Statistics 1 (STAT 201-01)

Metropolitan State University
Spring 2019

Instructor: Michael Shyne

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Meeting time: Monday, 6:00 – 9:30 pm, Library 312

Course Description

This course covers the basic principles and methods of statistics. It emphasizes techniques and applications in real-world problem solving and decision making. Topics include frequency distributions, measures of location and variation, probability, sampling, design of experiments, sampling distributions, interval estimation, hypothesis testing, correlation and regression.

Prerequisites

A grade of C- or higher in MATH 98 or MATH 102, or placement at MATH 115 College Algebra on the mathematics assessment test offered by Placement Assessment Office.

Learning Outcomes

1. Demonstrate comprehension and ability to apply inferential statistics, including construction of confidence intervals for point estimates and simple hypothesis tests.
2. Recognize appropriate use of different statistical models to represent and answer questions about representative real-world problems involving categorical and quantitative data.
3. Understand and apply statistical concepts including probability, regression and correlation, experimental design, descriptive statistics and inferential statistics.
4. Understand statistical principles and methods for data collection and analysis.

Center for Academic Excellence

You are encouraged to go to the Center for Academic Excellence (CAE) (Science Education Center Room 122 and Midway Campus Lower Level Room I) to seek help outside of class. Appointment-based tutoring is offered at the St. Paul location in the Science Education Center (SEC 122). No appointment is required for drop-in tutoring which is located at the Midway Center (Room I).

To make an appointment or for more information visit the CAE website at:
https://www.metrostate.edu/academics/success/tutoring

D2L / Email

Course and supplementary material, such as lecture slides and guides for using StatCrunch, will be available on D2L. Any announcements will also be posted on D2L, as well as emailed to your

Metro State email address.

The best way to contact me is via email. I will try to respond to all emails withing 24 hours. However, you must email from your Metro State account. I am only allowed to discuss course matters, such as grades, over official Metro State email addresses.

Textbook

OpenIntro Statistics, 3rd Edition by Diez, Barr, Çetinkaya-Rundel

This is an open source textbook. A PDF version can be downloaded at: https://www.openintro.org/stat/textbook.php. You also have the option to buy a hard copy from Amazon for about $15.

R and RStudio

This course will utilize R as our statistical analysis tool. R is a freely available programming language which is quickly becoming one of the most widely used tools in statistics and data science. However, this is not a programming class. No programming experience is necessary.

RStudio is an application, also free, which makes using R much easier. While it is not strictly necessary to use R, it has features which we will take advantage of during class.

More information and installation instructions can be found at...

R: https://www.r-project.org/

RStudio: https://www.rstudio.com/

Course Structure

The course will consists of lectures and in-class group work. There will be weekly homework and in-class quizzes, two exams and a final project or presentation.

Homework and Quizzes

There will be weekly homework assignments to be submitted online before the next class period. You are allowed to work on homework in groups with other students or with tutors. Homework is graded 50% on completion and 50% on correct answers to selected problems. Late work will only be accepted with prior approval and will be subject to a late penalty.

Most weeks will also have a short in-class quiz. Any class materials (notes, lecture slides, textbooks) can be used, but quizzes must be completed alone.

The lowest homework and quiz score of the semester will be dropped.

Group work

Each lecture week there will be in-class assignments to be worked on in groups and discussed with the full class. The group work will not be graded.

Project/Presentation

Students will have a choice of doing a project or a presentation at the end of the semester. The

project will involve analyzing a simple dataset. The presentation will involve critically examining the statistical content of a news item. Details will be provided before the midterm.

Exams

There will be a midterm exam and a final exam. Details will be provided later in the semester. There will be no make up exams.

Grading

The homework, quizzes and exams will contribute to your final grade as follows:

Homework (lowest score dropped)	40 %
Quizzes (lowest score dropped)	10 %
Project/Presentation	10 %
Midterm exam	20 %
Final exam	20 %

Final grades will be assigned with the following distribution:

100 – 93	A	77 – 79	C+
92 – 90	A-	73 – 76	C
87 – 89	B+	70 – 72	C-
83 – 86	B	60 – 69	D
80 – 82	B-	0 – 59	F

Incompletes

Incompletes are rarely given and will be considered only when conditions beyond your control prevent you from completing the course. **Incompletes will not be given to anyone with a failing grade under any circumstances.** The request by the student must come **before** the final exam. Instructors are not required to give incompletes and final determination to assign an incomplete is at the discretion of the instructor.

University Non-Attendance and Reporting Policy and Procedure

The purpose of the Non-Attendance and Reporting Policy is to ensure Federal Title IV regulations are adhered to with respect to a student's enrollment level for the purpose of calculating and paying financial aid. While Metropolitan State University is not required to take attendance, Federal Title IV financial aid regulations require a procedure to establish that students have attended, at a minimum, one day of class for each course in which the student's enrollment status was used to determine eligibility for the Pell Grant Program. In addition, the university needs to determine a last date of attendance for those students who receive all failing

grades or unofficially withdraw.

Diversity and Disability Statement

Our institution values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive and welcoming. If there are aspects of the instruction or design of this course that result in barriers to your inclusion or accurate assessment or achievement, please notify the instructor as soon as possible. Students with disabilities are also welcome to contact the Center for Accessibility Resources to discuss a range of options to removing barriers in the course, including accommodations.

The Center for Accessibility Resources is located in New Main, room L223. Phone number is 651-793-1549 and email is Accessibility.Resources@metrostate.edu.

Academic Integrity

Academic integrity is a fundamental element of your learning process. Only by assessing your own original work can I determine whether you've learned and met the educational goals I have developed for you in this course. For that reason, we should take academic integrity very seriously in our learning community. As instructor, I will take steps to address violations as outlined in the universities policy, including assigning zero's for assignments and failing grades for the course. It is your responsibility as a student to read and understand Metropolitan State's *Academic Integrity Policy and Procedures*. For information on the university's policies regarding academic integrity, please refer to the following...

The student handbook is here: http://www.metrostate.edu/student/student-services-support/student-services/gateway/student-handbook

The universities policies and procedures can be found here: http://www.metrostate.edu/student/course-info/course-info/university-policies-and-procedures

The policy on academic integrity is here: http://www.metrostate.edu/Documents/university-policies-procedures/section-ii-b-academic-affairs-procedures/procedure-219-student-academic-integrity-01062014.pdf

This syllabus and schedule as well as all course material created by Michael Shyne including lecture slides, in-class worksheets and R usage guides are licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.