

Manhattan College

Department of Mathematics, Kakos School of Science

MATH 336 Section 01

Applied Statistics

Spring 2024

Class Time: TWF 9:00 am -9:50 am

Class Room: RLC 105

Instructor: Angel R. Pineda, Ph.D.

Office: RLC 201H

Email: angel.pineda@manhattan.edu

Phone: 718-862-7730

Website: <https://angel-r-pineda.github.io/index>

Office Hours: Tuesday 12:00-12:50 pm, Wednesday 8-8:50 am, Friday 11:00-11:50 am, or by appointment.

Textbook: Applied Statistics for Engineers and Scientists, 3rd Edition by Devore, Farnum and Doi, Cengage Learning, 2014. ISBN:113311136X

Software: R and RStudio (available for free and in computer labs)

<https://www.r-project.org/>

<https://rstudio.com/products/rstudio/download/>

Catalog Course Description:

(3 credits) A calculus-based survey of probability and statistics with applications in social, natural sciences and engineering. Topics include probability, discrete and continuous random variables, point and interval estimation, hypothesis testing, linear models (encompassing regression and ANOVA). Not open to students with credit for MATH 351.

Prerequisite: A grade of C or better in Calculus II (MATH 156 or MATH 186 or MATH 188).

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Organize and describe data
- Formulate a statistical model
- Analyze data using appropriate methods and software
- Report the results of the analysis

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.
- *Course Information and Documents:* material covered each week, assignments, practice problems and solution keys.
- *Student Discussion Board:* this online forum allows for students and faculty to communicate about the course. It is like an online study group.
- *Grades:* students will be able to keep track of their grades online.

Assessment of Student Learning:
Homework and Quizzes (30%)

Exam 1 (20 %): Wednesday, February 28

Exam 2 (20 %): Tuesday, April 9

Final Project (30 %)

Initial Project Presentation (in class): Wednesday, April 24

Initial Paper and Code: Wednesday, May 1

Final Project Presentations: Monday May 6, 11:00 am – 1:00 pm

Final Paper and Code: Monday May 6, 11:00 am – 1:00 pm

The class project will explore a topic of your choice applying statistics. You will work in pairs to develop skills for working in teams. The main idea is for you to find a problem that you are excited about which uses material from this course. Possible topics could be extensions of material in our text, may come from your own research projects, other classes or from outside sources.

Details for the writing project will be given after Exam 1.

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 at the end of the course. The instructor may change the scale to the student's benefit.

Dates to Remember:

January 16: First Day of Classes

January 22: Late Registration & Add/Drop Ends

March 7: Midterm Grades Due

March 11-15: Spring Break

March 28-April 1: Easter Holiday (No classes)

April 3: (Wednesday) Monday Schedule (No class for us)

April 16: Last Day to Withdraw from Courses

April 16 (Tuesday): Jasper Day of Wellness (No classes)

May 3: Last Day of Classes

Class Policies

- **Attendance:** The official College Attendance Policy, as published in the College Catalog, is: "Students are required to fulfill all course requirements as detailed in the course syllabi for their registered courses. Implicit in these requirements is completion of all course assignments and attendance in all classes. A student who is absent from class cannot expect the course instructor to provide notes or allow makeup tests, quizzes, or laboratories. The student may incur an appropriate grading penalty for such absences if the penalty was described in the syllabus. Reasonable accommodations for absences are recommended, but are solely at the discretion of the course instructor. If the instructor believes that a student's failure to attend class is substantially affecting the student's course grade, then the instructor is strongly encouraged to report the situation to the dean of the school in which the student is matriculated. It is

recommended that the dean be contacted by the course instructor after the student incurs four hours of absences in a course. The dean will address the situation with the student."

- **Late Work:** Late assignments will not be accepted after the solutions are distributed. In case assignments are handed in before the solutions are posted it will be marked 20% off for every day (or part thereof) it is late.
- **Missing Quizzes or Exams:** Failure to attend class on a day of a quiz or exam will result in a zero grade unless it is an excused absence with a documented reason. No make-up exams will be given, unless you have a medical or family emergency.
- **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.

Suggestions for Success

- The course requires a time commitment of about 6 hours outside of class time per week (2 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 and quizzes as a study guide for future exams. Write solutions to problems in a neat and organized fashion so that you can study from them.
- Read the textbook. It will complement the presentation in lecture and help give you the big picture of the material.
- I encourage you to come to office hours regularly. I will do my best to help you.

Student Academic Success Services / Center for Academic Success

The Center for Academic Success (CAS) is committed to providing student-centered programs and initiatives designed to enhance learning and promote success and persistence for all Manhattan College students. Students will work collaboratively with qualified peers and professionals to develop knowledge, skills and strategies needed for success in the classroom and beyond. The CAS has two locations: The Learning Commons in Thomas Hall 3.10 and the Leo Learning Center in Leo 117/118. Services include online and in-person individual tutoring, online small group peer tutoring (select courses), student academic success coaching, and online and in-person writing center services. All services are free of charge and available to all Manhattan College students. Appointments are preferred but walk-ins are welcome. To make an appointment, students can log into their Jasper Connect account or visit the CAS in Thomas Hall, 3.10. Students can also contact success@manhattan.edu with any questions. For more information about these services please visit the CAS webpage.

College Academic Integrity Policy

When placed on your exams and assignments, your name verifies that the work is your own. All written work must conform to Standard English usage. Failure to meet such standards will affect your grade.

All Manhattan College students are expected to maintain the highest standards of academic and personal integrity. Any violations of academic integrity such as exam cheating, facilitation of dishonesty, plagiarism (i.e. copying from any source (classmates, published sources, Internet) for an assignment, etc.) will be dealt with in accordance with the student handbook of Manhattan College and will result in disciplinary penalties as described below.

The Manhattan College Academic Integrity Policy was developed for clarity and fairness so it is understood and applied correctly by students and faculty members. The policy was established because academic success must be based on accomplishment and not dishonesty. The policy requires faculty

members to report all violations. Four levels of violations can be assigned: Warnings, which require mandatory participation in academic integrity tutorials, and One-, Two-, and Four-Point Violations, which carry points and increasingly serious sanctions. Significantly, the points accumulate in determining sanctions; for example, a second One-Point Violation receives the sanctions of a Two-Point Violation. Accumulation of four or more points by any combination of violations will result in dismissal from Manhattan College.

For more information on the policy, please use the following link: <https://inside.manhattan.edu/student-life/dean-of-students/code-conduct.php#academicintegrity>

Policy on Students with Disabilities

Students with Disabilities should contact the Specialized Resource Center with their appropriate documentation, to obtain an "Academic Adjustment/Auxiliary Aid" form. When the student presents this completed form to the professor, the professor will then confer with the student on the fulfillment of the adjustments/aids listed on the form.

Title IX Statement

In accordance with Title IX of the Education Amendments of 1972 that prohibits gender-based discrimination in educational settings that receive federal funds, Manhattan College is committed to providing an environment not impaired by sex and gender-based misconduct, including sex discrimination and sexual harassment. For purposes of Title IX reporting, I am considered a "mandated reporter" at Manhattan College. That means I must share information related to situations involving sexual assault, sexual harassment, domestic violence, dating violence, stalking, and/or retaliation with the Title IX Coordinator. Information for resources, policies, and how to file a formal report can be found at: <https://inside.manhattan.edu/offices/diversity-equity-title-ix/title-ix-sexual-harassment.php#resources>

Technological Assistance

For a list of all Manhattan College Information Technology Services see <https://inside.manhattan.edu/offices/its/index.php>

For live assistance with a technological concern, contact the ITS Helpdesk at 718-862-7973 or create a help desk ticket at its@manhattan.edu

Self-Care

Your academic success in this course and throughout your college career depends heavily on your personal health and well-being. Stress is a common part of the college experience, and it often can be compounded by unexpected life changes outside the classroom. The Manhattan Community strongly encourages you to take care of yourself throughout the term, before the demands of midterms and finals reach their peak. Please feel free to talk with me about any difficulty you may be having that may impact your performance in this course as soon as it occurs and before it becomes unmanageable. Please know there are a number of other support services on campus that stand ready to assist you. I strongly encourage you to contact them when needed (refer to the table below for offices and their contact information).

Copyright Materials: Copyright in educational materials prepared by the College faculty member is owned by the faculty member, and may not be shared without his or her permission.

The material in this syllabus may be changed at the instructor's discretion. Any changes will be communicated to the students. During these challenging times, we need to be particularly flexible.

Helpful Contacts

Michelle Deale – <i>Academic Advisor & Assistant Dean KSAS</i> – Hayden Hall 304	718-862-7814
Financial Aid – Thomas Hall 3 rd Fl	718-862-7100
Student Accounts/Bursar – Miguel 100	718-862-7961
Counseling Center - Miguel 501	718-862-7394
Manhattan College Dean of Students Office - Thomas Hall 5 th Fl	718-862-7438
Health Care Services - Alumni Hall 104	718-862-7217
Residence Life - Thomas Hall 502	718-862-7438
Office of Student Engagement – Kelly Commons 4.08	718-862-7247
Office of Multicultural Affairs – Kelly Commons 3.03	718-862-8112
Sexual Assault Prevention & Education – Kelly Commons 3.04	718-862-7512
Center for Academic Success – Thomas Hall 3.10 or Leo 117/118	718-862-7414 or 718-862-7476
Opportunity Programs (CSTEP, HEOP, S@M) - Thomas Hall 3.10	718-862-7101
Study Abroad - Thomas Hall 3.32	718-862-7527
International Student & Scholar Services – Kelly 3.02A	718-862-7213
School of Liberal Arts - Miguel Hall 210	718-862-7956
School of Engineering – Leo Hall 201	718-862-7282
School of Education & Health – Miguel Hall 205	718-862-7291
O'Malley School of Business – De La Salle Hall 201	718-862-7439
School of Continuing & Professional Studies-Miguel 301	718-862-7870

Topics:

- Counting Responses/ Visualizing Data
 - Frequency Tables and Histograms
 - Stem and Leaf / Box Plots
 - Quantiles
 - Scatter Plots
- Descriptive Statistics:
 - Measures of Central tendency, dispersion and location
- Probability
- Discrete random variables
- Continuous random variables
- Point and interval estimation
- Hypothesis testing
- Linear Models
 - Regression analysis
 - Correlation
 - ANOVA