Syllabus for: Math 30 College Algebra

Semester & Year:	Spring 2015
Course ID and Section Number:	MATH 30 D7456 (037456)
Number of Credits/Units:	4
Day/Time: **Location:**	M,W 6:00p.m. – 8:05 p.m. Room: DM15
Instructor's Name:	Richard Ries
Contact Information:	Office location and hours: Room 105F Monday 2:45p.m. – 4:30p.m. Wednesday 2:45p.m. – 4:30p.m. Thursday 6:05p.m. – 7:05p.m. Friday 2:45p.m. -3:45p.m. Or by appointment Phone: 707-962-2681 Email: richard-ries@redwoods.edu

At College of the Redwoods, Math 30 is the course number for our College Algebra course. College Algebra is a transfer-level math course needed for preparation for the calculus series (Math 50A-B-C). Math 30 and Math 25 (Trigonometry) together constitute what is often referred to as "Precalculus". Most students take Math 30 before Math 25, but these two courses may be taken in either order or at the same time.

Prerequisites: Grade of C or better in Math 120 (Intermediate Algebra) or equivalent, or an appropriate score on the math placement exam.

Course Description: A course covering first-degree and absolute value equations and inequalities; composite and inverse functions; polynomial, rational, exponential, and logarithmic functions; systems of equations and inequalities; matrices; sequences and series; mathematical induction; binomial expansion theorem; and complex numbers.

Also visit http://msenux.redwoods.edu/math/courses/math30.php for any updates

Student Learning Outcomes (as described in course outline):

1. Evaluate and interpret a difference quotient symbolically, numerically, and graphically.
2. Find and interpret the real and complex roots of a polynomial symbolically, numerically, and graphically.
3. Produce an accurate graph of a rational function by hand, and identify all salient features.
4. Demonstrate and interpret the inverse relationship between exponential and logarithmic functions.
5. Solve problems and applications involving exponential and logarithmic functions.
6. Solve 3x3 linear systems of equations using matrices and elimination, and interpret the nature of the solution set geometrically.
7. Recognize and solve problems involving arithmetic and geometric sequences and series.

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

Algebra and Trigonometry (7th edition), by Sullivan, published by Prentice Hall (ISBN #0131430734)

Or

Algebra and Trigonometry (8th edition), by Sullivan, published by Prentice Hall (ISBN #0132329034)
Either edition is satisfactory

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.

Emergency Procedures: Please review the campus evacuation sites, including the closest site to this classroom (posted by the exit of each room) and review www.redwoods.edu/safety.asp for information on campus Emergency Procedures.

During an evacuation:

· Be aware of all marked exits from your area and building. Know the routes from your work area to the nearest exits.

· Once outside, move to the nearest evacuation point outside your building.

· Keep streets and walkways clear for emergency vehicles and personnel.

· Do not leave campus, unless it has been deemed safe by the Incident Commander or campus authorities. (Be aware CR's lower parking lot and 101 frontage are within the Tsunami Zone). (last sentence may be deleted from Del Norte syllabi)

RAVE - College of the Redwoods has implemented an emergency alert system. Everyone is entered already to receive a message at their CR email address. In the event of an emergency on campus, you can also elect to receive an alert through your personal email, and/or phones at your home, office, and cell. This emergency alert system will be available to all students, staff, and other interested parties.

Registration is necessary in order to receive emergency alerts. Please go to https://www.GetRave.com/login/Redwoods and use the "Register" button on the top right portion of the registration page to create an account. During the registration process you can elect to add additional information, such as office phone, home phone, cell phone, and personal email. Please use your CR email address as your primary Registration Email. Your CR email address ends with "redwoods.edu."

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: 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 other odd exercise (and sometimes the odd exercises) at the end of 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. 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 Breakdown:			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 as follows:

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%
B- 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 30 Weekly Schedules
NOTE: This schedule is approximate and may be modified as the semester progresses.

Week	Topics
1 1/19 holiday 1/21	Section R.1 Real Numbers Goal: To review the properties of number systems Section R.2 Algebra Essentials Goal: To jog or memories about the foundations of algebra Section R.3 Geometric Essentials Goal: To jog our memories about the foundations of geometry Section R.4 Polynomials Goal: To recall the fundamental properties of polynomials Section R.5 Factoring Polynomials Goal: To review various methods of factoring polynomials Section R.6 Synthetic Division Goal: To describe the fundamentals and uses of synthetic division Section R.7 Rational Expressions Goal: To review and further develop the algebra of rational expressions Section R.8 Nth Roots: Rational Exponents Goal: to recall the connections between fractional exponents and roots
2 1/26 1/28	Section 1.1 Linear Equations Goal: To understand the various forms of a line Section 1.2 Quadratic equations Goal: To understand the various aspects of a quadratic equation Section 1.3 Complex Numbers; Quadratic equations in the Complex Number System

		Goal: to solve quadratic equations over the complex field and understand the algebra of complex numbers Section 1.4 Radical Equations; Equations Quadratic in Form; Factorable Equations Goal: To develop techniques for solving equations with radical, quadratic, or factorable forms in them
2/2 2/4	3	Section 1.5 Solving Inequalities Goal: To develop methods to solve inequalities Section 1.6 Equations and Inequalities Involving Absolute Value Goal: To Learn methods of solving inequalities that contain absolute values Section 1.7 Problem Solving: Interest, Mixture, Uniform Motion, and Constant Rate Job Applications Goal: To apply the tools developed in the previous sections of chapter 1 to real world problems Review for Exam 1
2/9 2/11	4	Exam 1 Section 2.1 The Distance and Midpoint Formulas Goal: To understand to determine distances between points and the middle of a line segment Section 2.2 The Graphs of Equations in Two Variables; Intercepts; Symmetry Goal: To investigate the properties of graphs of equations Section 2.3 Lines Goal: To understand the connection between a linear equation and the associated graph
2/16 2/18	5	Section 2.4 Circles Goal: To understand the connection between a circle equation and its graph

		Section 2.5 Variation Goal: To understand the relation of variation between multiple variables
2/23 2/25	6	Section 3.1 Functions Goal: To understand the mathematicians attempt to capture the idea of change Section 3.2 The Graph of a Function Goal: To understand the connection between a function and its graph Section 3.3 Properties of Functions Goal: To understand the properties of functions
3/2 3/4	7	Section 3.4 Library of Functions; Piecewise-defined Functions Goal: To develop a toolbox of functions Sections 3.5 Graphing Techniques: Transformations Goal: to understand how changes to the basic forms of functions affects the associated graph of the function Section 3.6 Mathematical Models: Building Functions Goal: To develop methods of finding equations to approximate real world situations Review For Exam 2
3/9 3/11	8	Section 4.1 Linear Functions and Their Properties Goal: To further investigate the properties of linear functions Section 4.2 Building Linear Functions from Data Goal: To determine linear models of data Exam 2
3/16 holiday 3/18 holiday	9	Section 4.3 Quadratic Functions and their Properties Goal: To understand the properties functions of the form $f(x) = ax^2 + bx + c$

	Section 4.4 Quadratic Models; Building Quadratic Functions from Data Goal: To find parabolic models that fit data Section 4.5 Inequalities Involving Quadratic Functions Goal: to solve inequalities containing quadratic expressions Review for Exam 3

Week		Topics
	10	
3/23		Exam 3
3/25		Section 5.1 Polynomial Functions and Models Goal: To understand the behavior of polynomials and their application to real world problems Section 5.2 Properties of Rational Functions Goal: To understand the behavior of rational functions
3/30 4/1	11	Section 5.3 The Graph of a Rational Function Goal: To understand the general trends of the graph of rational functions and to be able to sketch the curve of rational functions Section 5.4 Polynomial and Rational Inequalities Goal: To develop methods of solving Polynomial and Rational inequalities
4/6 4/8	12	Section 5.5 The Real Zeros of a polynomial Function Goal: To be able to solve polynomial equations and determine the real zeros of polynomial functions Section 5.6 Complex Zeros; The Fundamental Theorem of Algebra Goal: to develop methods of solving equations over a complex field and determine the complex zeros of a function

4/13 4/15	13	Section 6.1 Composite Functions Goal: to understand the algebra of function composition Section 6.2 One-to-one functions; Inverse Functions Goal: to determine if a function is 1-1 and be able to find its inverse. Review for Exam 4
4/20 4/22	14	Exam 4 Section 6.3 Exponential Functions Goal: To understand the nature of exponential functions Section 6.4 Logarithmic Functions Goal: To understand the nature of logarithmic functions Section 6.5 Properties of Logarithms Goal: To understand the algebra of logarithms
4/27 4/29 5/4 5/6	15 16	Section 6.6 Logarithmic and Exponential Equations Goal: To be able to solve equations involving logarithmic and exponential expressions Section 6.7 Compound interest Goal: To be able to calculate interest compounded either discreetly or continuously Section 6.8 Exponential Growth and Decay Models; Newton's Law' logistic Growth and Decay Models. Goal: To use exponential functions and equations to solve real world problems
5/11		Final Exam

Homework assignments: TBA