ISDS 513: Statistical Analysis
Syllabus: Fall, 2016

CALIFORNIA STATE UNIVERSITY
FULLERTON
Mihaylo College of Business and Economics
Department of Information Systems & Decision Sciences

Class meets: T, 7.00 – 9.45 PM, SGMH 2504
Instructor: Dawit Zerom, Ph.D. (Professor) **Email:** dzerom@fullerton.edu
Office: SGMH 4139 **Office hours:** T, 6.00 – 7.00 PM

Description: In this course I introduce the theory and application of statistics. By the end of the course, students will be able to determine which statistical technique(s) is (are) appropriate for a given applied context, and also be able to effectively *communicate* their findings. Remember that the goal of this course is not to make you a statistician – but to make you be able to think statistically. We also point out how statistical concepts can sometimes be misused to distort the truth and hence raising *ethical issues*.

FYI: The course moves at a very fast pace where I cover several topics each week. We also solve a number of problems in class. I advise **students to attend all my lectures** and study regularly.

Your Emails: In all your emails addressed to me, write your name, class code, and class time in the subject line. If this is not provided, I will simply ignore the email. I can usually provide *only short responses to questions* via email. See me in office hours for more detailed help.

Text: *Statistics for Business and Economics*, Revised, 12e, by Anderson, Sweeney, Williams, Camm and Cochran, published by Cengage. The book is available at the university bookstore.

Reading Materials: All materials that I use for this course will be made available on course Titanium page.

Software: Microsoft Excel 2013.

Text Book Resources: When you purchase a new (not a used) text book, additional resources (data banks, etc.) are available from the publisher's website.

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Grading and Related Issues

Description	***Weight***
Short Reports (×3)	10 points
Exam #1	22 points
Exam #2	23 points
Exam #3	20 points
Exam #4	25 points
Total	**100 points**

About Exams

- The following are the **tentative**[1] dates for exams:

  Exam #1: **SEP 20**
  Exam #2: **OCT 18**
  Exam #3: **NOV 28**
  Exam #4: **DEC 13** (Exam will start at **7.30 PM**)

- There will be NO MAKE-UP EXAM except under extreme circumstances such as illness that require doctor's visit. Student is required to submit **verifiable** documentation supporting the make-up request. Please be aware that a letter stating that a student **visited a doctor** on exam day **does not qualify** for a valid document.

- If you have questions regarding your exams grade, you must inquire about them **within one week** after graded exam results are communicated to the class.

[1] I deserve the right to change the dates of **Exam #1, Exam #2** and **Exam #3** if I find it necessary. But, the schedule of the **Exam #4 cannot be changed**.

About Short Reports

- There will be 3 business cases that require **short report writing** by each student. A real data is provided pertaining to the case. Students will analyze the data using functionalities in EXCEL, and summarize their findings in the form of a short report not exceeding 1.5 pages.

- Hand in your report in the beginning of the class. Only hard copies are accepted. If you submit by email, it is considered a non-submission, and you receive a zero for that case.

- A sample solution report will be posted for your review, and case reports will not be returned back to the student. Keep a copy of your report for future reference.

- A report which is partly or entirely hand-written is assigned an automatic ZERO. See for evidence of poor report below.

- The minimum a student receives for a case report is 0. Handing in a report is no guarantee for receiving any credit.

- If students submit reports that are similar except for some cosmetic differences, **I will assign F grade for the ENTIRE course**. No exception to this rule. So I strongly advise students not to discuss their work with other students.

- Please read the section on Academic Dishonesty.

- Poor report (will result in significant loss of points) is characterized by one or more of the following:

    1) Report is done in rush and hence is inconsistent. It also has several errors – grammatical, typo, etc…
    2) Report shows very weak mastery of the concepts. In this case, it will contain lots of vague statements and generalizations with no support.
    3) Report is not well organized and does not reflect seriousness.

Extra credit opportunities (up to 5 points)

Students can earn extra credits in two ways.

1. **Attending regularly:** In this course, most of the learning occurs during lectures. So, it is very critical that **you attend all my lectures**. To encourage regular attendance, I will reward those students with **extra credits** that will count toward final grade. I will assign up to **0.5 points** for those students who are in attendance for **each randomly selected** meeting. I may assign up to **a maximum of 2.5 points** in total extra credits.

   KEEP IN MIND: ***Prior notification of absence for any reason*** *cannot make up for a lost extra credit.*

2. **Review type online quizzes**

   By completing 5 quizzes, a student can earn **up to a maximum of 2.5 points** that will count toward the final grade.

   - After a student has carefully watched a few exercise videos pertaining to selected topics, a review quiz will presented for the student to complete.
   - In their current form, the exercise videos are **experimental.** *So, we ask for your patience and understanding while going through the videos*. We suggest students watch the videos a few times
   - The content of a particular quiz is **based mainly** on the corresponding assigned exercise video (s). But, students are advised to do their own review before starting a quiz.
   - Quizzes are intended to serve as **reviews** for exams and their degree of difficulty is **considerably less than exams**. The nature of the quizzes will also be totally different from exams.

Final grade: Your final grade will be based upon your total accumulated points in 4 exams, 3 short reports and available total extra credit (up to 5 points). The following scale will be used**.**

Cumulative Points	Letter Grade
>= 94	A
90 - 93	A-
86- 89	B
80 - 85	B-
70 - 79	C
60 - 69	D
< 60	F

- **NO CURVE** is used to determine grades. Grades are based on fixed scales!!

Academic dishonesty: As a student taking coursework in this College, you have an obligation to maintain the highest standards of ethical conduct. This involves avoiding acts of academic dishonesty. The reason for requiring the highest standards of ethical conduct is to ensure fairness, honesty and integrity in the evaluation of student performance. Evaluation of student performance should not be invalidated by students intending or attempting to misrepresent the skill, achievement or ability of either themselves or others. If detected, academic dishonesty may result in an F for the course plus additional university-level disciplinary actions. In addition, any incident of academic dishonesty may be reported to the department chair and Judicial Affairs.

Internet Related

- It is your responsibility to check if you can access the course Web sites before any work is due and immediately report any problems. Undocumented connectivity problems will not be accepted as an excuse for not turning in the assigned work; you may submit your work by e-mail only if you experience problems with posting it to the course Web site.
- It is your responsibility to frequently check course Titanium as well as your email for updates, announcements and other course related resources.
- *Tracking and netiquette:* Your online activity on all course Web sites will be tracked and a copy of your online activity log will be kept. Appropriate online behavior is expected from all students using the course Web sites.

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Assessment Statement: The programs offered in Mihaylo College of Business and Economics (MCBE) at Cal State Fullerton are designed to provide every student with the knowledge and skills essential for a successful career in business. Since assessment plays a vital role in Mihaylo College's drive to offer the best, several assessment tools are implemented to constantly evaluate our program as well as our students' progress. Students, faculty, and staff should expect to participate in MCBE assessment activities. In doing so, Mihaylo College is able to measure its strengths and weaknesses, and continue to cultivate a climate of excellence in its students and programs.

Disabled Student Services: For information about student's right to accommodations for documented special needs, contact Disabled Student Service Office, UH 101, (657) 278-3117 or visit www.fullerton.edu/disabledservices .

Emergency Policy: See link-
http://www.fullerton.edu/emergencypreparedness/ep_students.html

Classroom Etiquette:

Attendance: If you decide to attend a particular lecture, please be in (or on) time for the class. If you miss class for any reason, you are still responsible for all materials covered and announcements made. ***Bathroom Breaks:*** You should not normally leave or re-enter the classroom during the class period. Doing this is disruptive to fellow students and to the instructor. If you are affected by illness or medication such that you realize it may be necessary for you to leave during the class period, then please arrive early enough to sit close to the door so that you may leave and return with a minimum disturbance. ***Cell Phones:*** All cell phones, pagers, and Blackberries must be turned off for the duration of the class. Text messaging or emailing, after the start of the class, is not permitted under any circumstances and if you are caught text messaging or emailing you may be asked to leave the class. ***Laptops:*** laptop usage is not allowed during class unless you obtain permission to do so.

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Course Outline: It must be noted that this schedule is tentative.

Day	Topic/Activity	Key Concepts	Readings
AUG 23	**1. Statistics and Data** **2. Exploring Data**	Data – information, Data-driven Decision making, Business Analytics, Data types and measurement scales, Descriptive/inferential statistics, Population/sample, Sampling biases/ Histogram- density, Symmetry, skewness, modality, mean, median, mode, range, variance, standard deviation, coefficient of variation, the empirical rule, Chebysheff's theorem, box-plots, quartiles/percentiles	- **Power Point Notes** - **Chapter 1** - **Power Point Notes** - **Chapter 3 (Sections 1-4)**
AUG 30	*Continued…* **Exploring Data**		
SEP 6	**Normal Probability Model**	Random variable, discrete, continuous, normal density, bell-curve, calculating probabilities, dealing with inverse problems	- **Power Point Notes** - **Chapter 6 (Section 2)**
SEP 13	**Sampling Distributions**	sampling distribution, central limit theorem, normal distribution, t-distribution, sample mean, sample proportions	- **Power Point Notes** - **Chapter 7 (Sections 4 -6)**

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SEP 20	1. ***Unfinished items…*** 2. **Exam #1**		
SEP 27	**Interval Estimation**	Interval estimator, point estimator, confidence level, precision, known/unknown population standard deviation, t-distribution, degrees of freedom, sample size	- **Power Point Notes** - **Chapter 8** **(Sections 1 - 4)**
OCT 4	*Continued…* **Interval Estimation** **Hypothesis Tests**	Null and alternative hypothesis, claim, sample evidence, critical value, p-value, rejection region, Type 1 and 2 errors	- **Power Point Notes** - **Chapter 9** **(Sections 1, 2, 3, 4, 5)**
OCT 11	*Continued…* **Hypothesis Tests**		
OCT 18	*Continued…* **Hypothesis Tests** **Exam #2**		

OCT 25	**Inference about means and proportions with two populations**	Two populations, independent samples, matched samples, interval estimators, hypothesis tests	- **Power Point Notes** - **Chapter 10** **(All sections)**
NOV 1	*Continued…* **Inference about means and proportions with two populations**		
NOV 8	**Experimental design and analysis of variance (ANOVA)**	ANOVA as a generalization of two-sample tests, one-way ANOVA, two-way ANOVA, ANOVA with interactions, ANOVA without interactions, Completely randomized design	- **Power Point Notes** - **Chapter 13** **(Sections 1, 2, 3 and 5)**
NOV 15	*Continued…* **Experimental design and analysis of variance (ANOVA)**		

NOV 22	**FALL RECESS**	**NO CLASS**	**NO CLASS**
NOV 29	**1. Regression Models** **2. Exam #3**	Scatter plot, correlation, causation, linear regression models, p-value, t-tests, F-tests, ANOVA table, R-squared, prediction	- **Power Point Notes** - **Chapter 14 (Sections 1 - 7)**
DEC 6	*Continued…* **Regression Models**		-