Hofstra University
Department of Mathematics

MATH 008 Section 01   *Elementary Mathematical Statistics*   Fall 2024

Class Time: TR 9:40 A.M.-11:05 A.M.   *Class Room*: Davidson 0015

Instructor: Angel Pineda, Ph.D.   *Office*: Roosevelt 315B
Email: angel.pineda@hofstra.edu   *Phone*: 516-463-3441
Personal Zoom Meeting ID:
https://hofstra.zoom.us/my/angel.pineda

Office Hours: Tuesday: 11:15 AM-12:00 PM
Thursday: 7:45 AM-9:15 AM and 1:40 PM-2:25 PM
Office hours will be held both in person and over Zoom by request

Peer Teacher: Sandro Amaglobeli
Peer Teacher Office Hour: Wednesday: 10:00 AM – 11:00 AM in Roosevelt 302

Textbook: Lock, et. al., Statistics: Unlocking the Power of Data (3nd Edition), Wiley, 2020.

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

Course Description:
This course examines frequency distributions, averages, graphical representations of data, measures of dispersion, types of distribution, estimation, hypothesis testing, curve fitting, and correlation.

Prerequisites:
Intermediate algebra with ability to use logarithms and exponents. Credit given for this course or BAN 001, not both. This course does not count for distribution credit.

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 (Canvas):
Here you will find four features that will be used in this course:
- *Email:* make sure that your email on Canvas is one that you check regularly. Homework assignments, announcements and other class related information will be sent via email.
- *Course Syllabus, Assignments and Modules:* information about the course, material covered each week, and assignments.
- *Discussions:* 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 (15 %)
There will be weekly quizzes in the material covered in the lecture and HW. There may be some worksheets as well.

Midterm Exam: (20 %)
Thursday, October 3

Class Project (20 %)
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 the Midterm Exam.

Final Exam (30 %): Thursday, Dec. 19, 10:30 AM – 12:30 PM

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

September 9:	Last day to add without department permission
September 30:	Last day to add without a "W" on transcript
October 7-8:	Mid-Semester Break (No Classes)
October 9:	Last day to file Pass/D/D+/Fail form
October 22:	Mid-Semester Advisories due
November 11:	Last day to withdraw from individual courses
November 27 – December 1:	Thanksgiving Break (No Classes)
December 11:	Last Day of Classes
December 12-13:	Snow/Study/Reading days

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. To receive an excused absence, proper documentation and instructor approval is needed.
- There will be a penalty for late online HW.
- 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
You are permitted to use any calculator in this course.

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 and quizzes 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.

Academic honesty

You are expected to follow the Hofstra University Honor Code at all times. All forms of academic dishonesty are serious ethical and professional infractions. Hofstra's policy on academic honesty reads: "The academic community assumes that work of any kind – whether a research paper, a critical essay, a homework assignment, a test or quiz, a computer program, or a creative assignment in any medium - is done, entirely and without unauthorized assistance, by the individual(s) whose name(s) it bears." See the "Procedure for Handling Violations of Academic Honesty by Undergraduate Students at Hofstra University" (https://www.hofstra.edu/fps/11.html) for a detailed discussion of dishonesty and Hofstra's procedures for handling violations. Violations will be reported.

Working together with other students in the HW and the project is allowed and encouraged. In fact, having a study group is one of the ways that you can learn the material better. At the time of submitting your HW or your project, make sure that you produce and understand the submitted work.

Use of AI tools is permitted with acknowledgement. You may use AI/ML in this course if you use clear and accurate citations in the assignment submission where and how AI/ML tools have been used. Any assignment that was completed with AI/ML tools must contain an appropriate citation. For example, when citing Chat GPT follow the guidelines here: https://apastyle.apa.org/blog/how-to-cite-chatgpt

Accessibility

If you believe you need accommodations for a disability, please contact Student Access Services (SAS). In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, qualified individuals with disabilities will not be discriminated against in any programs or services available at Hofstra University. Individuals with disabilities are entitled to accommodations designed to facilitate full access to all programs and services. SAS is responsible for coordinating disability-related accommodations and will provide students with documented disabilities accommodation letters as appropriate. Since accommodations may require early planning and are not retroactive, please contact SAS as soon as possible. All students are responsible for providing accommodation letters to each instructor and for discussing the specific accommodations needed with them and how they can be best implemented in each course. For more information on services provided by the university and for submission of documentation, please contact Student Access Services, 107 Student Center, (516) 463-7075.

Religious observances

If you have a religious obligation that conflicts with your participation in the course, you are responsible for notifying me far enough in advance for us to discuss your situation and agree on accommodations. For more information, see Part II(B) of "Academic Freedom and Civil Liberties of Students at Hofstra University" (https://www.hofstra.edu/fps/12.html).

Diversity

Hofstra University fosters a belief in an inclusive intellectual community, enriched and enhanced by the representations of diversity on the campus and within its learning spaces. Students from diverse backgrounds and perspectives will be well served in this education experience, and learning needs will be a priority in and out of the classroom. The diversity of identities and experiences that students bring to this class will be viewed as a resource, strength, and benefit. It is the goal and the responsibility of the instructor to present materials and activities respectful of diversity dimensions - race, gender, sexuality, ability, age, socioeconomic status, ethnicity, religion, culture, and other visible and nonvisible identities.

If you have any concerns about the class environment, I encourage you to speak with me. If you'd like to discuss issues related to your identity or how you might identify or are looking to connect with other students with identities similar to your own, please contact the Office of Intercultural Engagement and Inclusion at (516) 463-6957 or IEI@hofstra.edu. If you've experienced or been a witness to a discriminatory incident, please contact the university's Chief Diversity and Inclusion Officer at diversityinclusion@hofstra.edu.

Discriminatory harassment, relationship violence, and sexual misconduct

Hofstra prohibits sexual and other discriminatory harassment, stalking, domestic and dating violence, sexual assault and other sexual misconduct. If you or someone you know believes they have been subjected to any of these offenses, help is available. To make a report, or for more information (see https://www.hofstra.edu/title-ix/about.html), please contact the Title IX Officer for Student Issues at (516) 463-5841 or StudentTitleIX@hofstra.edu or Public Safety at (516) 463-6606. Confidential resources and support are also available from medical and counseling professionals in the Student Health and Counseling Center at (516) 463-6745 and clergy in the Interfaith Center.

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.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.A Closer Look at Testing
        4.5.Making Connections

Chapter 5. Approximating with a Distribution
        5.1.Hypothesis Tests Using Normal Distributions
        5.2.Confidence Intervals 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
        6.5.Paired Difference in Means

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