Syllabus for: Math 120 Intermediate Algebra

Semester & Year:	Spring 2013
Course ID and Section Number:	MATH 120 – M2842 (032842)
Number of Credits/Units:	4
Day/Time: **Location:**	T, Th from 1:00 – 3:05 PM Room 114
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): course in which functions are investigated graphically, numerically, symbolically and verbally in real-world settings. Linear, quadratic, absolute value, polynomial, rational, radical, exponential, and logarithmic equations and functions are explored. Technology is integrated into all aspects of the course.

Be sure to visit this page often, as there may be updates to the information provided.

http://msenux.redwoods.edu/math/courses/math120.php

Student Learning Outcomes (as described in course outline):

1. Evaluate and interpret general functions symbolically, numerically, and graphically.
2. Produce an accurate graph of each function type introduced in the course, identifying and plotting all salient features.
3. Demonstrate appropriate use of technology in analyzing the behavior of functions presented in the course.
4. Use mathematical models to analyze and interpret real-world situations.
5. Use sound mathematical writing and appropriate use of symbolism in presenting solutions of mathematical exercises and applications.

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.

Textbooks

Students will be given a **free** Intermediate Algebra textbook on the first day of classes in the form of a CD. The book is written by the mathematics department and will be given free of charge to all students in intermediate algebra in the spring semester, 2009. When you load the CD into your computer, double-click the file **start.html** to view a table of contents. The textbook files on the CD are in PDF format. You will need to **download** a free copy of the Adobe Reader to read them.

The Intermediate Algebra textbook is also available online at:

http://msenux.redwoods.edu/IntAlgText/

The online files are identical to the files on the CD and include:

1. A file for each chapter, which includes exercises and short answers.
2. Separate files for each section in each chapter.
3. Separate files for exercises and short answers for each section.
4. Separate files for exercises and complete solutions for each section.
5. A single file that contains all exercises and short answers for each chapter.
6. A single file that contains all exercises and full solutions for each chapter.

This is a third edition of the text, but errors will still exist.

Prerequisite Classes

Elementary Algebra (formerly Math 105 or 106, now Math 380 (or equivalent)) with a grade of "C" or better or appropriate score on the math placement exam.

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 algebra and prepare you for other future math classes, if your major requires it. Many mistakes that cost students dearly in terms of their grades in more advanced courses are algebraic mistakes. Since mathematics is a subject that builds upon itself, a strong foundation in algebra is essential for the rest of your math education. The best way to master any math topic is to practice by doing problems. 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, math can be fun^2!

Attendance: It is imperative and vital to your academic success that you attend all classes. Attendance will be monitored through pop quizzes that will be given during class. Prompt arrival and remaining throughout the entire class is required. Tardiness will be counted as an absence. You are allowed 3 absences before you are dropped from the class, so save your absences for emergencies. Any student missing more than 8 classes will receive a grade of "F" for the class with no exceptions.

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.

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

Week	Topics
1	Section 1.1 Number Systems Goal: To understand the various sets of numbers that will be used throughout the class Section 1.2 Solving Equations Goal: to recall various methods of isolating a particular variable in an equation Section 1.3 Logic Goal: To develop the logical language and connectives that are needed to talk about and analyze mathematical expressions Section 1.4 Compound Inequalities Goal: To develop methods and tools for salving compound inequalities
2	Section 2.1 Introduction to Functions Goal: To gain an understanding of the mathematical notion of function Section 2.2 The Graph of a Function Goal: To gain a visual understanding of a function and its relation to the equation expression of a function Section 2.3 Interpreting the Graph of a Function Goal: To understand the basic behaviors of a function based on its graph Section 2.4 Solving Equations and Inequalities by Graphing Goal: To determine the solutions to equations and inequalities by examining associated graphs

3	Section 2.5 Vertical Geometric Transformation Goal: To understand how addition of a constant Section 2.6 Horizontal Geometric Transformations Goal: To understand the effect that perturbing the variable in a function has on its graph Section 3.1 Linear models Goal: To develop linear functions that describe real world situations Review for Exam 1
4	Exam 1 Section 3.2 Slope Goal: To be able to determine and interpret the slope of a line Section 3.3 Equations of Lines Goal: to be able to understand the properties of line from its equation and derive the equation of a line that has given properties Section 3.4 Point-Slope Form of a Line Goal: To understand the pattern that we refer to as the Point-Slope Form of a line and its connection to the Slope-Intercept Form
5	Section 3.5 The line of Best Fit Goal: To determine the line that best fits a given set of data
6	Section 5.1 The Parabola Goal: To become familiar with the basic properties of parabolas Section 5.2 Vertex Form Goal: To be able to interpret parabolas one put in their vertex form

7	Review for Exam 2 Chapter Exam 2 Section 5.3 Zeros of the Quadratic Goal: To determine the zeros of quadratic functions Section 5.4 The Quadratic Formula Goal: to be able to use the quadratic formula to solve quadratic equations
8	Section 5.5 Motion Goal: To understand simple projectile motion using quadratic equations Section 5.6 Optimization Goal: To develop methods of determining maximum and minimum values of a function Section 6.1 Polynomial Functions Goal: To understand the general behavior and patterns of polynomial functions
9	Section 6.2 Zeros of Polynomials Goal: To develop methods of determining the zeros of polynomials Section 6.3 Extrema and Models Goal: to use models to maximize and minimize real life situations Section 7.1 Introducing Rational Functions Goal: To be able to recognize rational functions. Review for Exam 3 Exam 3

Week	Topics

Week	Topics
10	Section 7.2 Reducing Rational Functions Goal: To be able to write rational functions as simply as possible Section 7.3 Graphing Rational Functions Goal: To be able to sketch the curve of rational functions Section 7.4 Products and Quotients of Rational Functions Goal: To be able to multiply and divide rational functions Section 7.5 Sums and differences of Rational Functions Goal: To be able to add and subtract rational functions
11	Section 7.6 Complex Fractions Goal: to simplify fractions of fractions Section 7.7 Solving Rational Equations Goal: To be able to solve equations containing rational expressions Section 7.8 Applications of Rational Functions Goal: To use our knowledge of rational functions to solve real world problems Section 8.1 Exponents and Roots Goal: To understand the algebra of expressions containing exponents and roots
12	Review for Exam 4 Exam 4 Section 8.2 Exponential Functions Goal: To understand the properties of exponential functions

Week	Topics
13	Section 8.3 Applications of Exponential Functions Goal: To use what we know about exponential functions to solve real world problems Section 8.4 Inverse Functions Goal: To be able to find the inverse of a given function and determine if two functions are inverses of one another Sections 8.5 Logarithmic Functions Goal: To understand the general behavior of logarithmic functions
14	Section 8.6 Properties of Logarithms; Solving Exponential Equations Goal: to understand the arithmetic of logarithms and be able to solve logarithmic and exponential equations Section 8.7 Exponential Growth and Decay Goal: To use exponential functions to model growth and decay systems Section 8.8 Additional Topics Goal: To further investigate the use of exponential and logarithmic functions and expressions Section 9.1 The Square Root Function Goal: To understand the general behavior of the square root function
15	Section 9.2 Multiplication properties of Radicals Goal: To understand the arithmetic of radicals Section 9.3 Division Properties of Radicals Goal: To understand the arithmetic of radicals Section 9.4 Radical Expressions Goal: To simplify radical expressions

Week	Topics
	Section 9.5 Radical Equations Goal: To solve equations having radical expressions in them Section 9.6 The Pythagorean Theorem Goal: to understand and apply the Pythagorean Theorem
Finals Week	Final Exam

Homework assignments: TBA