Math-15-E3656
Elementary Statistics

Semester & Year:	Summer 2013
Course ID and Section Number:	Math-15-E3656
Number of Credits/Units:	4 units
Day/Time: **Location:**	MTWTh 11:00 – 12:35 PM PS 117
Instructor's Name:	Mr. Jon Pace
Contact Information:	Office hours: MTWTh 12:35 – 1:15 PS 117 Email: jonothan-pace@redwoods.edu or via MyCr

Course Description (catalog description as described in course outline):

The study of statistical methods as applied to descriptive statistics and inferential statistics. An emphasis on the meaning and use of statistical significance will be central to the course. Students will use frequency distributions, graphs, measures of relative standing, measures of central tendency, measures of variability, correlation, and linear regression to explore descriptive statistics. Students will use the laws of probability and statistical tests (t-tests, chi-square, ANOVA, and regression analysis) to make decisions via hypothesis testing and estimate parameters using confidence intervals.

Special notes or advisories: A TI-83 or TI-84 graphing calculator is required

Student Learning Outcomes (as described in course outline) :

1. Accurately communicate statistical ideas using correct statistical notation, graphs, and vocabulary.
2. Use descriptive and inferential statistics to solve real-world problems.
3. Demonstrate appropriate use of technology in making decisions based upon real-world data.
4. Read and interpret information that contains statistical analysis and be able to communicate these results.
5. Judge the validity of research reported in the mass media and peer reviewed journals.

Special accommodations: College of the Redwoods complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. Please present your written accommodation request at least one week before the first test so that

necessary arrangements can be made. No last-minute arrangements or post-test adjustments will be made. If you have a disability or believe you might benefit from disability related services and may need accommodations, please see me or contact Disabled Students Programs and Services. Students may make requests for alternative media by contacting DSPS.
Academic Misconduct: Cheating, plagiarism, collusion, abuse of resource materials, computer misuse, fabrication or falsification, multiple submissions, complicity in academic misconduct, and/ or bearing false witness will not be tolerated. Violations will be dealt with according to the procedures and sanctions proscribed by the College of the Redwoods. Students caught plagiarizing or cheating on exams will receive an "F" in the course. The student code of conduct is available on the College of the Redwoods website at: http://redwoods.edu/District/Board/New/Chapter5/AP%205500%20Conduct%20Code%20final%2002-07-2012.pdf Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the college catalog and on the College of the Redwoods homepage.
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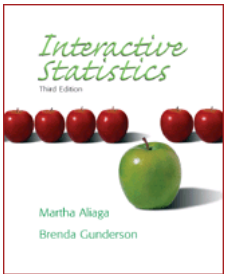
* I reserve the right to change this syllabus at any time.

Course Prerequisites

Math 120 or Math 194 (or equivalent) with a grade of "C" or better or appropriate score on the math placement exam.

***Describe representative skills without which the student would be highly unlikely to succeed*:** Intermediate algebra provides the mathematical content level needed to succeed in this course, as well as the ability to persist when the critical thinking involved becomes more advanced. Particular skills include the use of set-notation and logic, inequalities, square roots, function notation, linear functions, and percents. Ability to solve algebraic equations analytically, graphically, numerically and verbally in real-world settings. Ability to use technology in the study of these functions.

Materials you will need:



- **Required Text**: *Interactive Statistics*, 3rd Edition, by Aliaga & Gunderson. Published by Prentice Hall. 2006.

- **Graphing Calculator**: A Graphing Calculator, such as a TI-83 Plus, TI-84 is required. A limited number of calculators are available **for rent** from the CR Math Department.

- **Time. Lots!!** In your own weekly schedule please make sure that you have blocked out at least 20 hours *(possibly as much as 25 hours)*, per week, to devote to this class. ***N.B.***: This summer, the entire semester course is jammed into just *9* short weeks. The pace is fast and furious – about 1000 pages in a quick ***9*** weeks! Do the math!

Resources Required:

1. Pencils and erasers **(pens may not be used in this class)**.
2. Ruler or straightedge.
3. **Graphing calculator.**
4. Graph Paper.
5. Note book for taking notes.

Recommended

1. Math Lab - Hours TBD
2. I would recommend forming study groups. They are a great way to study for exams and do homework problems.
3. The Math 15 course page (for your interest) is located at http://msenux.redwoods.edu/mathdept/outlines/current/math15.php

Classroom Environment

It is essential to our class that both students and teacher behave in a manner that will provide a comfortable learning atmosphere. Be respectful of one another. We are all adults and an open, comfortable environment is crucial for learning. Therefore, you should not hesitate to ask any questions or feel embarrassed to ask any question or seek help. **Turn off cell phones before entering the classroom**.

Homework

- **Reading** — Read instructions for each Learning Unit carefully — This will tell you which pages to read. This class covers a LOT of information and we go faster during the summer session; it is extremely important that you keep up. There will be a few parts of the textbook that we will skip, but we will cover nearly 125 pages each week.

- **Homework Exercises** — Read instructions for each assignment carefully — This will tell you which problems are assigned. Doing homework exercises is an important part of the process by which you learn the material. It is recommended that you also work through the examples as you read, and work additional problems besides those assigned. Try to finish the homework before the following class, but if have questions, you will be allowed to turn in your homework two class meetings after it was assigned.

Exams and Quizzes

- **Short Quizzes** — We will have short quizzes often. Some will be online and some will be in class. These quizzes are important for letting us know how you are doing and what needs further work (important for both you and me to know).

- **Unit Exams** — There will be six Unit Exams, each approximately 45 minutes, each of which will focus on the material from that Unit.

- **Final Exam** — There will also be a comprehensive Final Exam on the last day of class.

Final Exam: Thursday, July 25, 11:00 – 12:35 PM

Data Projects

There will be several short assignments for you to do that involve analyzing data, and turning in written assignments. Details will be provided separately.

Grades

Your final grade will be determined as follows:

OPTIMATH/ In-class Quizzes:	15 %
Homework:	20 %
Data Projects:	15 %
Exams:	40 %
Final Exam:	10 %

The grade breakdown is as follows:

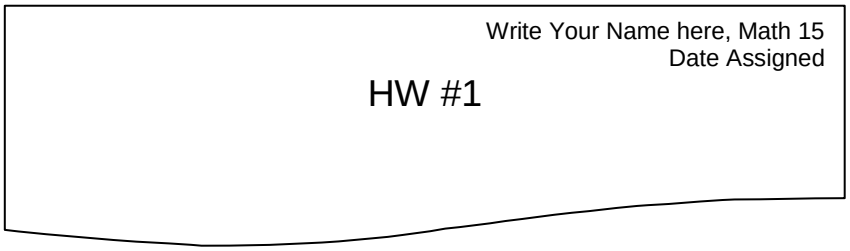
A	93 - 100%	C+	77 - 79%
A-	90 - 92%	C	70 - 76%
B+	87 - 89%	D	60 - 69%
B	83 - 86%	F	0 - 59%
B-	80 - 82%		

Attendance and Participation

It is expected that you come to class, be prepared, and arrive on time. I will take roll daily. You are responsible for any and all material covered in class which includes quizzes.

Guidelines for Homework

Here are some very general instructions for how I want you to do your homework:



1. When you turn in your homework, if there are multiple pages, please make sure they are in the correct order. Also do not run the problems into each other – each problem should be clearly marked and easy to find.

2. Label each homework assignment clearly in the center at the top with the assignment number: "**HW #1**" or whatever *number* it is.

3. At the top right side of the page, write **your name** and "**Math 15**" and the **date**.

4. **You must use a pencil (NO PENS),** and erase carefully, when necessary.

5. Label each problem clearly, and ***paraphrase the question*** – you do not need to copy all the words of the question exactly as it is in the book, but you should write enough so that anyone looking at it (who does not have the book in front of them) can tell what it was that you were supposed to do.

6. Show your work – ***do not just turn in a list of answers***.

7. Work down the page (two columns is OK) – Each problem should be below the one you just did (**not** next to it).

8. **Check all your answers in the back of the book before** turning it in. It is your responsibility to check your work and get help if and when you have questions.

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Math 15 Learning Units — *What material will we cover?*
The course material is organized into six Learning Units. Each Unit includes more than one Chapter. At the end of each Unit, there will be a Unit Exam.

Unit	Chapters and Data Collection Assignment
1	Chapter 1: How to Make Decisions with Statistics (pp 1-52, 62-66) Chapter 4: Summarizing Data Graphically (pp 211-284) Chapter 5: Summarizing Data Numerically (pp 299-333, 344-5) Data Project #1: Quantitative Data, 1 variable from 2 related populations; turn in graphs for comparisons and summary statistics for comparisons.
2	Chapter 6: Using Models to Make Decisions (pp 357-397) Chapter 7: Probability (pp 409-439, 454-470, 478-489) Chapter 2: Sampling Designs (pp 83-135) Data Project #2: *Proportion*: Binomial data, 1 categorical variable from 1 population.
3	Chapter 8: Sampling Distributions (pp 499-545, 555-7) Chapter 9: Making Decisions About Population Proportions (pp 563-594, 602-7) Chapter 10: Making Decisions About Population Means (pp 613-33, 639-53, 657-8) Data Project #3: Bivariate Quantitative Data, 2 variables from 1 Population.
4	Chapter 3: Observational Studies & Experiments (pp 145-196) Chapter 11: Comparing Two Treatments (pp 669-727) Chapter 12: Comparing Many Treatments (pp 743-761, 791-3) Data Project #4: Use same data from Data Assignment #1; use T-Test and Confidence Intervals to compare.
5	Chapter 13: Regression Analysis (pp 807-901) Data Project #5: Use bivariate data set from previous data collection.
6	Chapter 14: Analysis of Count Data (pp 921-966) Chapter 15: Nonparametric Statistics (pp 977-1002) Data Project #6: Multinomial Data (Categorical), 1 categorical variable from 1 Population.