

Sp23 MATH D010 Q02 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](#))

Author: Maurice A. Geraghty

We will use a workbook to take notes in (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.

Notes about Attendance and Participation:

- **Communication:** If you need to reach me outside of class, you can contact me via email (bambhaniadoli@fhda.edu) or via Canvas message anytime. 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:** I will look for your engagement through regular attendance and participation during class meetings, and through the submission of assignments. If you will be absent, be sure to let me know. Be sure to submit all first week and second week assignments to get into the "rhythm" of the class. **Please note that if you miss the first class and don't inform me, I will assume that you are not interested in being in the class and may drop you!**

If, for any reason, you stop participating and intend to drop the class, please do an official drop in a timely manner. If you fail to do so, you will receive an 'F' in the class. Follow the deadlines for this class in My Portal. We do not have the ability to make exceptions to these.

Covid Information:

Since this is an in-person class, please familiarize yourself with Covid-related information for De Anza College.

- Covid-19 Information: <https://www.deanza.edu/covid/>

Please note:

- Masks covering the mouth and the nose are strongly encouraged for this class.
- If you become infected with Covid during the quarter, refrain from attending class, fill out the Student Self-Reporting Form at <https://www.deanza.edu/covid/student-form.html>

- [Links to an external site.](#) and inform me immediately so you can keep up with the class remotely.
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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:

- **Lectures:** We will cover new content in class Monday through Thursday during the 9:30-10:20 window.
 - **Worksheets:** Tuesdays and Thursdays, 10:30-11:35 am, period will be dedicated to practicing the week's material on worksheets, which will be due at the end of this period.
 - **Quizzes:** On the weeks you don't have an exam, you will have a quiz on the previous week's material on Mondays. Quizzes will be typically 20 minutes long.
 - **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 3 labs, 2 midterm exams, and a final exam. 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 1-2 worksheets. They are designed to help you practice the concepts and skills you are learning. We will do these during the 10:30-11:35am period on Tuesdays and Thursdays.

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 score will be dropped.

You will be allowed a 3" x 5" notecard for a quiz. You may use a scientific calculator, but you will also have a laptop (provided in the classroom) for calculations on most quizzes.

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.

If you miss an exam for any reason, your final exam will replace that exam score. Also, the final exam score will replace one midterm exam score if the midterm exam score is lower.

You will be allowed one 8-1/2" x 11" sheet (both sides) worth of notes for exam exams, and two such sheets for the final exam. You may use a scientific calculator, but you will also have a laptop (provided in the classroom) for calculations.

***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	Top 16 @ 8 points each	80
Labs	3 @ 15 points each	45
Participation and Attendance		25
Quizzes	Top 7 @ 20 points each	140
Exams	2 @ 80 points each	160
Final Exam		100
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. Work with one another during class, and ask and provide help using Canvas discussion boards!
 2. Visit me during office hours, or email (or Canvas message) me with questions or to make an 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/studentsuccess/>.
 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/remotelearning.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.** Attend each class, stay engaged, and keep up with your HW. Don't wait until the deadline to do it. Otherwise you may not have the chance to ask questions about it in a timely manner.
2. **Take notes.** Be diligent about taking notes. Taking notes will allow you to focus on the material better. 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**. Make it your goal is to get an ownership of the material in this class, and 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 outside of class. 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, the lecture examples 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. It's quite easy to put things off until later, distract oneself with social media and other apps while doing class activities, etc. 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 (w/ coreq) - Spring 2023 Tentative Calendar

	Chapters	Monday	Tuesday	Wednesday	Thursday	Friday (no class)
Week 1	Ch 1, Ch 2 <i>Corequisite</i>	10-Apr Introduction Ch 1	11-Apr Ch 1 <i>Worksheet 1</i>	12-Apr Ch 1 Ch 2	13-Apr Ch 2 <i>Worksheet 2</i>	14-Apr Ch 1 HW due Wk 1 Disc due
Week 2	Ch 2, Ch 3 <i>Corequisite</i>	17-Apr Quiz 1 Ch 2	18-Apr Ch 2 <i>Worksheet 3</i>	19-Apr Ch 2 Ch 3	20-Apr Ch 3 <i>Lab 1</i>	21-Apr Ch 2 HW due Wk 2 Disc due
Week 3	Ch 3, Ch 4 <i>Corequisite</i>	24-Apr Quiz 2 Ch 3	25-Apr Ch 3 Ch 4 <i>Worksheet 4</i>	26-Apr Ch 4	27-Apr Ch 4 <i>Lab 1</i>	28-Apr Wk 3 Disc due
Week 4	Ch 5 <i>Corequisite</i>	1-May Ch 4 HW due Quiz 3 Ch 5	2-May Ch 5 <i>Worksheet 5</i>	3-May Ch 5	4-May Review <i>Worksheet 6</i>	5-May Ch 5 HW due Wk 4 Disc due
Week 5	Ch 6, Ch 7 <i>Corequisite</i>	8-May Exam 1 (Ch 1-5)	9-May Ch 6 <i>Worksheet 7</i>	10-May Ch 6	11-May Ch 6 Ch 7 <i>Worksheet 8</i>	12-May Ch 6 HW due Wk 5 Disc due
Week 6	Ch 7, Ch 8 <i>Corequisite</i>	15-May Quiz 4 Ch 7	16-May Ch 7 <i>Lab 2</i>	17-May Ch 8	18-May Ch 8 <i>Worksheet 9</i>	19-May Ch 7 HW due Wk 6 Disc due
Week 7	Ch 8, Ch 9 <i>Corequisite</i>	22-May Quiz 5 Ch 8	23-May Ch 8 Ch 9 <i>Worksheet 10</i>	24-May Ch 9	25-May Ch 8 HW due Ch 9 <i>Worksheet 11</i>	26-May Wk 7 Disc due
Week 8	Ch 9 <i>Corequisite</i>	29-May Memorial Day HOLIDAY	30-May Quiz 6 Ch 9 <i>Worksheet 12</i>	31-May Ch 9	1-Jun Ch 9 <i>Worksheet 13</i>	2-Jun Ch 9 HW due Wk 8 Disc due
Week 9	Ch 10 <i>Corequisite</i>	5-Jun Exam 2 (Ch 6-9)	6-Jun Ch 10 <i>Worksheet 14</i>	7-Jun Ch 10	8-Jun Ch 10 <i>Lab 3</i>	9-Jun Ch 10 HW due Wk 9 Disc due
Week 10	Ch 11, Ch 12 <i>Corequisite</i>	12-Jun Quiz 7 Ch 11	13-Jun Ch 11 <i>Worksheet 15</i>	14-Jun Ch 11	15-Jun Ch 12 <i>Worksheet 16</i>	16-Jun Wk 10 Disc due
Week 11	Ch 13 <i>Corequisite</i>	19-Jun Juneteenth HOLIDAY	20-Jun Ch 12 HW due Quiz 8 Ch 13 <i>Worksheet 17</i>	21-Jun Ch 13	22-Jun Ch 13 <i>Worksheet 18</i>	23-Jun Ch 13 HW due Wk 11 Disc due
Finals Week		26-Jun	27-Jun Final Exam 9:15 - 11:15 am	28-Jun	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