

Course Syllabus: Sp21 MATH D010 (210X) Q04 Introductory Statistics

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Course Description:

This course is an 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 fields, such as 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. This Statistics course is a required lower-division course for students majoring or minoring in many disciplines such as data science, nursing, business, and others.

Course Content:

1. Displaying and Analyzing Data with Graphs
 2. Descriptive Statistics
 3. Populations and Sampling
 4. Probability
 5. Discrete Random Variables
 6. Continuous Random Variables
 7. The Central Limit Theorem
 8. Point Estimation and Confidence Intervals
 9. One Population Hypothesis Testing
 10. Two Populations Inference
 11. Chi-square Tests for Categorical Data
 12. One Factor Analysis of Variance (ANOVA)
 13. Correlation and Linear Regression
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Textbook, Workbook, and Calculator:

Great news: Your textbook for this class is available for **free!**

Title: Inferential Statistics and Probability (download: [TEXTBOOK-HolisticStatisticsRev200403.pdf](#)

[download](#))

Author: Maurice A. Geraghty

We will use a workbook to take notes in (download: [HolisticStatisticsWorkbook-FirstEdition.pdf download](#)). The workbook is essential to keep the course materials organized for yourself throughout the quarter, You may either:

- Print this document out (double-sided, as it's long):
- Order a copy from the [De Anza Bookstore \(Links to an external site.\)](#).

No particular calculator is required for this class. However, we will use a variety of technology sources on the Internet for statistical calculations throughout the quarter.

Office Hours:

- Mondays 10:30 a.m. – 12:00 p.m. (Zoom link: <https://fhda-edu.zoom.us/j/97458286911> (Links to an external site.))
 - Wednesdays 1 p.m. – 2:30 p.m. (Zoom link: <https://fhda-edu.zoom.us/j/93287281341> (Links to an external site.))
 - Fridays 11 a.m. – 12 p.m. (<https://fhda-edu.zoom.us/j/95775202592> (Links to an external site.))
 - By appointment: I am happy to find time to work with you one-on-one if you need help and can't make office hour or need to talk privately
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Important Note:

- Since we are conducting the class fully online, I will look for your engagement through participation during synchronous sessions, and through the submission of assignments. **Be sure to submit all first week and second week assignments to get into the "rhythm" of the class. Please note that if you're not submitting any assignments, I will assume that you are not interested in the taking the class and may drop you (so you can get your refund)!**
- Taking classes online comes with a set of challenges, such as staying motivated, speaking up in class, conflicts with work and other responsibilities, working with classmates, getting help on material, feeling a sense of community with the class, lack of ideal workspace, in addition to technical issues, such as device malfunction and unreliable internet access. Almost half of all student report staying motivated as their greatest challenge. Here are my top recommendations for succeeding in my class in the online setting:
 1. **Log into our course in Canvas every day!** Check for upcoming deadlines and make sure you are aware of them.
 2. **Turn everything in!** Every homework, every discussion, every problem set. Also, don't miss any quizzes or exams.
 3. **Prepare for quizzes and exams as if they were closed-notes assessments.** That is, prepare as if you were allowed only paper, pencil and calculator. Preparing this way for quizzes will help you retain the material for exams. Preparing this way for exams will help you retain this material for when you need it for the next math or physics class(es).
 4. **Come to every synchronous session, and stay engaged throughout the session.** Allowing yourself to occasionally miss class is a slippery slope, and can easily turn into a

bad habit that can cost you the grade you want in this class. It's especially important to be engaged during the breakout rooms when you're actively learning.

5. **Come to the synchronous sessions prepared and ready to contribute!** Be sure to have watched the required videos so you can benefit from the synchronous session and, more importantly, contribute.
6. **Don't wait to ask for help!** I cannot know what you don't tell me, especially in the online setting. If you're dealing with an unusual or an unexpected challenge, please let me know if I can do something to help keep the class manageable for you.

Weekly Schedule:

- **Mondays and Wednesdays (and other days):** Read textbook, watch lecture videos, work on homework, respond to discussion boards, and study!
- **Tuesdays and Thursdays:** We will have synchronous Zoom meeting. The link can be found in the Zoom in left navigation. **The passcode is: stats.** You're expected to attend these meetings. Be sure to have watched appropriate lecture videos before attending these meetings (see calendar). We will use these synchronous meeting times to go over additional examples, address your questions, do worksheets, and take quizzes and exams.

If, for any reason during the course of the quarter, you stop participating and intend to drop the class, please do an official drop in a timely manner. Please see the calendar (bottom of this page) for important deadlines. If you fail to do so, you will receive an 'F' in the class. Follow the deadlines for this class in My Portal. I do not have the ability to make exceptions to these.

Weekly Discussions:

Each week, there will be a topic of discussion. The due date will be at the end of the week. These topics (except for Week 1) are designed to help you think critically about statistics and express your analysis, conclusions or opinions. They will often involve the history and practice of statistics, applications of statistics in the real world, etc.

Homework, Worksheets and Labs

The best way to succeed in any math class is doing all of the assigned work correctly and in a timely manner, making sure you really understand what you are doing! Focus on your understanding of the concept, how it relates to the course concepts and how it's applied outside of the class, not just on following a procedure or learning a skill! Time spent on the homework and worksheets will directly benefit you on quizzes and exams.

Online Homework: You will have online homework for each chapter we cover. The homework will be embedded within Canvas. The links and due dates are within the modules. You will have 3 late passes that give you a 24-hour extension.

Worksheets: You will have worksheets in almost every class. These worksheets will usually be posted as Google docs in the Canvas modules. We will work on them in groups, but you are to submit them individually by the deadline. They are designed to help you practice the concepts and skills you are learning. I will look for evidence of your understanding in your work.

Worksheets Submission Guidelines:

- Even though the problems will be discussed in groups, you must write up your own solutions independently.
- Worksheets will be due the day after you work on it in class. Worksheets that are turned in within 24 hours after the deadline will receive half credit. After that, they will receive no credit.

Labs: We will have three technology labs in this class. They will be done in groups. There will be one submission per group, with each member of the group receiving the same grade. Labs are due the day after they are done in class. Late labs will NOT be accepted.

Participation:

Even though this is an online class, you are expected to participate. Here are ways to participate:

- Ask questions during the synchronous portions of the class.
 - Participate actively when we do worksheets in breakout rooms during synchronous sessions. Come to the synchronous session prepared, having at least watched the assigned videos and ideally, having read the appropriate textbook sections.
 - Participate in weekly discussion boards (it's part of your grade)
 - Post and answer questions in chapter discussion boards (1 point extra credit for posting a question, 1 point extra credit for answering a question)
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Quizzes:

We will have sixteen 15-minute quizzes (see the calendar) during the synchronous portions of our class. These will be similar to your online homework and worksheets. You will need to submit them on time to receive any points. **IMPORTANT:** There will be NO MAKEUPS for any of the quizzes. However, your lowest two quiz scores will be dropped.

Exams:

We will have two midterm exams. We will also have a cumulative final exam. See the calendar for the dates. There will be NO MAKEUPS for any of the exams, so be sure to not miss any of them.

IMPORTANT: In case of an unforeseen emergency or illness due to which you cannot take an exam, please get in touch with me immediately – we can look for a solution. If this happens for the final exam, and you are able to provide me with a sufficient proof, that will likely result in an 'Incomplete'.

Evaluation:

Your final grade will be computed as follows:

Category		Points
Weekly Discussions	10 @ 8 points each	80
Homework	13 @ 10 points each	130
Worksheets	Top 15 @ 6 points each	90
Labs	3 @ 10 points each	30
Quizzes	Top 14 @ 10 points each	140
Exams	2 @ 70 points each	140
Final Exam		90
TOTAL		700

Overall percentage	Your grade will be at least
97 % or greater	A+
92% to less than 97%	A
89% to less than 92%	A-
87% to less than 89%	B+
82% to less than 87%	B
79% to less than 82%	B-
75% to less than 79%	C+
70% to less than 75%	C
55% to less than 70%	D
less than 55%	F

Help:

1. Your classmates are a great resource. Ask for help and provide help to others either within your current groups or using Canvas discussion boards!
2. Visit me during office hours, or email (or Canvas message) me with questions or to make a Zoom appointment. On online homework, you can message me by using 'Ask My Instructor' button.
3. Ask questions during our synchronous meetings on Tuesdays and Thursdays.
4. Get help from De Anza's Math Student Success Center. See details at <http://deanza.edu/studentssuccess/> (Links to an external site.).
5. Use NetTutor (available 24/7) for help through Canvas. You can also access SmartThinking through MyPortal.
6. If you need any technical help with MyPortal, Zoom, Canvas, etc., visit <https://www.deanza.edu/online-winter/#Learning> (Links to an external site.)

7. On the link above, under 'Student Services and Support', you will find lots of other links to services with some specific to this time, such as for help with tech equipment, food and financial assistance, health services, resources for undocumented students, etc.

Academic Integrity:

All students are expected to be academically honest throughout the term. Any instances of cheating or plagiarism will result in disciplinary action, which may include recommendation for dismissal. You are encouraged to work together, but submitting someone else's work as your own is never acceptable! Also, that activity will be of no help to you later. Cheating will result in getting a 0 on the assignment or assessment, an 'F' in the course, or dismissal from the class. Also, each incident of cheating will be reported to the Dean of the Physical Science, Mathematics and Engineering Division. Please see the De Anza College's page on Academic Integrity:

https://www.deanza.edu/policies/academic_integrity.html (Links to an external site.). Also, please watch this video that's designed to help you understand what academic honesty means:



<https://www.youtube.com/watch?v=4unoOe-I0eY> (Links to an external site.)

Disability Notice:

If you feel that you may need an accommodation based on the impact of a disability, please contact me privately to discuss your specific needs. Also, please contact Disability Support Programs & Services through <https://www.deanza.edu/dsps/> (Links to an external site.) for information or questions about eligibility, services and accommodations for physical, psychological or learning disabilities.

Miscellaneous:

In any math class, your goal should be to get ownership of the material. This means that you understand the concepts, can demonstrate the skills, and explain the concepts and skills to someone that doesn't have them. Here are some tips to help you succeed.

1. **Stay on schedule.** While the video lectures can be watched any time, you should stick to the schedule I have recommended on the calendar. Don't fall behind! Be disciplined about this to stay on top of the class.
2. **Take notes.** When you watch video lectures, be sure to actively take notes. Taking notes will allow you to focus on the material. Writing aids memory so you are more likely to retain the material you watched. You can take notes on a printed copy, or annotate electronically.

3. You must **do the homework and the worksheets diligently**. There are many resources that can help you get the right answer, but never let them become a crutch! Your goal is to be able to do the work without help. **Productive struggle** is essential in learning mathematics. This means you need to sweat through the assignment problems on your own first, before seeking help from your resources.
4. **Form a study group** with at least 3 other people in the class with an understanding that you can reach out to each other for help when necessary. This will come in handy also in the unlikely event that you miss a class. Learning collaboratively is an important college skill.
5. **Read the textbook** for fuller context! You may skip the section that are not in the workbook. Simply watching the lectures may not be enough to give you a complete idea of the material in some cases.
6. **Review your notes** regularly and keep them complete! Ask questions about anything that's unclear in a timely manner to avoid losing points on quizzes and exams.
7. **Ask questions!** Whether it's to your classmates, me or a tutor, get your questions answered in a timely manner.
8. **Make summary review sheets** of important concepts for yourself throughout the term to make sure you have the key concepts, facts and skills organized in your head. This will help you prepare better for exams, but more importantly, synthesizing the material for this class will help you retain it for the future.
9. **The quarter passes by faster than expected** and it's almost impossible to catch up if you fall more than a couple of days behind. So, try not to fall behind, and if you do, catch up as soon as possible! Don't hesitate to ask me for help.
10. **Practice discipline!** Succeeding in a college class requires personal discipline. This is especially true for online classes. It's quite easy to put things off until later, skip some video lectures, skip taking notes while watching them, distracting yourself with social media and other apps while doing class activities. A life skill you are expected to practice in the online setting is: Be mindful of what you are
11. re giving your attention to. Think carefully about your priorities, and give the most time and attention to your biggest priorities. Don't put off working on them because the task at the moment is hard or unpleasant. Learning anything that's worthwhile requires a sustained effort and discipline! And that practice is what ultimately leads to personal growth.

Course Calendar:

As we progress through the class, pay careful attention to the course calendar. This will give you an idea of exactly where we are in the class.

Math 10 Introductory Statistics (TTh 10:30AM - 12:45PM) - Spring 2021
Tentative Calendar

	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Week 1	2-Apr Watch Videos: Ch 1: Video 1 , Ch 1: Video 2 , Ch 2: Video 1	3-Apr	4-Apr	5-Apr	6-Apr Zoom meeting: Welcome/introduction WS 1	7-Apr	8-Apr Zoom meeting: Questions Quiz 1 WS 2
Week 2	9-Apr Watch Videos: Ch 2: Video 2 , Ch 2: Video 3 , Ch 3: Video 1	10-Apr	11-Apr	12-Apr	13-Apr Zoom meeting: Questions Quiz 2 WS 3	14-Apr	15-Apr Zoom meeting: Questions Quiz 3 WS 4
Week 3	16-Apr Watch Videos: Ch 3: Video 2 , Ch 4: Video 1 , Ch 4: Video 2	17-Apr	18-Apr	19-Apr	20-Apr Zoom meeting: Questions Quiz 4 Lab 1	21-Apr	22-Apr Zoom meeting: Questions Examples WS 5
Week 4	23-Apr Watch Videos: Ch 5: Video 1 , Ch 5: Video 2 , Ch 6: Video 1	24-Apr	25-Apr	26-Apr	27-Apr Zoom meeting: Questions Quiz 5 WS 6	28-Apr	29-Apr Zoom meeting: Questions Quiz 6 WS 7
Week 5	30-Apr Watch Video: Ch 6: Video 2 Prepare for Midterm Exam 1	1-May	2-May	3-May	4-May Zoom meeting: Questions Quiz 7 WS 8	5-May	6-May Zoom meeting: Questions Midterm Exam 1 (on Ch 1-6)
Week 6	7-May Watch Videos: Ch 7: Video 1 , Ch 7: Video 2 , Ch 8: Video 1	8-May	9-May	10-May	11-May Zoom meeting: Questions Lab 2	12-May	13-May Zoom meeting: Questions Quiz 8 WS 9
Week 7	14-May Watch Videos: Ch 8: Video 2 , Ch 9: Video 1 , Ch 9: Video 2	15-May	16-May	17-May	18-May Zoom meeting: Questions Quiz 9 WS 10	19-May	20-May Zoom meeting: Questions Quiz 10 WS 11
Week 8	21-May Watch Videos: Ch 9: Video 3 , Ch 9: Video 4 , Ch 10: Video 1	22-May	23-May	24-May	25-May Zoom meeting: Questions Quiz 11 WS 12	26-May	27-May Zoom meeting: Questions Quiz 12 WS 13
Week 9	28-May Watch Video: Ch 10: Video 2 Review for Midterm Exam 2	29-May	30-May	31-May	1-Jun Zoom meeting: Questions Quiz 13 Lab 3	2-Jun	3-Jun Zoom meeting: Questions Midterm Exam 2 (on Ch 7-10)
Week 10	4-Jun Watch Videos: Ch 11: Video 1 , Ch 11: Video 2 , Ch 12: Video 1	5-Jun	6-Jun	7-Jun	8-Jun Zoom meeting: Questions WS 14	9-Jun	10-Jun Zoom meeting: Questions Quiz 14 WS 15
Week 11	11-Jun Watch Videos: Ch 13: Video 1 , Ch 13: Video 2	12-Jun	13-Jun	14-Jun	15-Jun Zoom meeting: Questions Quiz 15 WS 16	16-Jun	17-Jun Zoom meeting: Questions Quiz 16 Review for the final exam
Finals Week	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun	24-Jun Final Exam: 9:15 a.m. - 1:15 a.m.
	Prepare for the Final Exam						

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.