Math 10 (1:30 – 3:45 Monday-Thursday) – Elementary Statistics and Probability - Syllabus

Fall 2019

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Instructor Office Hours: MW 11:30-12:20; TTh 12:30-1:20; or by appointment
Counselor: Alma Garcia (garciaalma@fhda.edu, (408) 864-5443, Office: E37-A)

Required Materials:

- Textbook: **Inferential Statistics and Probability: A Holistic Approach** by Mo Geraghty: A **free** PDF will be shared electronically – You do NOT need to print this
- Workbook: **Inferential Statistics and Probability Workbook: A Holistic Approach** by Doli Bambhania and Mo Geraghty: A **free** copy will be distributed in class during Week 1 of classes
- A graphing **calculator**. Calculators will be available for **loan** through the MPS program during Week 1 of classes. Please note that cell phone calculators will *not* be allowed on quizzes and exams.

Reading and Writing: Statistics is a concept-heavy subject. While we will do some computations and calculations by hand, we will mostly use technology. The essence of statistics lies in framing a problem in statistical language, collecting and processing data, and interpreting the meaning of results in the context of the original problem. This makes it very different from most math classes! You cannot hope to do well in statistics without a clear understanding of statistical concepts. You will need to keep your focus on both concepts and skills. On labs, entrance cards, quizzes and exams, in addition to correct numerical answers, you will also be graded on your explanations. Practice this carefully and deliberately on your homework and group work, and ask questions whenever you don't understand something.

Homework: Homework is essential in any math class. You cannot expect to pass the class without putting consistent and honest effort into homework. Prioritize learning through disciplined practice and you will reap the benefits. You will have two types of HWs.

1) Written HW: This will be shared with you electronically. You are to print it and complete it. Show all work and explain any reasoning. If you cannot come to class on the day that homework is due, please send it with a classmate or email it to me that day.

2) Online HW: This is set up on the free website myopenmath.com.

Completed homework (both written and online) must be turned in by the due date (see calendar), but should be worked on daily. You will get two late passes (by 24 hours) for written and online homework sets. Beyond that, there are NO EXCEPTIONS for on-time submission.

In-Class Group Work: Working in groups is an essential component of the MPS program. Helping others and asking for help will allow the whole class to move forward together. Most days, we will have group work. Group work is due at the start of the next class – no exceptions. If you are absent, be sure to send in your previous day's group work over email (pictures), and get the group work for that day from me over email or the next day. However, you must be in class to get credit for doing the group work. At least 2 lowest group work scores will be dropped.

Quizzes: We will have several in-class quizzes (see calendar). There are no make-ups (early or late) for quizzes. You will need your calculator. You may bring a 3" x 5" index card of notes (both sides). Your lowest quiz score will be dropped.

Midterm Exams: Three midterm exams will be given in class. You will need your calculator. You may bring a half sheet of notes (both sides). There will be no make-ups for exams (before or after). Please see the calendar for dates. No exam scores will be dropped; however, your lowest midterm exam score will be replaced by the percentage on the final exam if the final exam percentage is higher. This rule will also be applied in the case of a missed midterm. *The only time this rule would not be applied is if cheating was involved in any of the exams.*

Final Exam: A two-hour comprehensive final exam will be given on **Tuesday, December 10, 1:45-3:45pm**. You will need your calculator. You may bring a full sheet of notes (both sides).

Labs: On some Thursdays, during the second half of class, we will explore statistics using Minitab software. Minitab is useful in analyzing data and learning statistical models. Labs can be done in groups of no more than three people for a common grade and be turned in by email on the due date. There is no credit for late labs received after midnight on the due date.

Project: We will one group project in this class. Details will be given later.

Attendance: All students are expected to attend every class, on time. If you need to miss a class for an important reason, note that you are still responsible learning the missed material, finding out any announcements or assignment changes made in class. Stay in touch with your classmates and me. By being in the MPS program, you agree to miss no more than one week's worth of classes, with any tardy counting as half an absence. If you stop coming to class, you are responsible for dropping yourself (or you will receive an F).

Grading: Your grade will be determined using the point system as described in the tables below.

Item	Points
Written Homework: 13 @ 3 pts each	39
Online Homework: 13 @ 3 pts each	39
In-class Group Work: Top 26 @ 2 pts each	52
Quizzes: Top 7 @ 20 pts each	140
Midterm Exams: 3 @100 points each	300
Final Exam	130
Labs: Labs 1, 2, 4 @ 10 pts each, Lab 3 @ 20 pts	50
Project	30
TOTAL	**780**

Overall Percentage	Your grade
97% or greater	A+
92 – 97%	A
89 – 92 %	A-
87 – 89 %	B+
82 – 87 %	B
79 – 82 %	B-
75 – 79 %	C+
70 – 75 %	C
55 – 70 %	D
less than 55%	F

Academic Integrity: All students are expected to exercise high levels of academic integrity throughout the quarter. You are encouraged to work together but you are expected to write up your answers independently. Any instances of cheating or plagiarism will result in disciplinary action, including getting a '0' on the assignment and report to the PSME dean, which may lead to dismissal from the class or the college.

Engagement: Deep engagement with a class is important for success. Please communicate regularly with me and your peers. Participate actively in class by being fully engaged during lecture and group work time. Ask lots of questions and answer what you can. Don't feel shy. To break the ice, I welcome you to come by during office hours for a short chat during the first 3 weeks of class for 2 extra credit points!

Tips for Success: You will benefit immensely by being disciplined in your approach to this class. Here are my expectations/suggestions for you for this class.

1. Come class on time prepared with your binder, pencil and calculator. Attendance in math classes is essential and is positively correlated with success!

2. Math is learned by doing! Understanding statistical concepts and mastering associated skills improve through regular practice. Review the class notes regularly and do homework every day. Regularly synthesizing the information you're learning is critical for success.

3. Seek help when you need it. If you don't understand something, don't give up! Instead:
   - Visit me during office hours or email me questions
   - Contact your peers outside of class
   - Utilize the MPS Tutoring Room, S41
   - Smartthinking **free** 24-hour online tutoring (www.deanza.edu/studentsuccess/onlinetutoring/) – available through MyPortal
   - Empower yourself and use the Internet in a way that supports your goals; Watch videos for concepts and skills you are struggling with. Sites such as stattrek.com and khanacademy.com can be very helpful.

4. Be ready to help your classmates and don't be afraid to ask for help when you need it. We are all here to learn.

5. Don't distract yourself during class with your phone or other activities unrelated to class! Please silence and put away your phone and any other connected devices during class. Research has shown that we are NOT good at multi-tasking. You will severely limit your learning if you distract yourself during the process. Unless you are expecting an urgent communication, your phone activities can wait!

MPS Expectations: We expect all students to abide by the MPS Participation Agreement. Here is the summary of that:

1. Students are not allowed to be absent anytime during the first 2 weeks of the quarter. Students are allowed a maximum of 4 absences (excused absences included) up until the 9th week of the quarter before they are dropped from the program. Tardies are calculated at ½ an absence. Students must stay for the entire duration of class. Leaving class early will count as ½ an absence.
2. Attending tutoring sessions. Tutoring is available to all program participants. Tutoring will be mandatory for all students who fall below satisfactory level in their class work.
3. Working diligently in completing all homework assignments and projects.
4. Student conduct. Students will be asked to leave class for disruptive behavior. This will count as 1 absence. If they refuse to leave they will be dropped from the program and reported to the Dean for further action.
5. Accessing MPS counseling services for career, transfer, personal, strategies for success, and academic advising needs.

If there is any difficulty that comes in following these guidelines, speak to the instructor and the counselor in a timely manner. Otherwise, failure to abide by the agreement will result in removal of the "perks" that come with MPS, such as in-class tutoring, access to counseling services, etc.

Disability Notice: If you have any special circumstances that you feel may influence your performance in this class (a diagnosed learning disability, physical disability, or anything at all that might interfere with your learning), please email or chat with me privately so we can best accommodate you and we can create a learning environment that works for you.

Math 10 (1:30 - 3:45 M-Th) - Tentative Calendar - Fall 2019

	Monday	Tuesday	Wednesday	Thursday
Week 1 **Sept**	Intro, Syllabus Ch1: Vocabulary **23**	Ch 1: Graphs and tables **24**	Ch 1: Graphs and tables **25**	**Ch 1 HW due** Ch 2: Center, Spread **26**
Week 2 **Sept-Oct**	Ch 2: Shape, Outliers **30**	Ch 2: Bivariate data **1**	**Debate Project Assigned** Ch 3: Experimental design **2**	**Ch 2 HW due** **Quiz 1: Ch 1, Ch 2** **Lab 1** **3**
Week 3 **Oct**	Ch 3: Sampling and biases *Pick Debate Project topics* **7**	**Ch 3 HW due** Ch 4: Ch 4: Probability introduction **8**	Ch 4: More probability **9**	**Ch 4 HW due** **Quiz 2: Ch 3, Ch 4** Review/Catch-up for Exam 1 **10**
Week 4 **Oct**	**Exam 1** **on Ch 1-4** **14**	Ch 5: Discrete RVs **15**	Ch 5: Binomial distribution **16**	**Ch 5 HW due** **Quiz 3: Ch 5** Ch 6: Cont RVs, Uniform dist **17**
Week 5 **Oct**	Ch 6: Exponential dist **21**	Ch 6: Normal dist **22**	**Debates** **23**	**Ch 6 HW due** **Quiz 4: Ch 6** Ch 7: CLT for means **24**
Week 6 **Oct**	Ch 7: CLT for means **28**	Ch 7, Ch 8: CLT for prop, CI for means **29**	Ch 8: CI for means, proportions **30**	**Ch 7 HW due** **Quiz 5: Ch 7** **Lab 2** **31**
Week 7 **Nov**	Ch 9: Intro to hypothesis testing **4**	**Ch 8 HW due** Ch 9: Hyp testing for a mean **5**	Review/Catch-up for Exam 2 **6**	**Exam 2** **on Ch 5-8** **7**
Week 8 **Nov**	**HOLIDAY** Veterans Day **11**	Ch 9: HT for a mean, proportion **12**	**Lab 3 assigned** Ch 10: Independent Samples **13**	**Ch 9 HW due** **Quiz 6: Ch 9** Ch 10: Indep, Dep Samples **14**
Week 9 **Nov**	**Collect data for Lab 3 this wk** Ch 10: HT: Two indep prop **18**	Ch 11: Chi-square Goodness of Fit **19**	Ch 11: Chi-square Test of Indep **20**	**Ch 10 HW due** **Quiz 7: Ch 10** **Lab 3** (20 pts) **21**
Week 10 **Nov**	Ch 12: ANOVA **25**	Review/Catch-up for Exam 3 **26**	**Ch 11, Ch 12 HW due** **Exam 3** **on Ch 9-12** **27**	**HOLIDAY** Thanksgiving Day **28**
Week 11 **Dec**	Ch 13: Linear Regression **2**	Ch 13: Linear Regression **3**	Review/Catch-up for Final Exam **4**	**Ch 13 HW due** **Quiz 8: Ch 13** **Lab 4** **5**
Finals Week **Dec**	**No Class** **9**	**Final Exam** **1:45 - 3:45** **10**	**No Class** **11**	**No Class** **12**

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 defend conjectures, and communicate the results of random data using statistical analyses such as interval and point estimates, hypothesis tests, and regression analysis.