Dr. Aaron Nielsen (aaron.nielsen@colostate.edu)

**Course credits:** 3

**Recommended Textbook:** *Probability and Statistics for Engineers and Scientists* (any edition) by Jay L. Devore

**Required Software:** R (It's free and available at <http://www.r-project.org/>)

**Office Hours:** These are held in the Statistics Success Center (Weber 223A). You are welcome to attend my office hours or office hours of the other instructors.

<u>Instructor</u>	<u>Office Hours</u>
Aaron Nielsen	Monday 1:00pm – 3:00pm, Tuesday 12:00 – 2:00pm
Daniel Mork	

**Prerequisite:** Math 155 or Math 159 or Math 160 (Calculus I)

**Course overview:** Descriptive statistics, probability, conditional probability, random variables (discrete, continuous, multivariate), point estimation, hypothesis testing, confidence intervals, ANOVA, simple linear regression, multiple regression

**Homework:** Homework will be due weekly on Wednesday. Late homework is not accepted without prior approval.

**Exams:** There will be two 50-minute in-class exams and a 120-minute final exam. You are allowed to use a calculator and a double-sided note card (3.5"x5") of formulas/notes/etc during exams. No make-up exams are offered without prior approval.

**Basis for Final Grade:** Your final grade will be based on your exam scores, weekly homework sets, and intangibles such as class participation. The intangibles can only increase your grade. The weightings will be as follows:

- Homework Assignments: 40%
- Midterm Exam #1 (October 4): 20%
- Midterm Exam #2 (November 15): 20%
- Final Exam (December 19): 20%

**Grading Scale:** Your course grade will be determined from the following grading scale:

A	92% – 100%	C+	78% – 80%
A-	90% – 92%	C	70% – 78%
B+	88% – 90%	D	60% – 70%
B	82% – 88%	F	0% – 60%
B-	80% – 82%		

**Course Policies:**

- **Attendance:** While I do not take attendance, attendance is highly recommended. You are responsible for all announcements and syllabus/schedule changes made in class. Please check your email and Canvas frequently for posted examples and announcements.
- **Late Work Policy:** Late homework is not accepted and make-ups are not given for missed exams without prior approval.
- **Extra Credit Policy:** Extra credit may be given in class randomly throughout the semester. You can't make up for missed extra credit.
- **Grades of “Incompletes”:** I will follow university procedures on “incompletes”, i.e., they are only given in situations where unexpected emergencies prevent students from completing the course and the remaining work can be easily finished the following semester. Incomplete work must be finished the next semester or the grade automatically turns into an F.
- **Group Work Policy:** Students are encouraged to collaborate on homework sets, as long as they acknowledge their collaborators. There is no penalty for working together. Of course, no collaboration is allowed on exams, as that is considered cheating. Please do not just copy your friend's homework, as this is considered academic dishonesty as well.
- **Cheating:** Students are expected to understand intuitively what proper ethical conduct means in the context of a college mathematics course. If you are caught cheating, you could fail the class or (at least) have your grade lowered, so don't even try it.
- **Students with Disabilities:** The university is committed to providing support for students with disabilities. If you have an accommodation plan, please see me so we can make any arrangements necessary to facilitate your learning.
- **Need Help?** CSU is a community that cares for you. If you are struggling with drugs or alcohol and/or experiencing depression, anxiety, overwhelming stress or thoughts of hurting yourself or others please know there is help available. Counseling Services has trained professionals who can help. Contact 970-491-6053 or go to <http://health.colostate.edu>. If you are concerned about a friend or peer, tell someone by calling 970-491-1350 to discuss your concerns with a professional who can discreetly connect the distressed individual with the proper resources (<http://safety.colostate.edu/tell-someone.aspx>). Rams take care of Rams. Reach out and ask for help if you or someone you know is having a difficult time.

**Course schedule:** The following schedule of course materials covered is tentative, but the dates of the exams will not change.

<u>Week</u>	<u>Date</u>	<u>Topics</u>	<u>Book sections</u>	<u>Important Dates</u>
1	August 26 – 30	Syllabus Intro / Descriptive Statistics	1.1 – 1.4	
2	Sept 2 – 6	Probability	2.1 – 2.5	HW #1 due
3	Sept 9 – 13	Discrete Random Variables	3.1 – 3.5	HW #2 due
4	Sept 16 – 20	Continuous Random Variables	4.1 – 4.6	HW #3 due
5	Sept 23 – 27	Joint Probability Distributions	5.1 – 5.2	HW #4 due
6	Sept 30 – Oct 4	Review and catch-up		HW #5 due <b>Exam #1</b>

**EXAM #1: FRIDAY, OCTOBER 4**

7	Oct 7 – 1	Central Limit Theorem	5.3 – 5.5	
8	Oct 14 – 18	Point Estimation One-Sample Confidence Intervals	6.1 – 6.2 7.1 – 7.3	HW #6 due
9	Oct 21 – 25	Hypothesis Testing	8.1 – 8.5	HW #7 due
10	Oct 28 – Nov 1	Two-Sample Inference	9.1 – 9.4	HW #8 due
11	Nov 4 – 8	ANOVA	10.1 – 10.2	HW #9 due
12	Nov 11 – 15	Review and catch-up		HW #10 due <b>Exam #2</b>

**EXAM #2: FRIDAY, NOVEMBER 15**

13	Nov 18 – 22	Simple Linear Regression	12.1 – 12.4	
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**FALL BREAK (NOV 25 – 29)**

14	Dec 2 – 6	Multiple Regression	13.1 – 13.4	HW #11 due
15	Dec 9 – 13	Review and catch-up		

**FINAL EXAM: THURSDAY, DECEMBER 19, 4:00 – 6:00pm**