Manhattan College

Department of Mathematics

MATH 230 Section 01 ***Elementary Statistics*** Spring 2019

Class Time: MR 1:30 P.M.-2:45 P.M. *Class Room*: RLC 107

Instructor: Angel R. Pineda, Ph.D. *Office*: RLC 201.B
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Web Page: http://turing.manhattan.edu/~apineda01/

Office Hours: Monday 11-11:50 A.M., 3-3:50 P.M., Thursday 11-11:50 A.M. or by appointment.

Textbook: Lock, et. al., Statistics: Unlocking the Power of Data (2nd Edition), Wiley, 2017.

Software: This course will use a statistical tool which accompanies our text (StatKey):
http://www.lock5stat.com/statkey/index.html

Course Description:
An introduction to statistical methods: descriptive statistics, association between two variables, sampling distributions, bootstrapping, confidence intervals, hypothesis test and tests of significance.

Prerequisite: None.

Course Objectives:
After completing this course, the students should be able to:

- Apply and interpret the results of a variety of statistical techniques, including both descriptive and inferential methods.
- Understand many of the fundamental ideas of statistics, such as variability, distribution, association, causation, sampling, experimentation, confidence, and significance.
- Analyze and assess statistical arguments, such as those found in the popular press as well as in scholarly publications.
- Use statistical software to analyze data.
- Communicate your knowledge of statistical ideas effectively.

Course Homepage (Moodle):
Here you will find four features that will be used in this course:

- *Email:* make sure that your email on Moodle is one that you check regularly. Homework assignments, announcements and other class related information will be sent via email.
- *Course Information and Documents:* material covered each week, assignments and solution keys.
- *Student Discussion Board:* this online forum allows for students and faculty to communicate.
- *Grades:* students will be able to keep track of their grades online.

Grading:
Online Homework (15 %)
Assigned every week using Wiley Plus and always includes reading the text chapter. Make sure to use the online textbook and video explanations of concepts that accompany the online homework.

In-class Worksheets and Quizzes (10 %)
There will be weekly quizzes in the material covered in the lecture and HW. There may be some worksheets as well.

Midterm Exams: (15 % each)

Exam I	Exam II
Thursday February 14	Thursday March 28

Class Project (20 %)
Project Data Description: March 7
Project Data Analysis: April 11
Project Paper: April 25

The class project will explore data of your choice and analyze it using the statistical methods we learn in the class. Details for project will be given after Exam 1.

Final Exam (25 %): Saturday, May 11, 11 A.M. – 1 P.M.

Tentative Grading Scale

Percent	93-100	90-92	87-89	83-86	80-82	77-79	70-76	67-69	60-66	0-59
Grade	A	A-	B+	B	B-	C+	C	D+	D	F

The exact grading scale will be determined after the final exam. The numerical scores in the tentative grading scale guarantee the associated letter grade but the instructor may change the scale to the student's benefit.

Dates to Remember

January 21: Martin Luther King Holiday (No Classes)
January 22: Monday Schedule
January 23: Late Registration & Add/Drop Ends
March 5: Midterm Grades Due
March 18-22: Spring Break (No Classes)
April 16: Last Day to Withdraw from Courses
April 18-22: Easter Holiday (No Classes)
April 24: Monday Schedule
May 3: Last Day of Classes (Monday Schedule)

Class Policies

- Attendance is required. Students are expected to arrive on time.
- Failure to attend a class with an unexcused absence will result in a zero for quizzes given on that day. After four unexcused absences, the appropriate dean will be notified. To receive an excused absence, proper documentation and instructor approval is needed.
- Late worksheets/labs will not be accepted after the solutions are distributed. In case the worksheet/lab is handed in before the solutions are posted it will be marked 20% off for every day (or part thereof) it is late. There will be a penalty for late online HW.
- The lowest quiz grade will be dropped.
- No make-up exams will be given, unless you have a medical or family emergency. These emergencies require valid documentation. The grade for a missed exam is zero.
- Cell phones (or other technology not related to the class) in the classroom is only allowed with express permission of the instructor for special circumstances. In general cell phone or other potentially disruptive technology use is not allowed in class.

Calculator Policy

A calculator is not required for this course but can be used if desired.

Suggestions for Success

- The course requires a time commitment of about 6-9 hours outside of class time per week (2-3 per class hour). The material builds on itself, so it is very important not to fall behind.
- Find a study partner or group.
- Treat your homework, quizzes, and labs as a study guide for future exams. Write solutions to problems in a neat and organized fashion.
- I encourage you to come to office hours regularly. I will do my best to help you.

Center for Academic Success

It provides student-centered programs and initiatives designed to enhance the learning experience of all students. The CAS provides one-on-one and small group tutoring in a wide range of subjects, including all core courses at the Writing Center, Learning Center and Leo Learning Center (Leo 117/118). The CAS also provides academic coaching, workshops, supplemental instruction and online tutoring. All of the services are free for students.

Students can now book CAS appointments online by following these steps:

1. Go to https://manhattan.mywconline.com/
2. New user? Click "Register for an account" and enter required information. When prompted to enter your email address, be sure to use your manhattan.edu student email.
3. Start searching and booking tutoring, writing center, and peer academic coaching appointments!

Appointments are preferred, but drop-ins are permitted. If you have any questions, please contact the CAS at 718.862.7414, email success@manhattan.edu, or stop by Thomas Hall 3.10 (or Leo 117/118). For more information, visit the CAS website at https://inside.manhattan.edu/academic-resources/center-for-academic-success/

Academic Integrity:

Recall that as students of Manhattan College, you have each signed The Manhattan College Honor Pledge as a part of the Honor Code:

As a Manhattan College student, I will not lie, cheat, or steal in my academic endeavors, nor will I accept the actions of those who do. I will conduct myself responsibly and honorably in all my activities as a Manhattan College student. I am accountable to the Manhattan College community and dedicate myself to a life of honor.

Whenever you put your name on work to be handed in for grading in this class, you are reaffirming the above pledge. Violations of the Honor Code include, but are not limited to, cheating, plagiarism, fabrication, and other forms of academic misconduct. Please see the Manhattan College Code of Conduct and Academic Polices for a detailed description: https://inside.manhattan.edu/student-life/dean-of-students/code-conduct.php

Special Accommodations:

- Students with special needs should bring appropriate documentation to the Specialized Resource Center, Thomas Hall 3.15, https://inside.manhattan.edu/academic-resources/specialized-resource-center/, to obtain an Academic Adjustment/Auxiliary Aid form. Bring the completed form to me as soon as possible, and together we will decide on how best to fulfill the adjustments and/or aids listed on the form.

Student athletes should bring their event schedules to me as soon as possible.

Course Outline:

Chapter 1.Collecting Data
- 1.1 The Structure of Data
- 1.2 Sampling from a Population
- 1.3 Experiments and Observational Studies

Chapter 2. Describing Data
- 2.1. Categorical Variables
- 2.2. One Quantitative Variable: Shape and Center
- 2.3. One Quantitative Variable: Measures of Spread
- 2.4. Outliers, Boxplots, and Quantitative/Categorical Relationships
- 2.5. Two Quantitative Variables: Scatterplot and Correlation
- 2.6. Two Quantitative Variables: Linear Regression
- 2.7. Data Visualization and Multiple Variables

Chapter 3. Confidence Intervals
- 3.1. Sampling Distributions
- 3.2. Understanding and Interpreting Confidence Intervals
- 3.3. Constructing Bootstrap Confidence Intervals
- 3.4. Bootstrap Confidence Intervals using Percentiles

Chapter 4.Hypothesis Tests
- 4.1.Introducing Hypothesis Tests
- 4.2.Measuring Evidence with P-values
- 4.3.Determining Statistical Significance
- 4.4.Creating Randomization Distributions
- 4.5.Confidence Intervals and Hypothesis Test

Chapter 5. Approximating with a Distribution
- 5.1.Normal Distributions
- 5.2.Confidence Intervals and P-values Using Normal Distributions

Chapter 6. Inference for Means and Proportions
- 6.1. Inference for a Proportion
- 6.2. Inference for a Mean
- 6.3. Inference for a Difference in Proportions
- 6.4. Inference for a Difference in Means

The material in this syllabus may be changed at the instructor's discretion. Any changes will be communicated to the students.