

Statistics 300	– Introduction to Probability and Statistics (Course Code – 15412)
Time	– Spring 2015: Tue/Thu 7:00 p.m. to 9:05 p.m. [1/17/2015 to 5/20/2015]
Room	– L-112 (bottom floor of Library building – northeast corner)
Instructor	– Lawrence C. Larsen
Phone	– (916) 346-6324 [phone or text]
Office	– <no office on campus>
Office Hour	– After each class from 9:10 to 9:35 p.m. in Library Room L-112
E-mail:	– <a href="mailto:larsenl@crc.losrios.edu">larsenl@crc.losrios.edu</a> (All letters, no numbers)
Class Web Site	– <a href="http://web.crc.losrios.edu/~larsenl">http://web.crc.losrios.edu/~larsenl</a> (All letters, no numbers)

**DROPS:** Enrolled and wait list students will be dropped by the instructor if they miss the first class session and do not contact the instructor (phone, e-mail, or text) before the first class ends.

## PREREQUISITES

Intermediate algebra (Math 120 or Math 125) with a "C" or better. An automated system checks prerequisites taken in the Los Rios District since 2003. The system will not let you enroll or be put on the wait list until it knows you qualify. If you want to add the class, talk with me about how to become qualified, which needs to be done by Friday, January 30.

## TEXTBOOK and CALCULATOR

*Elementary Statistics*, 2<sup>nd</sup> California Edition, by Mario F. Triola [any available format, such as paperback, e-book, loose leaf, etc. is OK]. Neither the CD nor MyStatLab will be used.

*Elementary Statistics*, 12<sup>th</sup> Edition, by Mario F. Triola, will also work and is widely available. It is page-for-page the same, but some pages don't have "California" examples (which I don't use).

Calculator: The Texas Instruments Model **TI-30X IIS** or **TI-30X IIB** is "**required**". This calculator is widely available for less than \$20.00 (tax included). Instructor will not explain any graphing calculator. If you use a graphing calculator, it will probably be no advantage, and you will be "on your own."

## COURSE OBJECTIVES

1. Develop skills in understanding and applying basic statistical methods.
2. Develop an appreciation for the use of statistics in decision making, and an appreciation of its limitations.
3. Develop an ability to use computers and/or calculators for statistical analysis of data.

## COURSE DESCRIPTION

The course covers basic concepts, descriptive statistics, probability, random variables, probability distributions, parameter estimation, hypothesis testing, linear correlation, linear regression, contingency tables, and analysis of variance. Applications are made to business, social sciences, and natural/physical sciences.

## GRADING POLICY

Everyone can earn an "A" in the class. Students compete with the material, not with each other (i.e., you will not be graded on a "curve"). Grades are based on three exams and about 20 quizzes as follows:

<b>Quizzes</b>	<b>25 %</b>	<b>(One quiz will be dropped in each of the three Units)</b>
<b>Unit1 Exam</b>	<b>25 %</b>	<b>(on Thursday, February 26)</b>
<b>Unit2 Exam</b>	<b>25 %</b>	<b>(on Thursday, April 9)</b>
<b>Unit3 Exam</b>	<b>25 %</b>	<b>(Final Exam on Tuesday, May 19)</b>

**[no exams will be dropped]**

Exams and quizzes are "open notes and open book." Do not plan to look everything up during exams. Exams are challenging, and some problems will not "look like" those you have practiced, though they will involve the same principles. "Open notes and open book" means you must be well organized. You should be able to find what you need in the book or in your notes within 15 seconds.

Exercises from the book are assigned for practice. These exercises will not be handed in or graded, but they are considered part of your notes, so you can refer to them during exams.

Letter grades will be determined by the following schedule:

<b>A</b>	<b>-- 90 to 100 %</b>
<b>B</b>	<b>-- 80 to 89 %</b>
<b>C</b>	<b>-- 70 to 79 %</b>
<b>D</b>	<b>-- 60 to 69 %</b>
<b>F</b>	<b>-- &lt; 60 %</b>

## OTHER POLICIES

1. Missed exams are very difficult to make up. Check the schedule and plan for all exams. Talk to the instructor well ahead of time if the schedule for an exam is a problem for you.
2. Attendance is taken every class session. CA law requires that you miss VERY few classes.
3. If you decide to drop the class, it is your responsibility to follow the prescribed procedures. If you just stop attending, you may end up with an "F" on your transcript.
4. Cell phones must be OFF in the classroom, so they do not interfere with the broadcast signal provided to cable services. Other noise-makers (pagers, laptops, etc.) must be quiet. Attention must be toward the class, so outside communications (texting, etc.) are not acceptable during class.
5. Honesty (doing your own work on exams and any extra credit offering) is required. Students may cooperate on all practice problems and "take home" quizzes, but you should try them before working with others. The instructor will follow campus policies on academic integrity. Please take this seriously, get the benefit of doing all your own work, and expect to be caught and reported if you "cheat". To reduce temptations to cheat, exams may be copied before they are returned, and multiple versions of exams may be prepared so the answers your neighbor gets may not be the correct answers for you.

## RESOURCES

- **Math Center** (Enroll in MATH 74 for ¼ unit for full access for the whole semester)
  - informal tutoring
  - extra resources (videos, etc.)
  - good place to get together and work with others in the class
- **MESA** (Math/Engineering/Science Achievement) Center
- **Instructor**
  - See front page of syllabus for contact information
  - Phone
  - e-mail (text instructor to alert him if you send an e-mail)
  - Text (better than email)
- **Desire2Learn (D2L)** is a gateway to class resources on the web, to archived videos of class sessions, to grades for quizzes and exams. On D2L, you will find a required form to be completed and submitted before in-classroom (broadcast) participation.
- **EOP&S** (<http://crc.losrios.edu/services/support/eops>) support services if you qualify
- **DSPS** (<http://crc.losrios.edu/services/support/eops>) if you have a disability
- **CARE** (<http://crc.losrios.edu/services/support/care>) financial help if you qualify

### Important Dates from the CRC website.

Spring Term 2015	Start-End Dates of Terms	Last Day to Drop Class to Qualify for a Refund for Enrollment and Tuition Fee	Last Day to Drop Class Without Notation on Record	Last Day to Drop Class with a "W" Grade	Last Day to Petition for Credit/No Credit
Full Semester	1/17 – 5/20 (Last day to enroll is 2/1)	1/30	2/1	4/19	2/20

## CONTACT NUMBERS

CRC Science/Math/Engineering Department (916-691-7204)

CRC Math Center (916-691-7459)

CRC Bookstore (916-691-7319)

CRC Admissions & Records (916-691-7411)

## **Student Learning Objectives (SLOs)**

### **Learning Outcomes and Objectives for Statistics 300**

*Upon completion of this course, the student will be able to:*

**SLO 1: ORGANIZE, DISPLAY, DESCRIBE AND COMPARE REAL DATA SETS.**

- Organize and display data appropriately by preparing tables and graphs.
- Analyze data by computing measures of central tendency, measures of dispersion, and measures of position.
- Analyze bivariate data for linear trends using the least-squares regression model and the correlation coefficient.

**SLO 2: DISTINGUISH BETWEEN PROBABILITY MODELS APPROPRIATE TO DIFFERENT CHANCE EVENTS AND CALCULATE PROBABILITY ACCORDING TO THESE METHODS.**

- Compute probabilities using the laws for sums, products, conditionals, and complements.
- Analyze both discrete and continuous probability distributions by considering areas under the graph of a function or a histogram.
- Use the normal and binomial probability distributions to compute probabilities.

**SLO 3: APPLY INFERENTIAL STATISTICAL METHODS TO MAKE PREDICTIONS, DRAW CONCLUSIONS ABOUT HYPOTHESES AND COMPARE POPULATIONS.**

- Select the appropriate hypothesis test, perform the necessary computations and comparisons for the test, and explain the conclusion of the test.
- Test significance of correlation and make predictions based on linear trends using the least-squares regression model.
- Create and interpret confidence interval estimates for population parameters based on appropriate probability models.

*Additional Instructor Teaching Objectives (ITOs) –*

*Upon completion of this course, students will have improved their ability to:*

**ITO 1: ADDRESS UNFAMILIAR ANALYTICAL SITUATIONS CALMLY AND WITH COURAGE.**

**ITO 2: INTERPRET THE MEANING OF ALGEBRAIC EXPRESSIONS USED IN STATISTICAL FORMULAS.**

**ITO 3: INCORPORATE STATISTICS INTO QUANTITATIVE THINKING ABOUT THE WORLD IN WHICH THEY LIVE.**