Sp22 MATH D010 09Y 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.

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

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

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 Hybrid Learning:

- **Communication**: You can always contact me via email (bambhaniadoli@fhda.edu) or via Canvas message. 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 some 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. Between Thursday and Monday's class, you are expected to watch about 3 hours of video lectures. If you don't schedule this time, 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 and hybrid, 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. Here are my top recommendations for succeeding in my class:
    1. **Log into our course in Canvas every day, including the days we don't meet!** 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. 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 class unless you have an excellent reason for missing it.** Allowing yourself to occasionally miss class is a slippery slope, and can easily turn into a bad habit that will probably cost you the grade you want in this class.
    5. **Come to the class prepared and ready to contribute!** Be sure to have watched the required videos so you can benefit from the class, and more importantly, contribute.

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.

Office Hours:

- Monday-Wednesday 2:00-3:00 p.m. (Zoom link: https://fhda-edu.zoom.us/j/94853255754)
- Friday 9:00-10:00 a.m. (Zoom link: https://fhda-edu.zoom.us/j/96973441053)
- 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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Weekly Schedule:

Our week goes from Friday to Thursday.

- **Friday-Sunday**: Watch video lectures for next week (materials will be posted Thursday after class). You will find the videos in Modules. Also, see the calendar at the bottom of the page for the overall schedule. You can start work on the online HW on the video lecture material.
- **Monday**: Come to class prepared to do work on the video lecture material in **red**. Finish worksheet after class if needed and submit. Work on online HW.
- **Tuesday**: Come to class prepared to do work on the video lecture material in **blue**. Finish worksheet after class if needed and submit. Work on online HW.
- **Wednesday**: Finish any online HW or lab (if there's one that week), and prepare for Thursday's quiz or an exam.
- **Thursday**: Most Thursdays, we will have a quiz. Come to class prepared with your questions. I will answer them before the quiz. On exam days, the exam will take up the entire class time.

Weekly Discussions:
Each week, there will be a topic of discussion. The due date will be at the end of the week - sometimes on Thursday, sometimes on Friday. 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: You will have worksheets on almost every Monday and Tuesday. 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 at the end of the day. 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 and Workbook Checks:
You are expected to participate, and participation is part of your grade. Here are ways to participate:

- First and foremost, be present in class physically.
- Come to class prepared, having at least watched the assigned videos and taken notes.
- Be engaged during class:
    - Ask and answer questions during class.
    - Participate actively in your group when we do worksheets and labs.
- 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)

Each week, I will check your workbook to give you points for taking notes on that week's videos. Always bring your workbook to class.

Quizzes:
We will have eight 20-minute quizzes (see the calendar) during class on Thursdays. 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. The structure of exams will be similar to quizzes. 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	10 @ 7 points each	70
Online Homework	13 @ 10 points each	130
Worksheets	15 @ 6 points each	90
Labs	3 @ 10 points each	30
Quizzes	Top 7 @ 20 points each	140
Exams	2 @ 75 points each	150
Participation		20
Workbook Checks	10 @ 2 points each	20
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. 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 class.
4. Get help from De Anza's Math Student Success Center. See details at http://deanza.edu/studentsuccess/ (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, Canvas, etc., visit https://deanza.edu/online-ed/students/remotelearning.html (Links to an external site.).
7. 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 https://www.deanza.edu/mps/studentresources/ (Links to an external site.).

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! 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. Your notes will be checked during weekly Workbook Checks.
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. **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. **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 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 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.

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 (MTR 9:30-10:20 a.m.) - Spring 2022
Tentative Calendar

	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Week 1	1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	6-Apr	7-Apr In-Person meeting: Introduction Chapter 1
Week 2	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr
	Watch: Chapter 1 Video 1 (57m), Chapter 1 Video 2 (60m) *Watch: Chapter 2 Video 1 (57m)*			In-Person meeting: Worsheet 1	In-Person meeting: Worksheet 2	*Do HW and study*	In-Person meeting: Review/Questions **Quiz 1**
Week 3	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr
	Watch: Chapter 2 Video 2 (30m), Chapter 2 Video 3 (52m), *Watch: Chapter 3 Video 1 (47m)*			In-Person meeting: Worsheet 3	In-Person meeting: Worksheet 4	*Do HW and study*	In-Person meeting: Review/Questions **Quiz 2**
Week 4	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr
	Watch: Chapter 3 Video 2 (41m) , Chapter 4 Video 1(55m), *Watch: Chapter 4 Video 2 (61m)*			In-Person meeting: **Lab 1**	In-Person meeting: Worksheet 5	*Do HW and study*	In-Person meeting: Review/Questions **Quiz 3**
Week 5	29-Apr	30-Apr	1-May	2-May	3-May	4-May	5-May
	Watch: Chapter 5 Video 1 (46m), Chapter 5 Video 2 (47m), *Watch: Chapter 6 Video 1 (54m)*			In-Person meeting: Worsheet 6	In-Person meeting: Worksheet 7	*Do HW and study*	In-Person meeting: **Midterm Exam 1** **(on Ch 1-5)**
Week 6	6-May	7-May	8-May	9-May	10-May	11-May	12-May
	Watch: Chapter 6 Video 2 (43m), Chapter 7 Video 1 (58m), *Watch: Chapter 7 Video 2 (30m)*			In-Person meeting: Worsheet 8	In-Person meeting: Review/Questions	*Do HW and study*	In-Person meeting: Review/Questions **Quiz 4**
Week 7	13-May	14-May	15-May	16-May	17-May	18-May	19-May
	Watch: Chapter 8 Video 1 (68m), Chapter 8 Video 2 (26m) *Watch: Chapter 9 Video 1 (46m)*			In-Person meeting: **Lab 2**	In-Person meeting: Worksheet 9	*Do HW and study*	In-Person meeting: Review/Questions **Quiz 5**
Week 8	20-May	21-May	22-May	23-May	24-May	25-May	26-May
	Watch: Chapter 9 Video 2 (55m), Chapter 9 Video 3 (74m) *Watch: Chapter 9 Video 4 (17m)*			In-Person meeting: Worsheet 10	In-Person meeting: Worksheet 11	*Do HW and study*	In-Person meeting: Review/Questions **Quiz 6**
Week 9	27-May	28-May	29-May	30-May	31-May	1-Jun	2-Jun
	Watch: Chapter 10 Video 1 (80m), Chapter 10 Video 2 (55m)			HOLIDAY: Memorial Day	In-Person meeting: Worksheet 12	*Do HW and study*	In-Person meeting: **Midterm Exam 2** **(on Ch 6-10)**
Week 10	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	8-Jun	9-Jun
	Watch: Chapter 11 Video 1 (66m), Chapter 11 Video 2 (50m)			In-Person meeting: Worsheet 13	In-Person meeting: **Lab 3**	*Do HW and study*	No In-Person meeting: **Quiz 7**
Week 11	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun
	Watch: Chapter 12 Video 1 (55m) , Chapter 13 Video 1 (48m) *Watch: Chapter 13 Video 2 (66m)*			In-Person meeting: Worsheet 14	In-Person meeting: Worksheet 15	*Do HW and study*	In-Person meeting: Review/Questions **Quiz 8**
Finals Week	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun
	Study for Final Exams			HOLIDAY: Juneteenth	**Final Exam:** **9:15 a.m. - 11:15 p.m.**		

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.