Syllabus for: Elementary Statistics

Semester & Year:	Summer 2014
Course ID and Section Number:	MATH 15 – E5792 035792
Number of Credits/Units:	4
Day/Time: **Location:**	M, T, W, TH, 9:00a.m. – 10:30a.m. Room SCS208
Instructor's Name:	Richard Ries
Contact Information:	Office location and hours: Math Laboratory 10:30am – 11:15am M,T,W,TH and by appointment Email: richard-ries@redwoods.edu

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.

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://www.redwoods.edu/District/Board/New/Chapter5/AP%205500%20Conduct%20Code%20final%2002-07-2012.pdf
College of the Redwoods is committed to equal opportunity in employment, admission to the college, and in the conduct of all of its programs and activities.

ATTENDANCE: Mathematics Department Policy Regarding "Faculty Withdrawal" of Students after Census Day: A student who is absent from class for the amount of time equal to two weeks of classes, will be withdrawn from the course, unless there are extenuating circumstances that are communicated to the instructor in a timely manner. This "faculty withdrawal" can occur between Week 4 and Week 10 of the semester.

- **Textbook**: *Interactive Statistics*, 3rd Ed., by Aliaga and Gunderson. ISBN 0-13-149756-1.
- **Student Solutions Manual**: *Interactive Statistics Student Solutions Manual*, 3rd Ed., by Gunderson. ISBN 0-13-149837-1
- **Graphing Calculator**: Students will use graphing calculator in the Math 15 course. Students can rent a calculator for the semester for $20. Ask your instructor for information.
- **Companion Website - Aliaga, 3rd Ed.**

  http://www.prenhall.com/aliaga

- **Math Lab**: Math 52 is the Math Lab course for Math 15 students.
- **OPTIMATH** is our locally-developed online practice and testing system. The portal for OPTIMATH is http://msenux.redwoods.edu/optimath

Instructor Philosophy: The focus of learning is the student's analysis of experiences. Skill is required to combine first hand experiences, dialogue, thoughtful analysis and interpretation to give meaning and application of these experiences to life. Learning as an adult is an expansion of one's knowledge (facts and ideas), thinking (ability to assess) and behaviors (skills). Successful learning requires the cooperative efforts of both teachers and students. I am here to provide resources and facilitate the pursuit of your education. Studies have shown that the most successful students are those who ask questions and participate in discussions. I look forward to working with a class who, as adults, understand that the acquisition of knowledge is a matter of personal responsibility that requires active participation.

Goals of This Course: The goal of this course is to help you to become proficient in Statistics and prepare you for success in your studies (and other future math classes, if your major requires it). Many subjects use statistics as their basis today so it is important to have a firm understanding of statistics for most disciplines. The best way to master any math topic is to practice by doing exercises. The more you practice, the better you will become. Other successful learning strategies include forming study groups and outlining reading materials. If you are having difficulty with any topic, please come see me early to get you back on track as soon as possible. You can either see me during my office hours, or make an appointment by email at Richard-Ries@redwoods.edu. Catching me after class is best. With the right attitude, stats can be fun^2!

Student Responsibilities: You are expected to come to class prepared by having read the assigned chapters and handouts, and completed all prior assignments. Proper adult behavior is expected at all times. The instructor reserves the right to dismiss a student from class permanently for disruptive behavior. Disruptive behavior is any behavior that distracts the instructor or other students. The instructor has an obligation to promote the learning of the students of the class and anyone who is disrupting the learning process will be dropped for lack of academic effort. A lack of academic effort also includes, but is not limited to the following: missing or failing assignments, excessive absences, arriving late to class, exiting class before its termination, cheating, plagiarism or other disruptive behaviors. Also, please have your cellular phones off while in class and do not bring food or drink to class. If you wish to be dropped from the class it is your responsibility to do so.

Homework: Homework will be assigned daily and is due the following class session. For each section that is covered, you will be expected to complete every odd exercise (and sometimes exercises ("entitled lets do it") for each section we lecture on in your book as well as the hand out assignments that will be distributed after the completion of each section. This will usually be the odd exercises at the end of each section in your text. There will be 20 homework assignments worth a total of 5 points each. Points will be awarded based on two criteria: 3 points will be awarded for the student's attempt to complete the assignment and 1 point for each correct answer of 2 problems selected for grading from each assignment. So, 100 points, or 10% of your class grade, will come from homework.

Quizzes and Group work: There will 10 scheduled quizzes in accordance to the dates posted and an additional 10 Pop quizzes or group activities that will be given at random and unannounced. Quizzes will be generated from the previous two homework assignments. The questions that appear on quizzes will be similar in nature to your homework. During group work, you will be asked to work cooperatively with two, or three, of your classmates to solve a problem that I will assign to you. Your group will then present the solution and explain how your group solved the problem to the rest of the class. Grades from quizzes and group work are worth 5 points each for a total of 100 points, or 10% of your class grade.

Tests: There will be 4 midterm tests and a final in this class. See the attached handout for the dates. Please remember that **only under extreme emergency will I give a make up exam**.

Documentation must be provided (e.g. police report, proof of hospitalization, etc.). Calculators are not allowed on any of the exams. Cheating is a very serious offence and anyone caught cheating will receive a grade of "F" for the course, and will be reported to the committee of academic honesty. I expect all problems to be worked out completely and legibly. Please also note that the final is cumulative. Each Midterm exam will be graded out of 150 points and will count for 15% of your class grade. The final will be worth 200 points and will count as 20% of your class grade. **Note: in order to pass this class you must successfully complete the final examination.**

			Grade Record					
Homework	10%	100 pts.____	____	____	____	____		
			____	____	____	____	____	
			____	____	____	____	____	
			____	____	____	____	____	(5 each)
Quizzes/Class projects	10%	100 pts.	____	____	____	____	____	
			____	____	____	____	____	
			____	____	____	____	____	
			____	____	____	____	____	(5 each)
Midterm 1	15%	150 pts.	____					
Midterm 2	15%	150 pts.	____					
Midterm 3	15%	150 pts.	____					
Midterm 4	15%	150 pts.	____					
Final Exam	20%	200 pts.	____					
Total	100%	1000 pts.				Total _____		

If you need your course grade as soon as possible, please e-mail me at Richard-Ries@redwoods.edu.

Attendance: I reserve the right to drop from the course any student that has more than three unexcused absences. Reference: Title 5, Sections 55024 and 58004. Approved: 05/01/2012

******* I expect you to attend every class meeting on time and ready to learn. ********

GRADE SYSTEM: Your final grade will be determined as follows :

I will be using the plus/minus grade system. The break down is

A 930-1000	B 830-869	C 700-769
A- 900-929	B- 800-829	D 600-699
B+ 870-899	C+ 770-799	F 0-599

Or in terms of percent's, the break down is as follows:

A 93-100%	B 83-86.9%	C 70-76.9%
A- 90-92.9%	B- 80-82.9%	D 60-69.9%
B+ 87-89.9%	C+ 77-79.9%	F 0-59.9%

This information is subject to change depending on class circumstances.

MATH 15 Weekly Schedules

NOTE: This schedule is approximate and may be modified as the semester progresses.

Week	Topics
1 5/27 5/28	Section 1.1 An Introduction to Statistics and the Scientific Method Section 1.2 Decision, Decisions Section 1.3 The language of Statistical Decision Making Section 1.4 What's in the Bag? Section 1.5 Selecting Two Vouchers
1 5/29	Section 1.6 Significant verses Important Review for the Chapter 1 Exam
2 6/2 6/3	Chapter 1 Exam Section 2.1 Introduction Section 2.2 Why Sample? Section 2.3 The Language of Sampling
2 6/4 6/5	Section 2.4 Good Data? Section 2.5 Simple Random Sampling Section 2.6 Stratified Random Sampling
3 6/9 6/10	Section 2.7 Systematic Sampling Section 2.8 Cluster Sampling Section 2.9 Multistage Sampling Section 3.1 Introduction Section 3.2 Why Study Studies?
3 6/11 6/12	Section 3.3 The Language of Studies Section 3.4 Understanding Observational Studies Section 3.5 Understanding Experiments Section 3.6 Reading With a Critical Eye Section 3.6 What about Ethics?
4 6/16 6/17	Review for Exam 2 Exam 2 Section 4.1 Introduction Section 4.2 What are we Summarizing?
4 6/18 6/19	Section 4.3 Displaying Distributions-Qualitative Variables Section 4.4 Displaying Distributions- Quantitative Variables Section 4.5 Guidelines for Plots, Graphs, and Pictures Section 4.6 Adding and Subtracting Mixed Numbers

	5	Review for Exam 3
6/23		Exam 3
6/24		Section 5.1 Introduction Section 5.2 Measuring Center Section 5.3 Measuring Variation or Spread

Week		Topics
	5	Section 5.4 Linear Transformations and Standardization
6/25 6/26		
	6	Section 6.1 Introduction
6/30		Section 6.2 Why Do We Need to Know Models?
7/1		Section 6.3 Modeling continuous Variables Section 6.4 Modeling Discrete Variables
	6	Section 7.1 introduction
7/2		Section 7.2 What is Probability?
7/3		Section 7.3 Simulating Probabilities Section 7.4 The Language of Probability
	7	Section 7.5 Random Variables
7/7		Section 8.1 introduction
7/8		Section 8.2 Sampling Distribution of a Sample Proportion Section 8.3 Bias and Variability Sampling Distribution of a Sample Mean
	7	Section 9.1 introduction
7/9		Section 9.2 Learning about a population Proportion
7/10		Section 9.3 Testing Hypotheses about a Population Proportion Section 9.4 Confidence Interval Estimation for a Population Proportion Review for Exam 4
	8	Exam 4
7/14		Section 9.5 Determining a Sample Size
7/15		Section 9.6 Using Confidence intervals to Make Decisions
7/16		Section 10.1 Introduction
7/17		Section 10.2 Testing Hypotheses about a Population Mean Section 10. 3 Effective Size
	9	Section 10.4 Confidence Interval Estimation for a Population

Week		Topics
7/21		Mean
7/22		Section 10.5 Confidence intervals and Hypothesis Testing
7/23	9	Section 10.6 Confidence Interval Estimation with
7/24		Bootstrapping
		Chapters 11 and 13
	10	
7/28		14.1 Introduction
7/29		14.2 The Chi-Square Statistic
7/30		14.3 Test of Goodness of Fit
7/31		14.4 Test of Homogeneity
		14.5 Test of Independence
		Final Exam

The Homework for each section will be the odd numbered problems at the end of each exercise set.