Syllabus for: Statistics

Semester & Year:	Spring 2013
Course ID and Section Number:	MATH 15 – M2841 (032841)
Number of Credits/Units:	4
Day/Time:	T, Th from 6:00 – 8:05 PM
Location:	Room 114 (and Computer Lab)
Instructor's Name:	Richard Ries
Contact Information:	Office location and hours: Room 102 W, F 10:15am – 12:30pm T, TH 4:00pm – 6:00pm Phone: 707-962-2681 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. Instructions are available at the following link:

  Graphing Calculator Rental Program

- **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@rcc.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: will be assigned every class meeting, and is due at the beginning of the next class meeting.

Late homework will *not* be accepted! If you can't get the assignment in on time make sure you know the material because you will still be held responsible for the information.

Quizzes: Quizzes will be given on material covered in class and in the homework. Make up quizzes will not be given! We may be using the OPTIMATH testing system for some of the homework and quizzes.

Exams: We will have several exams plus one final exam this semester. Let me know in advance if you are going to miss an exam. Make-ups will only be given at *my* discretion. Do ***not*** *miss* an exam! The cumulative final exam is scheduled during finals week December 10 - December 14. Do NOT plan on leaving town until after your last final exam.

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
Homework 25%
Participation 5%
Exams 40%
Quizzes/Activities 15%
Final Exam 15%

I will be using the plus/minus grade system. The breakdown 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	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
2	Section 1.6 Significant verses Important Review for the Chapter 1 Exam
3	Chapter 1 Exam Section 2.1 Introduction Section 2.2 Why Sample? Section 2.3 The Language of Sampling
4	Section 2.4 Good Data? Section 2.5 Simple Random Sampling Section 2.6 Stratified Random Sampling
5	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?
6	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?
7	Review for Exam 2 Exam 2 Section 4.1 Introduction Section 4.2 What are we Summarizing?
8	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
9	Review for Exam 3 Chapter 3 Exam Section 5.1 Introduction Section 5.2 Measuring Center Section 5.3 Measuring Variation or Spread

Week	**Topics**
10	Section 5.4 Linear Transformations and Standardization
11	Section 6.1 Introduction Section 6.2 Why Do We Need to Know Models? Section 6.3 Modeling continuous Variables Section 6.4 Modeling Discrete Variables
12	Section 7.1 introduction Section 7.2 What is Probability? Section 7.3 Simulating Probabilities Section 7.4 The Language of Probability
13	Section 7.5 Random Variables Section 8.1 introduction Section 8.2 Sampling Distribution of a Sample Proportion Section 8.3 Bias and Variability Sampling Distribution of a Sample Mean

Week	Topics
14	Section 9.1 introduction Section 9.2 Learning about a population Proportion Section 9.3 Testing Hypotheses about a Population Proportion Section 9.4 Confidence Interval Estimation for a Population Proportion
15	Section 9.5 Determining a Sample Size Section 9.6 Using Confidence intervals to Make Decisions Section 10.1 Introduction Section 10.2 Testing Hypotheses about a Population Mean Section 10. 3 Effective Size
Finals Week	Final Exam

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