

# Syllabus

ST551 Fall 2017

2017-09-20

**Course Name:** Statistical Methods

**Course Number:** ST551

**Course Credits:** 4 This course meets for three 50min lectures per week and one 50min lab per week.

**Prerequisites:** ST422/522 or equivalent (at least two quarters of Mathematical Statistics)

## Course Description

From the catalog

Properties of t, chi-square and F tests; randomized experiments; sampling distributions and standard errors of estimators, delta method, comparison of several groups of measurements; two-way tables of measurements.

## Student Learning Outcomes

After successfully completing this course, you will be able to:

- Apply and interpret common statistical methods in one and two sample settings (see Course Description for list of methods).
- Describe the theoretical basis of such methods, and critically evaluate and compare the appropriateness of various procedures for specific problems.
- Use R for data exploration and analysis.

## Tentative Topic Schedule

Week	Starting	Topic
0	Sep 20	Scope of inference
1	Sep 25	Sampling distributions
2	Oct 02	Inference in the sampling setting
3	Oct 09	Evaluating methods
4	Oct 16	Single sample settings: mean, proportion, median
5	Oct 23	Single sample settings: scale, shape
6	Oct 30	Two sample settings: t-based
7	Nov 06	Two sample settings: binary response
8	Nov 13	Two sample settings: other
9	Nov 20	Randomization/Bootstrap
10	Nov 27	Wrap-up

## Learning Resources

All lecture notes, lab materials, homework assignments and additional resources will be posted on the class website: <http://st551.cwick.co.nz>

I will use canvas ([oregonstate.instructure.com](http://oregonstate.instructure.com)) to send announcements and record grades. You will submit homework in canvas. You are also encouraged to use the discussion board on canvas.

## Textbook

There is no required textbook, however you may find the following books useful supplements to the lecture notes:

- *Statistical Sleuth* by Ramsey & Schafer. A less mathematical treatment than we will take, but useful for general overview and interpretation. Relevant chapters: 1-5, 18 and 19.
- *Statistical Methods* by Freund, R.; Mohr, D; Wilson, W. (2010). Available to read online through the library <http://OSU.eplib.com/patron/FullRecord.aspx?p=802390>. Covers most of the methods we will learn. Relevant chapters: 2-6, 12 and 14.
- *OpenIntro Statistics* a free online textbook, [https://www.openintro.org/stat/textbook.php?stat\\_book=os](https://www.openintro.org/stat/textbook.php?stat_book=os), at a slightly lower level than this class. Relevant chapters: 1 – 6
- *Graphical Data Analysis with R* by Antony Unwin. Available to read online through the library <http://ebookcentral.proquest.com/lib/osu/detail.action?docID=4648053>

## Evaluation of Student Performance

Your final grade will be a weighted combination of homework (40%), an in class midterm (25%) and the final exam (35%).

**Homework:** Weekly homeworks will be released on the class website on Fridays and due the following Thursday. They may consist of readings, mathematical derivations, simulations and complete data analyses. You may discuss ideas with other students, but you must write up your homework without assistance and on your own. Unless otherwise advised, homeworks should be submitted on canvas. Late homeworks will not be accepted without prior arrangement with the instructor. Your lowest homework score will be dropped.

**Midterm:** One midterm exam will be given **in class on Friday, October 27th**. The midterm will cover all material up to the Wednesday immediately before the exam (October 25). You will be allowed a single two-sided letter-sized page of **your own** notes, and you may use a calculator. If you are unable to take the midterm at the scheduled time, contact the instructor before the exam.

**Final Exam:** The final exam is scheduled for **Thursday December 7th 2017 9:30am-11:20am** (location TBA). The exam covers all material from the quarter. You are allowed no outside materials, except a calculator.

## Grading Scale

Letter grades will be assigned according to the following scheme:

Percent	Grade
95 – 100	A
88 – 94.9	A-
80 – 87.9	B+
75 – 79.9	B
70 – 74.9	B-
65 – 69.9	C+
60 – 64.9	C
55 – 59.9	C-
45 – 54.9	D
0 – 45	F

## Student Conduct

Students are expected to be honest and ethical in their academic work. Please read the full text of the University Student Conduct Code at <http://studentlife.oregonstate.edu/code> to understand what constitutes academic dishonesty under OSU policy. Any incidents of academic dishonesty will be dealt with as outlined in the University's Academic Regulations.

The Student Conduct Code defines academic dishonesty as:

Any action that misrepresents a student or group's work, knowledge, or achievement, provides a potential or actual inequitable advantage, or compromises the integrity of the educational process.

Examples include, but are not limited to, the following:

- copying another student's homework assignment
- copying another student's exam
- using prohibited materials (e.g., cell phone) during an exam
- communicating with another student during an exam
- changing answers on an exam after the exam has been graded
- unattributed use of material copied from an article, textbook, or web site
- continuing to write on an exam after the instructor or TA has asked for the exams to be handed in

## Statement Regarding Students with Disabilities

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.