# Math 10 (8:30 – 10:20am M-F)
# Elementary Statistics and Probability - Syllabus

Spring '19

**Instructor** Rani Fischer
**Contact** Email: fischerrani@fhda.edu
**Office Hours** MWF10:30 – 11:30am

**Required Materials:**

- Textbook: **Inferential Statistics and Probability: A Holistic Approach** by Mo Geraghty: A **free** PDF will be emailed
- Workbook: **Inferential Statistics and Probability Workbook: A Holistic Approach** by Doli Bambhania and Mo Geraghty: A **free c**opy will be distributed in class during Week 1 of classes
- TI 83/84+ graphing **calculator**. Calculators will be available for **loan** through the MPS program during Week 1 of classes. 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 most math classes! You cannot hope to do well in statistics without a clear understanding of statistical concepts. So, you will need to keep your focus on both concepts and skills. On labs, 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 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 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 over email. 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, send it with a classmate or email it to me that day.

2) Online HW: register at myopenmath.com

ID: **47838**
enrollment key: **2222**

Completed homework (both written and online) must be turned in by the due date (see calendar), but should be worked on daily. There is no credit for late homework.

**Quizzes:** We will have several in-class quizzes (see calendar). You will need your calculator. You may bring a 3" x 5" index card of notes.

**Midterm Exams**: Two 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 exam scores.*

**Final Exam**: A two-hour comprehensive final exam will be given as listed on the calendar. You will need your calculator. You may bring a full sheet of notes (both sides).

**Labs**: On some days, 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 have a comprehensive project (split into two parts) that takes you through all the steps of the statistical process.

**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 missing no more than a week's worth of classes. 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.

**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.

**Participation**: Communication is important in learning. Please communicate regularly with me and your peers. Active participation in class occurs when you are fully engaged in what is being discussed, and engagement is necessary for success.

**Expectations and 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 to each class prepared with your binder, pencil and calculator.

2. Math is learned by doing! Understanding statistics concepts and mastering skills improves only through regular practice. Review the class notes regularly and do your homework every day. In a math class, regularly synthesizing the information you're learning is crucial. This will allow you to be better prepared for exams, especially the final exam.

3. Seek help when you need it. If you don't understand something, don't give up! Instead, visit me during office hour or email me questions.

 Contact your peers outside of class: One of the best ways to connect with others is through a shared purpose. Help yourself and others by connecting over any struggles with the class.

 Utilize the MPS Tutoring Room, S41: If your grade drops below 75%, you will be required to use tutoring.

 Smartthinking **free** 24-hour online tutoring for De Anza students (www.deanza.edu/studentsuccess/onlinetutoring/) – limited to 3 hours for the entire term – available through MyPortal.

 Search on the Internet: Empower yourself and use the Internet in a way that supports your math 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 here to learn.

5. Don't distract yourself during class through conversations unrelated to class or with your phone! Please silence and put away your phone and any other connected devices during class. Research has shown that contrary to our belief about ourselves, 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, wait until after class to check your phone.

**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.

**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

**Item Points**
Exams: 2 @100 points each 200
Quizzes: Top 3 @ 20 pts each 60
Written Homework: 14 @ 3 pts each 42
Online Homework: 14 @ 3 pts each 42
Group Work: Top 23 @ 2 pts each 46
Labs: 5 @ 10 pts each 50
Project 60
Final Exam 100
**TOTAL 600**

| Math 10 | | | | |
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| Monday | Tuesday | Wednesday | Thursday | Friday |
| 8-Apr | 9-Apr | 10-Apr | 11-Apr | 12-Apr |
| Intro, Syllabus, Ch 1 Vocabulary | Ch 1: Graphs & Tables | Ch 1 HW due | Ch 2: Measures of Center | Ch 1 quiz, Ch 2: Measures of Center, Spread, & Shape |
| 15-Apr | 16-Apr | 17-Apr | 18-Apr | 19-Apr |

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| Ch 2: Outliers | Project Part I assigned; Ch 2: Bivariate Data | Review Ch 2; Ch 3: Experimental Design | Ch 3: Experimental Design | Ch 2 HW due; Ch 3: Sampling & Biases |
| 22-Apr | 23-Apr | 24-Apr | 25-Apr | 26-Apr |
| Ch 4: Probability rules | Ch 4: Probability Rules | Ch 4: Two-way tables | Ch 4: Probability trees | Review Ch 4, Ch 3 HW due, Quiz Ch2,3 |
| 29-Apr | 30-Apr | 1-May | 2-May | 3-May |
| Ch 5: Discrete Random Variables | Ch 4 HW due, Ch 5: Binomial Distribution | Ch 6: Continuous Random Variables | Ch 6: Uniform Distribution | Ch 5 HW due; Ch 6: Exponential Distrbitution |
| 6-May | 7-May | 8-May | 9-May | 10-May |
| Ch 6: Normal Distribution | Project Part I DUE; Ch 7: CLT for means | CLT for proportions | Ch 6 HW due; Review for Exam 1 | Exam 1 on Ch 1-6 |
| 13-May | 14-May | 15-May | 16-May | 17-May |
| Review CLT, Ch 8: Confidence Intervals | Ch 8: CI for mean | Ch 8: CI for proportions | Ch 7 HW due; Quiz 3 on Ch 7 | Ch 9: Intro to Hypothesis Testing |
| 20-May | 21-May | 22-May | 23-May | 24-May |
| Ch 9: HT principles; Ch 8 HW due | Project Part II Assigned; Ch 9: HT mean | Ch 9: HT mean | Ch 9 HW due: HT Proportion | Ch 9: Power |
| 27-May | 28-May | 29-May | 30-May | 31-May |
| No class: Memorial Day | Review Ch 9; Ch 10: Two Ind. Means | Ch 9 HW-2 due; Ch 10 Dependent samples | Ch 10: Two Independent Proportions | Quiz 4 on Ch 8,9; Ch 10 HT: Two Ind Props |
| 3-Jun | 4-Jun | 5-Jun | 6-Jun | 7-Jun |
| Review Ch 10 | Project Part II DUE; Ch 11; Chi-Sq GoF | Ch 11: Chi-Sq Test for Ind | Review Ch 11 | Ch 10 HW due; Ch 12 ANOVA |
| 10-Jun | 11-Jun | 12-Jun | 13-Jun | 14-Jun |
| Ch 12 ANOVA | Ch 11 HW due; Review Ch 7-12 | Review for Exam 2 | Exam 2 on Ch 7-12 | Ch 13: Linear Regression |

| 17-Jun | 18-Jun | 19-Jun | 20-Jun | 21-Jun |
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| Ch 13: Linear Regression | Ch 12 HW due; Review Ch 13 | Practice Final Exam | Go over Practice Final Exam | Finish up all assignments; more final review |
| 24-Jun | 25-Jun | 26-Jun | 27-Jun | 28-Jun |
| | | FINAL EXAM 7 am | | |

**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.