Statistical Methods in Engineering and Science, STAT/MATH 390
This is a fluid syllabus, so check frequently for changes in colors

Instructor: Caren Marzban (The best way to reach me is email)

Class Times and Room: MTWTh, 2:30-3:20 MLR 301

Quiz/Lab Sessions: Tuesday in CMU B027

Section	Name (Office)	Email	Off. hours/location
A-D	Caren Marzban (PDL B318)	marzban at uw.edu	M. 1-2 (CMU B023*); Th. 1-2 (PDL B318)
A & B	Richard Li (PDL C14-G)	lizehang at uw.edu	M. (CMU B023); (PDL)
C & D	HongJian Shi (PDL B220)	hongshi at uw.edu	M. (CMU B023); (PDL)

CMU B023 is an informal place where you can stay and do your work, even outside of office hours. Check their open times here: http://www.stat.washington.edu/www/tutorcenter/

Course webpage: http://www.stat.washington.edu/marzban/390/winter17/
Consult the webpage frequently, because things change. Look for colors .

Text: *Applied Statistics for Engineers and Scientists* (**2nd Edition**), by Devore and Farnum.
Do NOT get other editions. FYI: At some times, www.cengagebrain.com offers the printed text, rental text, digital text, and digital chapters.

Buzz words/concepts: Data, histogram vs. distribution, mean vs. expected value, sample standard deviation vs. population standard deviation, sampling distribution, distributions (binomial, Poisson, exponential, normal/gaussian, chi-squared, etc.), scatterplot, correlation, regression, estimation, prediction, inference, confidence interval, prediction interval, hypothesis/significance testing, 1-way anova, and more.

Lab/Pre-Lab/Lab-book and Quizes:
- There will be some computing, all in R (see course website); other languages NOT accepted.
- R is not a pre-req, but you'll have to learn it.
- Some of the hws and all of the quizes will require R.
- Every Saturday or Sunday, some sections of the lab-book will be assigned as PRE-LAB;
- This means that you will have to go over it on your own BEFORE your lab session.
- Lab session will be for answering questions about the pre-lab, followed by a quiz.
- You must attend your own lab session.

Homework: A list of problems from the book, AND their solutions, are already posted on the course website. Most hw problems will be assigned from this "master list," plus a few more which will be assigned within the body of the lecture notes. Homework problems will be assigned daily (MWThF) after class, and are due every Tuesday in your qz session; only the assignments from the previous week are due. Check the course website for the latest information on HWs and due dates. Begin working on the assignments as soon as you receive them, to assure they don't accumulate. **On homework, tests, and quizes SHOW WORK, not just an answer. An answer, even a correct one, will not get credit if there is no accompanying explanation/derivation/proof.**

Tests: Although the quizes and homework are open note/book/web/everything, the three tests are closed everything, except for a half-size sheet of paper; both sides are OK. (A double-sided half-sheet is NOT the same thing as a 1-sided whole sheet!) **All past tests and solutions are already posted (on canvas)**. The best way to study for tests is 1) do problems from past tests, 2) do hw problems, 3) read the text book and lecture notes, and 4) attend lectures. The third and forth items are important for the conceptual part of the tests.

ALL TESTS AND QIZZES MAY BE VIDEO-RECORDED

Grading:

Clicker/Participation	10%
Homework	10% (after dropping ONE lowest grade)
Quizes	15% (after dropping ONE lowest grade)
Test 1	21% (mostly comprehensive)
Test 2	22% (mostly comprehensive)
Test 3	22% (mostly comprehensive)

The final grade will be based on a "curve"; I will explain this in class, but an explanation is given on the course website, as well. Taking all 3 tests is an absolute requirement for passing. If a significant number of clickers/homeworks/quizes is missing, the final grade will be significantly down-weighted.

General Policy: You'll find me reasonably flexible, with emphasis on *reasonably*. I don't want this syllabus to look like a legal contract. Just do what you are supposed to, and don't do what you are not supposed to; and you know what those are! In general
- Attendance is checked through clicker answers; In one lab you will analyze data from past quarters, showing that attendance is positively correlated with grade.
- No makeups. In case of emergency, provide 2-week prior notice.
- No late homeworks and quizes.
- No cheating/collaboration on tests/quizes (I'm quite inflexible on this one).

Point 1: This course is **NOT** your regular math course! It involves more "words" and qualitative, nonlinear thinking than a typical math course. In fact, I will show you data from previous quarters showing that mathematical ability is uncorrelated with performance in this class.

Point 2: The material begins extremely simple but becomes complex very quickly. So, **keep up**.

Point 3: I will follow the text book closely. You are expected to have read the material of the day before I go over it in class. As such, the purpose of my lectures is to review, and to highlight some of the more important but less obvious issues. **Following and understanding the book and the lectures is necessary but NOT sufficient for understanding the material; you also need to do more problems from the master list and past tests.**

Point 4: Please check out the FAQ on the course website for my answers to many of your questions, **before** you send me a question/suggestion.

NEXT PAGE: Daily schedule for the whole quarter: **It is tentative, so CHECK FREQUENTLY!**

Standard ending regarding disabilities, etc. ...

Lecture	Date	Reading (Chapters)	Notes
1	1/4	1.1-1.2	
2	1/5	1.1-1.2	
3	1/6	1.2, 1.3	
4	1/9	1.4, 1.6	Skip 1.5
-	1/10	Lab 1	R basics and Chapter 1
5	1/11	1.4, 2.3	
6	1/12	1.6	Skip p. 84.
7	1/13	2.1-2.2	
-	1/16	NO CLASS	MLK Day
-	1/17	Lab 2	Chapter 1-2
8	1/18	2.1-2.2	
9	1/19	2.4, 3.1	
10	1/20	3.2	
11	1/23	3.3	
-	1/24	Lab 3	Chapter 2-3
12	1/25	3.3	Skip 3.6, and Chapter 4.
-	1/26	Q/A	Come to class with questions.
-	1/27	**TEST 1**	Up to lecture 10 (inclusive).
13	1/30	3.3	
-	1/31	Lab 4	Chapter 3
14	2/1	3.4	
-	2/2	Returning and Going over Test 1	Attendance IMPORTANT!
15	2/3	3.5	
16	2/6	3.?, 5.5	Skip ch. 4 and most of ch. 5.
-	2/7	Lab 5	Chapter 3
17	2/8	5.6, 7.2	skip 7.1
18	2/9	7.2	
19	2/10	7.2-7.3	
20	2/13	7.4, 7.5	Skip pages 317-319, and section 7.6
-	2/14	Lab 6	Chapter 5, 7
21	2/15	8.1-8.2	
-	2/16	Q/A	Come to class with questions.
-	2/17	**TEST 2**	Up to lect 19 (inclusive); emphasis on latter half.
-	2/20	NO CLASS	MLK DAY
22	2/21	8.2, 8.5	Skip subsec on p. 391, & last subsec. on p. 393.
-	2/22	Lab 7	Chapter 7
-	2/23	Returning and Going over Test 2	Attendance IMPORTANT!
23	2/24	8.1, 8.3	Skip 8.4
24	2/27	8.3, 8.5	
-	2/28	Lab 8	Chapter 7, 8
25	3/1	9.1-9.2	We may do 9.3 only in the lab.
26	3/2	11.1-11.2	
27	3/3	11.2 - 11.3	
28	3/6	11.4, 11.5	Skip subsecs on p.522, 532
-	3/7	Lab 9	Chapter 9, 11
29	3/8	8 (power)	Skip 11.6 except model selection, p.542 & multicollinearity, p.545
-	3/9	Q/A	Come to class with questions.
-	3/10	**TEST 3/Final Exam**	Comprehensive, emphasis on latter material.