# Syllabus: Math 10.MP2 - Elementary Statistics & Probability, Spring 2025

**Math 10.MP2 Elementary Statistics & Probability** **Spring 2025**

**Section MP2 CRN 47389 MTWTh 9:30- am – 11:20 am MLC-108**

**Instructor: Greg Stachnick**

**Contact Information:**

**Email:** StachnickGregory@fhda.edu
**Mobile:** 408-857-6421

**Office Hours:**

Tuesday and Wednesday 11:45 am – 012:45 pm
Location: S-54 - MESA Center / MPS Tutor Center or MLC-108 if available
Arrange an appointment if these times don't work for you
Alternate Location: Zoom Meeting – ID:747-709-9372
(See Canvas Module: Math 10 Zoom Meeting for Office Hour Appointments and Class Meetings for Zoom login)

**Course Counselor: Yolanda Johnson**

**Email:** JohnsonYolanda@fhda.edu

MPS math courses have an assigned counselor. We are very fortunate to have Yolanda returning to MPS as our designated class counselor. Yolanda and I have been partners several times in the past and make a great team. Youlanda has several years of experience as a De Anza Counselor that she brings to the MPS Program.

**Special Note:**

Our class meets Monday through Thursday, 9:30 am to 11:20 pm and I expect you to be there on time. I am really excited to be in MLC-108, my favorite, the MLC has the best classrooms on Campus. You will see why in the coming days and weeks. We also have a two-hour online TBD time which you will complete outside of class. This assignment will consist of viewing combinations of video instructions on using our calculators, example solutions to homework, quiz or midterm exam problems. In some cases, the assignment may include video or written information about topics that need more explanation than time permitted during the classroom lectures.

After four years of classes in Zoom, I am pleased to be back in the classroom. A nice feature of Zoom was the ability to meet for tutoring students without having to physically be on campus. I will retain this capability by holding some of my office hours in Zoom if you are unable to meet in person.

# Syllabus: Math 10.MP2 - Elementary Statistics & Probability, Spring 2025

We have a new opportunity for additional support this quarter. It is likely that you have heard about some of the recent Artificial Intelligence developments in the area of Generative AI that is manifested in an application called ChatGPT. ChatGPT stands for Chat Generative Pre-Trained Transformer. ChatGPT is a large language model developed by OpenAI and uses a technology called Neural Networks. ChatGPT has caused a lot of problems for educational institutions regarding cheating. We will be participating in a pilot program using an application called ***MathGPT***. MathGPT, which I will refer to as MG, has been trained on our class textbook, unlike ChatGPT which is trained on a wide variety of information sources across the internet. This specific training yields tutoring and guidance that is completely consistent with our textbook. My specific intent for usage of this software for our class is for assistance with homework, additional explanations and clarifications of concepts in our textbook or the class notes. It is not to be used for quizzes, midterms or exams or the final exam. I am currently testing a new MG feature, which can automatically generate homework exercises. If testing demonstrates this capability is ready for prime time, we will conduct our homework in MG this quarter. I will explain more about Chat bots on our first day of class. Whether we use MG or WebAssign, there will be no cost to students.

**Course Description:**

Introduction to data analysis making use of graphical and numerical techniques to study patterns and departures from patterns. The student studies randomness with an emphasis on understanding variation, collects information in the face of uncertainty, checks distributional assumptions, tests hypotheses, uses probability as a tool for anticipating what the distribution of data may look like under a set of assumptions, and uses appropriate statistical models to draw conclusions from data. The course introduces the student to applications in engineering, business, economics, medicine, education, social sciences, psychology, the sciences, and those pertaining to issues of contemporary interest. The use of technology (computers or graphing calculators) will be required in certain applications. Where appropriate, the contributions to the development of statistics by men and women from diverse cultures will be introduced.

The mathematics department course outline is available at
Course Outlines (deanza.edu)

**Prerequisite:**

There are no prerequisites, although some basic algebra skills like solving linear equations will be helpful.

# Syllabus: Math 10.MP2 - Elementary Statistics & Probability, Spring 2025

**Advisory:**

EWRT 211 and READ 211 (or LART 211), or ESL 272 and 273.

**Required Materials**

- **Textbook:**
  Great news: your textbook for this class is available for ***free*** and available online!
  *Introductory Statistics from OpenStax* , by Illowsky & Dean, ISBN 1-947172-05-0

  You have several options to obtain this book:

  - *View online* (Links to an external site.)
  - *Download a PDF* (Links to an external site.)
  - *Download on iBooks* (Links to an external site.)

  You can use whichever formats you want. Web view is recommended – the responsive design works seamlessly on any device. Hardcopies are available for purchase at the De Anza College Bookstore at a low cost.

- **Graphing Calculator:**
  You will require a graphics calculator with statistical functions for this class. Recommended calculators are TI-84 and TI-84+. If you do not already have a graphics calculator and decide to purchase one, I recommend the TI 84 Plus or higher. Other brands and models will also work just as well. You will also be provided with instructions for downloading a free software app (TI 84 Plus Emulator) onto your computer that will be adequate for the class. You will also be provided with instructions for downloading smartphone apps for Apple and Android. The smartphone apps have a one-time fee of about $6.00 for a perpetual license.

- **MathGPT Subscription**: All homework will be done in an online system called MathGPT. The Access Code for MathGPT will be provided to you for free. *Specific instructions for how to register for our class will be provided separately.*

- **Class Notes:** We will use a binder of guided class notes that will also be provided for free on the first day of class.

**Grading**

- **Homework:** Homework will be done in MathGPT. It will count for 100 points or about 12% of your grade. Proficiency in mathematics comes only with frequent practice.

Attending classes and completing homework assignments on time is ***especially important*** in accomplishing this goal.

- **Thursday Quizzes & Exams:** Thursday is Quiz or Exam Day. There will be a short quiz Thursday at the end of class (see tentative course schedule below) based on the homework assignments and class discussions for the preceding week. Weeks for which an Exam has been scheduled will not have quizzes. If you have done all of the homework, attended class and ***paid attention***, you will be very well prepared. The lowest two quiz grades will be discarded (best five out of seven). The total of five quizzes will count 100 points.

- **Exams:** There will be three exams and a cumulative final (see schedule below for dates). Exams will be in class on Thursdays toward the last half of class. Each exam counts 100 points.

- **Extensions, Corrections and Makeups:** Except for the Final Exam, corrections are permitted and encouraged for Homework, Quizzes, Midterms, and Labs. It is a good idea to accumulate as many points as possible before the Final.

  The procedure for extensions and corrections will be explained in class.

  For Homework, you can make the extension request as soon as the due date passes. For other assignments you will need to wait until your corrected papers are returned and I tell you the due date for corrections. You will usually have two days after papers are returned to complete corrections.

  Corrections for Labs should be done in the same Google Doc as the original write-up. Identify the corrections with a change in font color or use highlighting. Leave my comments and your original answers as they were so I can compare. When your corrections are completed, send a message to my faculty email (StachnickGregory@fhda.edu) indicating you are finished and include the number of the lab and the name of your Google Doc file, so I will know which file you want me to re-grade.

  Correct homework solutions and lab updates provided after the due date will incur a 10% late penalty. Correct quiz and exam solutions provided after the due date will incur a 25% penalty. Correct answers provided before the due date are not affected.

  If you miss a quiz or exam, see me on the day you return to class to schedule a time and location for a makeup. The makeup must be completed within one week of your return.

- **Projects/Labs:** There will be four required class homework projects/Labs. Together, they will count 100 points.

# Syllabus: Math 10.MP2 - Elementary Statistics & Probability, Spring 2025

- **Class Participation:** I am going to revive a tradition I started during my in-person classes of a "Gone in 60 Seconds" one-minute quiz at the beginning of each class. Thie quiz will be worth one point and be based on the material in the previous day's lecture. Participation points will be scaled to 50 points (about 5%) of your total grade. Answers will be written on a 3" by 5" card. These cards will also be used for taking roll. No card, you were not present.

- **Lucy & Evy Tuesday**: A regularly scheduled event at the beginning of each Tuesday class.

- **Mindfulness Meditation (tentative):** A 20-minute activity each Tuesday. Approach this with an open mind. It will provide you with tools for stress management and improved focus for the rest of your life.

- **Extra Credit Points:** There will be in class opportunities for extra credit, stay tuned and be there to get them.

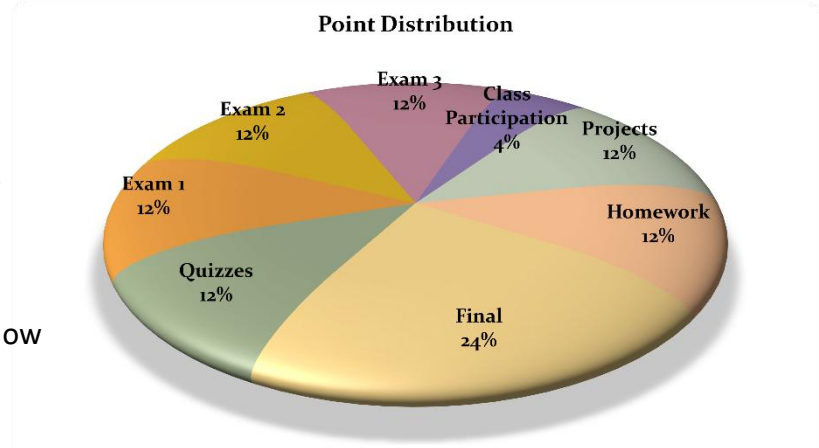
- **Grade Summaries:** Your grades will be managed and maintained in MathGPT (not Canvas). You will be able to view your current grade any time within the online MathGPT System. Your score will be based on the completed assignments that have already passed their due dates. Assignments that have not yet reached their due dates are not included in this grade calculation.

- **Point Distribution**

| | | |
|---|---|---|
| i. | Exams: | 300 Points (100 points each) |
| ii. | Quizzes | 100 Points (Best 5 out of 7, 20 points each) |
| iii. | Homework | 100 Points |
| iv. | Lab Projects | 100 Points |
| v. | Class Participation | 50 Points |
| vi. | Final | 200 Points |
| | Total | 850 Points |

- **Letter Grade Breakdown**

A. 100% - 90%
B. 89% - 80%
C. 79% - 70%
D. 69% - 60%
F. 59% or below



# Syllabus: Math 10.MP2 - Elementary Statistics & Probability, Spring 2025

**Additional Resources**

**Free Tutoring:** The Math Performance Success Tutor Center (S-54) offers free tutoring online and in-person. A link to the MPS Tutor Center schedule can be found at MPS Tutoring (deanza.edu). Arrangements for free group tutors may be available. Make arrangements for group tutoring sessions with our counselor, Luis.

**Supplemental Resources:** Search the web for specific class topics. You will find lots of completed problems, additional written and video explanations and some very clever YouTube videos: http://justmathtutoring.com/page17.html.

The Kahn Academy Website https://www.khanacademy.org/ also has some nice introductions to statistics and probability.

**MathGPT** is our special 24 by 7 assistant to help with explanations of the textbook material and provide assistance with solutions to homework problems. Unlike ChatGPT, MathGPT will not provide a completely worked out solution with answers, but helpful hints and explanations to guide you to a correct answer.

**Academic Integrity:**

Cheating will not be tolerated and will result in a grade of 0 for the assignment, quiz or exam and referral to the dean for academic discipline. Cheating includes but is not limited to: copying from other students, permitting other students to copy from you, plagiarism, submitting work that isn't your own, using notes that don't meet permitted specifications, continuing to write/erase on an exam/quiz after permitted time has ended, changing your exam/quiz paper after it's been graded and then requesting a grading correction. For more information about De Anza College's policy on academic integrity see: https://www.deanza.edu/studenthandbook/academic-integrity.html

**Student Conduct:**

A student who is disruptive will be asked to leave the class. A student who refuses to behave will be dropped from the class.

**Attendance:**

Our class meets four days per week in-person from 9:30 am to 11:20 am in MLS-270. I expect you to be present and on time. For the first couple of weeks I will take the roll, afterward the "Gone in 60 Seconds" quizzes will be used to record attendees. For this reason, it is important to arrive on time not just to take the quiz, but also for attendance. Each week we also have a two-hour online meeting. This will include assignments to watch videos for additional instruction on selected topics, and/or live zoom meetings for assistance with homework.

# Syllabus: Math 10.MP2 - Elementary Statistics & Probability, Spring 2025

**Student Communication:**

The primary method of communication outside of class meetings will be through my faculty email (stachnickgregory@fhda.edu ). Any student email correspondence with the instructor should include the course number and section number or time (i.e. Math 10.MP2) in the subject line. Also include our counselor, (Yolanda Johnson, JohnsonYolanda@fhda.edu), on the cc line. I will respond to emails within two business days. If you really need to contact me ASAP, use my cell number (408-857-6421) to text or call me. If I do not respond right away, it isn't that I don't want to talk to you, I just may have left my phone in another room and didn't hear the call. If our counselor or I send you an email, please respond. We are not trying to get into your personal business, we just want to know if you are ok or if we can help you in some way. Even if you don't want to talk, just respond with a message like "can't talk now." ***Please do not ghost us!***

My regular office hours are Tuesdays and Wednesdays, 11:45 am to 12:45 pm, in the MESA/MPS Tutor Center, S-54. No appointment is necessary. On days when our classroom is available early, I will open the room at least 30 minutes early and you are welcome to come and ask questions or just chat after all the student questions have been answered. If our classroom is available after class, I will remain for another hour to provide help and answer questions. If you cannot meet during these times, please schedule an appointment with me. I am sure we can find a time that works for both of us. I can also meet in Zoom, to accommodate both of our schedules.

# Syllabus: Math 10.MP2 - Elementary Statistics & Probability, Spring 2025

## Chapter and Section Outline of our Introductory Statistics Textbook

### Chapter 1: Sampling and Data

1.1 Definitions of Statistics, Probability, and Key Terms
1.2 Data, Sampling, and Variation in Data and Sampling
1.3 Frequency, Frequency Tables, and Levels of Measurement
1.4 Experimental Design and Ethics
1.5 Data Collection Experiment
1.6 Sampling Experiment

### Chapter 2: Descriptive Statistics

2.1 Stem-and-Leaf Graphs (Stemplots), Line Graphs, and Bar Graphs
2.2 Histograms, Frequency Polygons, and Time Series Graphs
2.3 Measures of the Location of the Data
2.4 Box Plots
2.5 Measures of the Center of the Data
2.6 Skewness and the Mean, Median, and Mode
2.7 Measures of the Spread of the Data
2.8 Descriptive Statistics

### Chapter 3: Probability Topics

3.1 Terminology
3.2 Independent and Mutually Exclusive Events
3.3 Two Basic Rules of Probability
3.4 Contingency Tables
3.5 Tree and Venn Diagrams
3.6 Probability Topics

### Chapter 4: Discrete Random Variables

4.1 Probability Distribution Function (PDF) for a Discrete Random Variables
4.2 Mean or Expected Value and Standard Deviation
4.3 Binomial Distribution

### Chapter 5: Continuous Random Variables

5.1 Continuous Probability Functions
5.2 The Uniform Distribution
5.4 Continuous Distribution

# Syllabus: Math 10.MP2 - Elementary Statistics & Probability, Spring 2025

## Chapter 6: The Normal Distribution

6.1 The Standard Normal Distribution

6.2 Using the Normal Distribution

## Chapter 7: The Central Limit Theorem

7.1 The Central Limit Theorem for Sample Means (Averages)

7.2 The Central Limit Theorem for Sums

7.3 Using the Central Limit Theorem

7.5 Central Limit Theorem (Cookie Recipes)

## Chapter 8: Confidence Intervals

8.1 A Single Population Mean using the Normal Distribution

8.2 A Single Population Mean using the Student-t Distribution

8.3 A Population Proportion

8.4 Confidence Interval (Home Costs)

8.5 Confidence Interval (Place of Birth)

8.6 Confidence Interval (Women's Heights)

## Chapter 9: Hypothesis Testing with One Sample

9.1 Null and Alternative Hypotheses

9.2 Outcomes and the Type I and Type II Errors

9.3 Distribution Needed for Hypothesis Testing

9.4 Rare Events, the Sample, Decision and Conclusion

9.5 Additional Information and Full Hypothesis Test Examples

9.6 Hypothesis Testing of a Single Mean and Single Proportion

## Chapter 10: Hypothesis Testing with Two Samples

10.1 Two Population Means with Unknown Standard Deviations

10.2 Two Population Means with Known Standard Deviations

10.3 Comparing Two Independent Population Proportions

10.4 Matched or Paired Samples

10.5 Hypothesis Testing for Two Means and Two Proportions

## Chapter 11: The Chi-Square Distribution

11.1 Facts About the Chi-Square Distribution

11.2 Goodness-of-Fit Test

11.3 Test of Independence

11.4 Test for Homogeneity

11.5 Comparison of the Chi-Square Tests

11.6 Test of a Single Variance 6

11.7 Lab 1: Chi-Square Goodness-of-Fit

11.8 Lab 2: Chi-Square Test of Independence

### Chapter 12: Linear Regression and Correlation

12.1 Linear Equations

12.2 Scatter Plots

12.3 The Regression Equation

12.4 Testing the Significance of the Correlation Coefficient

12.5 Prediction

12.6 Outliers

12.7 Regression (Distance from School)

12.8 Regression (Textbook Cost)

12.9 Regression (Fuel Efficiency)

### Chapter 13: F Distribution and One-Way ANOVA

13.1 One-Way ANOVA

13.2 The F Distribution and the F-Ratio

13.3 Facts About the F Distribution

13.4 Test of Two Variances

13.5 Lab: One-Way ANOVA

# Syllabus: Math 10.MP2 - Elementary Statistics & Probability, Spring 2025

**Tentative Spring 2025 Class Schedule**

**Math 10.MP2 Elementary Statistics and Probability**

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| **Week 1 April** | **7** Intros / Ch 1 | **8** Ch 1 | **9** Ch 1 | **10** Ch 1 **Quiz 1** | **11** No Class |
| **Week 2 April** | **14** Ch 2 | **15** Ch 2 | **16** Ch 2 | **17** Ch 2 **Quiz 2** | **18** No Class **(1,2)** |
| **Week 3 April** | **21** Ch 3 | **22** Ch 3 | **23** Ch 3 | **24** Ch 3 **Exam 1** | **25** No Class |
| **Week 4 April/May** | **28** Ch 4 | **29** Ch 4 | **30** Ch 5 | **1** Ch 5 **Quiz 3** | **2** No Class |
| **Week 5 May** | **5** Ch 6 | **6** Ch 6 | **7** Ch 6 | **8** Ch 7 **Quiz 4** | **9** No Class |
| **Week 6 May** | **12** Ch 7 | **13** Ch7 | **14** Ch 7 | **15** Ch 8 **Exam 2** | **16** No Class |
| **Week 7 May** | **19** Ch 8 | **20** Ch 8 | **21** Ch 8 | **22** Ch 9 **Quiz 5** | **23** No Class |
| **Week 8 May** | **26** ***Memorial Day Holiday*** | **27** Ch 9 | **28** Ch 9 | **29** Ch 10 **Quiz 6** | **30** No Class **(3)** |
| **Week 9 June** | **3** Ch 10 | **4** Ch 10 | **5** Ch 10 | **6** Ch 11 **Exam 3** | **7** No Class |
| **Week 10 June** | **10** Ch 11 | **11** Ch 11 | **12** Ch 12 | **12** Ch 12 **Quiz 7** | **14** No Class |
| **Week 11 June** | **17** Ch 13 | **18** Ch 13 | **19** ***Juneteenth Holiday*** | **20** Review | **21** No Class |
| **Week 12 June** | **24** | **25** **Final Exam** **9:15 - 11:15** **(4)** | **26** **Final Exam Week** | **27** | **28** |

(1) Sunday Apr 20: Last day to Add 12-Week class (2) Sunday Apr 20: Last day to drop w/o W

(3) Fri May 30: Last day to drop with W(withdraw) (4) Tue Mar 25 Final Exam: 9:15 – 11:15

# Syllabus: Math 10.MP2 - Elementary Statistics & Probability, Spring 2025

## IMPORTANT DATES

| | |
|---|---|
| **APRIL 7** | **FIRST DAY OF SPRING QUARTER** |
| **APRIL 20** | **LAST DAY TO ADD 12-WEEK CLASSES** |
| **APRIL 20** | **LAST DAY TO DROP CLASSES WITHOUT A W** |
| **MAY 24 - 26** | **MEMORIAL DAY WEEKEND**<br>**NO CLASSES, OFFICES CLOSED** |
| **MAY 30** | **LAST DAY TO DROP CLASSES WITH A W** |
| **JUNE 19** | **JUNETEENTH HOLIDAY**<br>**NO CLASSES, OFFICES CLOSED** |
| **JUNE 23 – 27** | **FINAL EXAMS**<br>**TUESDAY JUNE 24, 9:15 AM TO 11:15 AM** |
| **JUNE 29** | **GRADUATION** |

NOVEMBER 18

# Syllabus: Math 10.MP2 - Elementary Statistics & Probability, Spring 2025

**Student Learning Outcome(s):**

• Organize, analyze, and utilize appropriate methods to draw conclusions based on sample data by constructing and/or evaluating tables, graphs, and numerical measures of characteristics of data.
• Identify, evaluate, interpret and describe data distributions through the study of sampling distributions and probability theory.
• Collect data, interpret, compose and evaluate conjectures, and communicate the results of random data using statistical analyses such as interval and point estimates, hypothesis tests, and regression analysis.

**Office Hours:**

| | | |
|---|---|---|
| T,W | 11:45 AM - 12:45 PM | MLC-108 |