

Sp23 MATH D010 56Z Introductory Statistics Syllabus

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.

Student Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. 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.
 2. Identify, evaluate, interpret and describe data distributions through the study of sampling distributions and probability theory.
 3. 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.
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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 TEXTBOOK-HolisticStatisticsRev200403.pdf)

Author: Maurice A. Geraghty

We will use a workbook to take notes in (download: [HolisticStatisticsWorkbook-FirstEdition-1.pdf](#))

Download HolisticStatisticsWorkbook-FirstEdition-1.pdf). 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) and take notes as you view videos
- Open up this document on a tablet and take notes as you view videos

You may also be able to purchase the workbook at the De Anza Bookstore.

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.

Important Notes about Online Learning:

- **Communication:** You can always contact me via email (bambhaniadoli@fhda.edu) or via Canvas message, or attend office hours. You can expect a response within 24 hours on weekdays and within 48 hours on the weekend. If you don't get a reply back to your email, try Canvas message, and the vice versa.
- **Engagement:** Since all parts of the class are online, it's important that you create a schedule for yourself that allows enough time for all of the out of class activities. For example, each week, you are expected to watch about 3 hours of video lectures, complete worksheets, online HW, quiz/exam, and possibly a lab. If you don't schedule the time for all this, you will quickly fall behind.
- **Feedback:** Any feedback on your discussions, problem sets and written parts of exams will be provided as annotation or assignment comment in Canvas. If you need additional feedback regarding grading (especially automatically graded items such as homework and quizzes), please email/message me directly about that assessment. I will aim to grade all items within 1-2 days of submission, but you can expect assignments and assessments to be graded within 1 week of submission.
- **Tips:** College classes, especially online, with a set of challenges, such as staying motivated, collaborating with classmates, getting help on material, lack of ideal workspace, in addition to technical issues, such as device malfunction and unreliable internet access. Here are my top recommendations for succeeding in my class:
 1. **Log into our course in Canvas every day!** Check for upcoming deadlines and make sure you are aware of them. There will be a lot of assignments due in this class! Don't let your work pile up.
 2. **Turn everything in!** Every homework, every discussion, every worksheet. Also, don't miss any quizzes or exams! :)

3. **Prepare for quizzes and exams.** Prepare as if you were allowed only paper, pencil and calculator. Preparing this way for quizzes will help you retain the material for exams. **If you take quizzes and exams unprepared, hoping to look things up as necessary, you will likely run out time!**
 4. **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.
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Office Hours:

- Monday, Wednesday: 11am-12pm on Zoom (<https://fhda-edu.zoom.us/j/83202771184>) and in office (S-43A)
 - Tuesday, Thursday: 11:45am-12:15pm on Zoom (<https://fhda-edu.zoom.us/j/83202771184>) and in office (S-43A)
 - Friday 9:30am-10:30am on Zoom (<https://fhda-edu.zoom.us/j/83202771184>) only
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Weekly Schedule:

- **Lecture Videos:** Each week, you have 1-3 videos to watch, with a total running time of about 3 hours, with a little break during exam weeks. Watch these videos early in the week, so you have enough time to finish the assignments that follow.
 - **Worksheets:** Each week, there is a worksheet that you need to complete. The worksheet focuses on the content that week. Worksheets will be due on the next Monday (or Tuesday, if Monday is a holiday)
 - **Quizzes:** On the weeks you don't have an exam, you will have a quiz on the previous week's material. Quizzes will be held on the next Monday (or Tuesday, if Monday is a holiday). Quizzes will be typically 20 minutes long, and you will be able to take them any time over a 24-hour period.
 - **Discussions:** Each week, we will have a discussion. They will typically be due on Fridays.
 - **Online HW:** Most weeks, you will have one or two online HW sets due. We have an online HW for each chapter, so the due date for them depends roughly on when we completed that chapter.
 - **Exams and Labs:** We will have 2 exams and 3 labs. This is definitely not a weekly activity, so please look at the calendar at the bottom of this page and make sure you have the dates down for these so you don't miss them.
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Weekly Discussions:

Each week, there will be a topic of discussion. The due date will be at the end of the week - typically on Fridays. 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 links are under the weekly activities in Modules. You will have 3 late passes that give you a 24-hour extension.

Worksheets: Each week, we will have a worksheet. 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 may be turned in up to 24 hours late with a 10% penalty.

Labs: We will have three technology-based labs in this class in which you will work with a larger data set, or explore statistical concepts through simulation.

Quizzes:

We will have **eight** 20-minute quizzes (see the calendar). They will be on Mondays (or Tuesday if Monday is a holiday) These will be similar to your online homework and worksheets. **IMPORTANT:** There will be **NO MAKEUPS** for any of the quizzes. However, your lowest quiz scores will be dropped.

Exams:

We will have **two** midterm exams. We will also have a cumulative final exam. They will be similar to quizzes and worksheets. See the calendar at the bottom of this page 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:

Point Values of Assignments		
Category		Points
Weekly Discussions	Top 10 @ 7 points each	70
Online Homework	13 @ 10 points each	130
Worksheets	11 @ 10 points each	110
Labs	3 @ 15 points each	45
Quizzes	Top 7 @ 20 points each	140
Exams	2 @ 75 points each	150
Final Exam		105
TOTAL		750

Letter grade based on overall percentage	
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 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. Get help from De Anza's Math Student Success Center. See details at <http://deanza.edu/studentssuccess/>
 4. Use NetTutor (available 24/7) or Smarthinking for help through Canvas.
 5. If you need any technical help with MyPortal, Canvas, etc., visit <https://deanza.edu/online-ed/students/remotelarning.html>
 6. Besides technical help, you may be able to get help with tech equipment, food and financial assistance, health services, resources for undocumented students, etc. Check out <https://www.deanza.edu/services/>
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Academic Integrity:

All students are expected to be academically honest throughout the term. Academic integrity is essential to the functioning of educational institutions. All work that you submit must be your own. 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! 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>

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 watch them early in the week. 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. Having good notes will help when you study for quizzes and exams, and during quizzes and exams.
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, and perfectly normal! Occasionally, we all experience it. When you encounter a difficult problem or a concept, remember to sweat through it yourself first. Don't ask for help immediately, and certainly don't skip it!
4. **Use the Questions Discussion Board** to reach reach out to your classmates with questions. Learning collaboratively is an important college skill. **EXTRA CREDIT: Asking a question or answering a question gets you 1 extra credit point - up to a total of 10 maximum for the quarter.**
5. **Use the textbook as a resource.** Occasionally, watching the lectures may not be enough to give you a complete idea of the material. I encourage you to read the textbook then.
6. **Review your notes** regularly, and especially before 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 or notecards** of important concepts for yourself throughout the term to make sure you have the key concepts, facts and skills organized in your head. This help you for quizzes and 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 and hybrid classes. It's quite easy to put things off until later, skip some video lectures, be lazy about taking notes while watching them, distracting yourself with social media and other apps while doing class activities. A life skill we all need to practice is: Be mindful of what you are 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.
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Course Calendar:

Math 10 Introductory Statistics - Spring 2023 Tentative Calendar

	Videos to watch this week	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Ch 1: Video 1 Ch 1: Video 2 Ch 2: Video 1	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr Ch 1 HW due Wk 1 Disc due
Week 2	Ch 2: Video 2 Ch 2: Video 3 Ch 3: Video 1	17-Apr WS 1 due Quiz 1	18-Apr	19-Apr	20-Apr	21-Apr Ch 2 HW due Wk 2 Disc due
Week 3	Ch 3: Video 2 Ch 4: Video 1 Ch 4: Video 2	24-Apr WS 2 due Quiz 2	25-Apr	26-Apr Ch 3 HW due	27-Apr Lab 1 due	28-Apr Wk 3 Disc due
Week 4	Ch 5: Video 1 Ch 5: Video 2	1-May WS 3 due Ch 4 HW due Quiz 3	2-May	3-May	4-May	5-May Ch 5 HW due Wk 4 Disc due
Week 5	Ch 6: Video 1 Ch 6: Video 2	8-May WS 4 due Exam 1 (Ch 1-5)	9-May	10-May	11-May	12-May Ch 6 HW due Wk 5 Disc due
Week 6	Ch 7: Video 1 Ch 7: Video 2 Ch 8: Video 1	15-May WS 5 due Quiz 4	16-May	17-May Lab 2 due	18-May	19-May Ch 7 HW due Wk 6 Disc due
Week 7	Ch 8: Video 2 Ch 9: Video 1 Ch 9: Video 2	22-May WS 6 due Quiz 5	23-May	24-May	25-May Ch 8 HW due	26-May Wk 7 Disc due
Week 8	Ch 9: Video 3 Ch 9: Video 4	29-May Memorial Day HOLIDAY	30-May WS 7 due Quiz 6	31-May	1-Jun	2-Jun Ch 9 HW due Wk 8 Disc due
Week 9	Ch 10: Video 1 Ch 10: Video 2	5-Jun WS 8 due Exam 2 (Ch 6-9)	6-Jun	7-Jun	8-Jun	9-Jun Ch 10 HW due Wk 9 Disc due
Week 10	Ch 11: Video 1 Ch 11: Video 2 Ch 12: Video 1	12-Jun WS 9 due Quiz 7	13-Jun	14-Jun Lab 3 due	15-Jun Ch 11 HW due	16-Jun Wk 10 Disc due
Week 11	Ch 13: Video 1 Ch 13: Video 2	19-Jun Juneteenth HOLIDAY	20-Jun WS 10 due Ch 12 HW due Quiz 8	21-Jun	22-Jun	23-Jun Ch 13 HW due Wk 11 Disc due
Finals Week		26-Jun WS 11 due	27-Jun	28-Jun Final Exam	29-Jun	30-Jun

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.

Office Hours:

F	09:30 AM	10:30 AM	Zoom	
M,W	11:00 AM	12:00 PM	Zoom,In-Person	S-43A
T,TH	11:45 AM	12:15 PM	Zoom,In-Person	S-43A