Syllabus for: Math 25 – College Trigonometry

Semester & Year:	Spring 2014
Course ID and Section Number:	MATH-25-035228
Number of Credits/Units:	4
Day/Time: **Location:**	MWF 11:40 – 12:55 SC 208 on MW, SC 206 on F
Instructor's Name:	Kramer
Contact Information:	Office location and hours: MWF 10:30 – 11:30 am Phone: 476-4228 Email: erik-kramer@redwoods.edu

Course Description (catalog description as described in course outline): A study of trigonometric functions, radian measure, solution of right triangles, graphs of the trigonometric functions, inverse trigonometric functions, trigonometric identities and equations, laws of sines and cosines, solution of oblique triangles, polar coordinates, complex numbers in trigonometric form, De Moivre's theorem, and conic sections.

Student Learning Outcomes (as described in course outline) :

1. **Analyze and solve problems involving trigonometric functions or analytic geometry.**
2. **Apply the mathematics of trigonometric functions and analytic geometry to real-world problems and applications.**
3. **Use graphing technology to visualize trigonometric and polar curves, explore mathematical concepts, and verify results.**
4. **Write solutions to mathematical exercises in trigonometry and analytic geometry using sound mathematical reasoning with appropriate use of numerical, graphical, and symbolic representations.**

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.
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.

Math 25 (035228) Course Syllabus
Spring Semester 2014

1 Course Information

Lectures will be MW 11:40 - 12:55 in SC 208 and F 11:40 - 12:55 in SC 206. There will be assigned homework each week. There will be short chapter and partial chapter quizzes with homework collected or done online. There will be a mid-term exam and a cumulative final.

Instructor Information:
Erik Kramer
HU 211A (Prep Room)
47-4228
erik-kramer@redwoods.edu
Office Hours: MWF 10:30 - 11:30 am
Text: Sullivan *Algebra & Trigonometry* 6th, 7th, or 8th edition.
Required Materials: You will need the following: a graphing calculator: a TI-83/84 is recommended, graph paper, and writing implements.

2 Course Description

This is a course in trigonometry and it's applications including polar coordinates, the complex plane, and conic sections. Trigonometry means the study of triangles, though it's scope and applications goes well beyond just solving triangles. A focus in trigonometry is the definition of new kinds of functions, and the first half of this course focuses on studying those functions and their properties. Trigonometry is also needed in a wide range of applications, both in mathematics and other disciplines. The second half of this course focuses more on studying applications of trigonometry and extensions to polar coordinates, the complex plane, and conic sections.

Trigonometry presents a seemingly overwhelming amount of information and formulas to know or memorize. Attempting to memorize the information by rote is most likely to lead to disaster. It will be very important in this course to develop a mental framework for understanding and using trigonometry without constantly having to reference notes, texts, or other resources. Most quizzes and exams will be closed book and closed notes, although some more complicated formulas may be given to you in later sections.

Course Outcomes: The course outcomes describe what a passing student should be able to do as a result of the skills and knowledge gained in this course.

1. Analyze and solve problems involving trigonometric functions or analytic geometry.
2. Apply the mathematics of trigonometric functions and analytic geometry to real-world problems and applications.
3. Use graphing technology to visualize trigonometric and polar curves, explore mathematical concepts, and verify results.
4. Write solutions to mathematical exercises in trigonometry and analytic geometry using sound mathematical reasoning with appropriate use of numerical, graphical, and symbolic representations.

Meeting the above outcomes requires both knowledge and skill. Simply having knowledge of the material presented in lectures and the textbook is generally insufficient to demonstrate the course outcomes. It is crucial that you also gain in skill. Skill is gained by practice, both during class, and outside class. It is safe to say that skill gained through practice represents well more than half of what you gain through taking a math course. Therefore, it is imperative that you practice as much as possible by completing all out of class assignments. Furthermore, you are encouraged to do more practice on your own as needed to gain in skill and confidence with the material of any particular chapter.

This course also counts as a GE course. At CR, all GE courses are intended to have outcomes within the following categories:

GE Outcomes:

1. Effective Communication
2. Critical Thinking
3. Global/Cultural Context

More information on GE outcomes can be found at `http://inside.redwoods.edu/Curriculum/Curriculum%20Resources/GEPhilos%20Outcomes(Approved%202-20-09).pdf`.

3 Ground Rules

1. **Lectures:** Students are expected to attend all the lectures. Pop quizzes could occur in any lecture. Students should not interrupt lectures unbidden. Questions should be kept pertinent to the material. Everyone in the class is expected to help maintain a respectful and safe learning environment.
2. **Homework: You have the choice in this class on whether to turn in written homework from the book or complete it online.** Homework problems assigned from the book are attached to this syllabus. If you choose to turn in written homework, you only need to turn those problems designated as Turn In, not Recommended

Practice. Written problems will be turned in on the day of the chapter quiz; **late homework will not be accepted for credit**. Each chapter section should be clearly labeled. Homework will not be graded, but just checked for credit. However, if over 50% of a section is incorrect you risk not receiving credit.

3. **Optimath:** Optimath is a web based system used by the CR math department for online assignments. There will be assignments corresponding to each chapter section in Optimath that may be completed instead of turning in homework. Optimath assignments may be done as many times as you like, and to receive credit for homework you should achieve at least 70% of the possible points. **Optimath assignments must be completed before the chapter quiz for credit.** If you think you'd prefer to do Optimath assignments to homework from the text, be sure to try it out early enough to make sure it works for your computer. Inability to get Optimath to work will not be considered a valid excuse for not completing homework. Optimath can be found at `http://msenux.redwoods.edu/optimath`. Be sure to exit MyCR before using the link to Optimath, the two are incompatible.

4. **Quizzes & Activities:** Quizzes will comprise of problems from the relevant sections that are similar to assigned homework problems, including Recommended Practice problems. Quizzes will be closed book and notes and **not** cumulative. Quizzes will usually be short in duration leaving time for a group activity that may take different forms, including possibly a group quiz, collaborative exercises, or other kind of group work.

5. **Exams:** The midterm exam and final exam will both be closed book and closed notes unless otherwise stated. The midterm exam will occur on the date shown the attached course schedule. The final exam will occur on the date and time specified by the published college finals schedule.

6. **Missed Class:** Ideally, class should not be missed. If you must miss class it is best to let me know ahead of time. If it is for a valid reason you should check with me to make up a quiz or exam you might have missed. If you are planning travel during any holiday that occurs this term and there is a schedule conflict with class, please check with me before it is too late to change plans. A full list of valid reasons for missing class is impossible to make, but the main issue will be whether it was a choice to miss class. I may ask for some documentation if the missed class is to be completely excused.

7. **Grading:** The breakdown of the course grade is shown in the following table.

Written Homework	30%
Quizzes and Activities	30%
Midterm Exam	20%
Final Exam	20%

In determining the final letter grade I will look at a weighted average of the above as well as the average over Quizzes and the two Exams, and use the highest score. I reserve

the right to use '+' and '-' modifiers to letter grades, but I generally use them sparingly. I furthermore reserve the right to drop you from the course for unsatisfactory learning progress, attendance, or course participation. Grades will be determined on traditional percent cutoffs at 10% increments. The cutoffs may be lowered at my discretion, but will not go up.

8. **Special Accommodations:** If you

   a. Need classroom or testing accommodations because of a disability

   b. Have emergency medical information to share with me

   c. Need special arrangements in case the building needs to be evacuated

   Please make an appointment with me as soon as possible. If you need testing accomodations, bring me the needed paperwork sufficiently ahead of time for arrangements to be made. Testing accomodations cannot be arranged retroactively, and prior scores cannot be adjusted.

9. **Electronics:** Cellular phones, pagers and other devices that may disrupt the class should be turned off. Exceptions for devices necessary to you should be cleared with me first.

10. **Drop Policy:** It is the policy of the College of the Redwoods Math Department to exercise a "Faculty Withdrawal" for any student who has missed more than 15% of the class meeting time prior to the drop deadline, due to the severely diminished likelihood of a successful outcome in the course. It is important to note that if it is the student's intention to withdraw from the course, the responsibility remains with the student to ensure the proper paperwork has been filed. In particular, students are not to assume the instructor will file the "Withdrawal" automatically.

11. **Cheating:** There will be zero tolerance for cheating on quizzes, tests, or exams. Suspicion of cheating can lead to zero credit for that exam. Multiple instances of cheating will prevent you from passing this course.

4 Course Schedule

This course schedule may change or vary somewhat within each week.

Week 1 1/20/14
M HOLIDAY
W Syllabus; Introduction
F 7.1 Angles and Their Measure;

Week 2 1/27/14
M 7.2 Right Triangle Trigonometry
W 7.3 Computing the Values of Trigonometric Functions of Acute Angles
F 7.4 Trigonometric Functions of General Angles

Week 3 2/3/14

M Mid-Chapter Quiz & Group Activity (Census Day)
W 7.5 Unit Circle Approach; Properties of the Trigonometric Functions
F 7.6 Graphs of the Sine and Cosine Functions

Week 4 2/10/14

M 7.7 Graphs of the Tangent, Cotangent, Cosecant, and Secant Functions
W 7.8 Phase Shift; Sinusoidal Curve Fitting
F HOLIDAY

Week 5 2/17/14

M HOLIDAY
W End-Chapter Quiz & Group Activity
F 8.1 The Inverse Sine, Cosine, and Tangent Functions

Week 6 2/24/14

M 8.2 The Inverse Trigonometric Functions (Continued)
W 8.3 Trigonometric Identities
F 8.4 Sum and Difference Formulas

Week 7 3/3/14

M Mid-Chapter Quiz & Group Activity
W 8.5 Double-angle and Half-angle Formulas
F 8.6 Product-to-Sum and Sum-to-Product Formulas

Week 8 3/10/14

M 8.7 Trigonometric Equations (I)
W 8.8 Trigonometric Equations (II)
F End-Chapter Quiz & Group Activity

Spring Break 3/17/14

Week 9 3/24/14

M Review For Mid-Term Exam
W Mid-Term Exam
F 9.1 Applications Involving Right Triangles

Week 10 3/31/14

M 9.2 The Law of Sines
W 9.3 The Law of Cosines
F Mid-Chapter Quiz & Group Activity

Week 11 4/7/14

M 9.4 Area of a Triangle
W 9.5 Simple Harmonic Motion; Damped Motion; Combining Waves
F End-Chapter Quiz & Group Activity

Week 12 4/14/14

M 10.1 Polar Coordinates
W 10.2 Polar Equations and Graphs
F Review of Complex Numbers

Week 13 4/21/14

M 10.3 The Complex Plane; DeMoivre's Theorem
W Chapter Quiz & Group Activity
F 11.1-2 Conics & The Parabola

Week 14 4/28/14

M 11.3 The Ellipse
W 11.4 The Hyperbola
F 11.5 Rotation of Axes; General Form of a Conic

Week 15 5/5/14

M 11.5 Rotation of Axes; General Form of a Conic
W Chapter Quiz & Group Activity
F Final Review

Finals Week

8th Edition

Section #	Turn In	Recommended Practice
7.1	12, 24, 38, 80, 92	11, 13, 17, 19, 23-33 odd, 35, 37, 41, 43, 47, 49, 53, 55, 59-69 odd, 71, 73, 79, 81, 87, 91, 92, 95, 97, 99, 101, 103, 105, 107, 109
7.2	12, 24, 40, 56, 67	11-35 odd, 37, 39, 43, 45, 51, 53, 55, 57, 65, 67, 71
7.3	12, 20, 30, 38, 50	7-29 odd, 31, 35, 39, 43, 45, 49, 51, 77
7.4	12, 26, 34, 46, 112	11-19 odds, 21, 25, 31, 33-39 odds, 41, 45, 47, 49, 51, 57, 59, 61, 67, 69, 71, 75, 77, 81, 83, 87, 89, 91, 95, 97, 99, 101, 105, 107, 109, 111, 113, 115, 117
7.5	14, 16, 28, 60, 94	9-19 odds, 21, 27, 33, 35, 37, 41, 45, 51, 55, 57, 59, 61-87 odd, 91-99 odd
7.6	10, 18, 26, 30, 72	1, 2, 9-83 odd, 89, 91, 93, 95
7.7	10, 16, 22, 30, 49	1, 2, 7-39 odd, 45, 47, 49
7.8	4, 8, 14, 18, 36	1, 3-17 odd, 29, 35
8.1	14, 28, 42, 50, 70	1-6, 13-55 odd, 61, 63, 69, 75
8.2	10, 14, 34, 42, 46	1-3, 9-35 odd, 41, 45, 79, 83
8.3	20, 26, 32, 38, 68	1, 2, 9-17 odd, 19, 23, 27, 31, 35, 39, 43, 45, 49, 53, 55, 57, 61, 65, 69, 71, 75, 79, 83, 91, 93, 97, 99, 103
8.4	10, 24, 32, 46, 72	1-3, 11, 15, 17, 23, 25, 27, 31, 33, 35, 37, 45, 49, 51, 55, 57, 59, 61, 67, 83, 85, 87, 89, 95, 99
8.5	8, 20, 42, 48, 68	7, 11, 15, 19, 21, 23, 41, 47, 51, 55, 59, 63, 65, 67, 69, 71, 73, 83, 85
8.6	2, 14, 20, 32, 36	1, 5, 9, 11, 13, 15, 17, 19, 23, 29, 31, 33, 35
8.7	8, 20, 42, 48, 68	1, 2, 7-51 odd, 57, 61, 65
8.8	6, 28, 36, 54, 66	1, 2, 3, 5, 7, 11, 13, 17, 21, 25, 29, 33, 37, 39, 41, 43, 47, 49, 51, 55, 61, 63, 67
9.1	10, 20, 24, 26, 30	3, 4, 9, 11, 13, 15, 17, 19, 21, 25, 27ab, 29, 31, 33, 35, 39
9.2	10, 18, 26, 36, 40	1, 2, 3, 9, 11, 15, 17, 21, 23, 25-43 odd, 47, 51, 53
9.3	10, 16, 18, 30, 34	1, 2, 9, 11, 13, 15, 17, 21, 25, 29, 33-47 odd
9.4	6, 10, 14, 20, 24	1, 5, 7, 9, 11, 13, 17, 19, 23
9.5	6, 10, 14, 20, 24	1, 5-23 odd
10.1	12, 24, 32, 44, 68	1-4, 11-81 odd, 84
10.2	14, 32, 50, 66, 76	1-6, 13-27 odd, 29-36, 37, 43, 45, 49, 53, 57, 61, 63, 65, 67, 69, 71, 73, 77, 81
10.3	12, 28, 34, 44, 62	1 -4, 11-59 odd, 61, 63-65
11.2	12, 20, 46, 60, 68	1-5, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 23, 25, 27, 29, 33, 35, 37, 39, 41-73 odd, 75-79
11.3	14, 18, 30, 40, 50	1-6, 13-16, 17-81 odd, 83-85
11.4	14, 22, 34, 54, 72	1-6, 13-16, 17-59 odd, 61-75 odd, 76
11.5	18, 24, 38, 48, 54	1-4, 11-51 odd, 53-56

7th Edition

Section #	Turn In	Recommended Practice
6.1	12, 24, 38, 80, 92	11, 13, 17, 19, 23-33 odd, 35, 37, 41, 43, 47, 49, 53, 55, 59-69 odd, 71, 73, 79, 81, 87, 91, 92, 95, 97, 99, 101, 103, 105, 107, 109
6.2	12, 24, 40, 56, 67	11-35 odd, 37, 39, 43, 45, 51, 53, 55, 57, 45, 67, 69
6.3	12, 20, 30, 38, 50	7-29 odd, 31, 35, 39, 43, 45, 49, 51, 55
6.4	12, 26, 34, 46, 112	11-19 odd, 21, 25, 31, 33-39 odd, 41, 45, 47, 49, 51, 57, 59, 61, 67, 69, 71, 75, 77, 81, 83, 87, 89, 91, 95, 97, 99, 101, 105, 107, 109, 111, 113, 115, 117
6.5	14, 16, 28, 60, 92	9-19 odd, 21, 27, 33, 35, 37, 41, 45, 51, 55, 57, 59, 61-97 odd
6.6	10, 18, 44, 48, 76	1, 2, 9-91 odd
6.7	10, 16, 32, 36, 41	1, 2, 7-41 odd
6.8	4, 8, 14, 18, 28	1, 3-17 odd, 21ade
7.1	14, 28, 42, 52, 58	1-6, 13-55 odd, 57, 63
7.2	10, 14, 34, 42, 46	1-3, 9-35 odd, 41, 45, 58
7.3	20, 26, 32, 38, 68	1, 2, 9-17 odd, 19, 23, 27, 31, 35, 39, 43, 45, 49, 53, 55, 57, 61, 65, 69, 71, 75, 79, 83, 91, 93, 97, 99, 103
7.4	10, 24, 32, 40, 66	1-3, 11, 15, 17, 23, 25, 27, 31, 33, 35, 37, 39, 43, 45, 49, 51, 53, 55, 61, 77, 79, 81, 83, 89, 93
7.5	8, 20, 30, 32, 84	7, 11, 15, 19, 21, 23, 29, 35, 39, 43, 47, 51, 53, 55, 57, 59, 61, 75, 83
7.6	2, 14, 20, 32, 36	1, 5, 9, 11, 13, 15, 17, 19, 23, 29, 31, 33, 35
7.7	8, 20, 42, 48, 62	1, 2, 7-51 odd, 57, 61, 65
7.8	4, 26, 34, 52, 64	1, 2, 3, 5, 7, 11, 13, 17, 21, 25, 29, 33, 37, 39, 41, 43, 47, 49, 51, 55, 61, 63, 67
8.1	10, 20, 28, 40, 48	9, 11, 13, 15 17, 19, 23-35 odd, 39, 41, 43, 53
8.2	10, 18, 26, 36, 40	1, 2, 3, 9, 11, 15, 17, 21, 23, 25-45 odd, 49, 51
8.3	10, 16, 18, 30, 34	1, 2, 9, 11, 13, 15, 17, 21, 25, 29, 33-47 odd
8.4	6, 10, 14, 20, 24	1, 5, 7, 9, 11, 13, 17, 19, 23
8.5	6, 10, 14, 20, 24	1, 5-23 odd
9.1	12, 24, 32, 44, 68	1-4, 11-83 odd
9.2	14, 32, 50, 66, 76	1-6, 13-27 odd, 29-36, 37, 43, 45, 49, 53, 57, 61, 63, 65, 67, 69, 71, 73, 77, 81
9.3	12, 28, 34, 44, 62	1 -4, 11-59 odd, 61, 63-65
10.2	12, 20, 46, 60, 68	1-5, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 23, 25, 27, 29, 33, ,35, 37, 39, 41-73 odd, 75-78
10.3	14, 18, 30, 40 , 50	1-6, 13-16, 17-81 odd, 83-85
10.4	14, 22, 34, 54, 70	1-6, 13-16, 17-73 odd, 74
10.5	18, 24, 38, 48, 54	1-4, 11-51 odd, 53-56

6th Edition

Section #	Turn In	Recommended Practice
7.1	2, 16, 38, 70, 82	1, 3, 7, 9, 13, 15, 19, 21, 25, 27, 31, 33, 37, 39, 45, 47, 53, 57-79 odd, 81, 82, 85, 87, 89, 91, 93, 95, 97, 99
7.2	2, 14, 30, 46, 57	1-25 odd, 27, 29, 33, 35, 41, 43, 45, 47, 49, 57, 59
7.3	8, 16, 26, 34, 46	1-23 odd, 25, 29, 33, 37, 39, 43, 47, 51
7.4	2, 12, 24, 42, 102	1-17 odd, 19, 23, 25, 27, 29, 35, 37, 41, 47, 49, 53, 55, 59, 61, 65, 67, 71, 73, 77, 79, 81, 85, 87, 89, 91, 95, 97, 99, 101, 103, 105, 107
7.5	6, 8, 20, 52, 84	1-11 odd, 13, 19, 25, 27, 29, 33, 37, 43, 47, 49, 51, 53-89 odd
7.6	2, 10, 36, 40, 68	1-83 odd
7.7	4, 10, 26, 30, 35	1-35 odd
7.8	2, 6, 12, 16, 26	1-15 odd, 19ade
8.1	2, 16, 30, 40, 46	1-45 odd, 51
8.2	2, 6, 26, 34, 38	1-27 odd, 33, 37, 50
8.3	2, 8, 14, 20, 50	1, 5, 9, 13, 17, 21, 25, 27, 31, 35, 37, 39, 43, 47, 51, 53, 57, 61, 65, 73, 75, 79, 81, 85
8.4	2, 16, 24, 32, 58	3, 7, 9, 15, 17, 19, 23, 25, 27, 29, 31, 35, 37, 41, 43, 45, 47, 53, 69, 71, 73, 75, 81, 85
8.5	2, 14, 26, 54, 78	1, 5, 9, 13, 15, 17, 23, 29, 33, 37, 41, 45, 47, 49, 51, 53, 55, 69, 77
8.6	2, 14, 20, 32, 36	1, 5, 9, 11, 13, 15, 17, 19, 23, 29, 31, 33, 35
8.7	12, 28, 36, 42, 44	1-43 odd, 47
8.8	2, 24, 28, 46, 58	1, 3, 5, 9, 11, 15, 19, 23, 27, 31, 33, 35, 37, 41, 43, 45, 49, 55, 57, 61
9.1	2, 12, 20, 29, 40	1, 3, 5, 7, 9, 11, 13, 15-27 odd, 31, 33, 35, 45
9.2	2, 10, 18, 28, 32	1, 3, 7, 9, 13-37 odd, 41, 43
9.3	2, 8, 10, 22, 26	1, 3, 5, 7, 9, 13, 17, 21, 25-39 odd
9.4	2, 6, 10, 18, 22	1, 3, 5, 7, 9, 13, 17, 21
9.5	2, 6, 10, 16, 20	1-19 odd
10.1	2, 14, 22, 34, 58	1-73 odd
10.2	2, 20, 38, 50, 60	1-15 odd, 17-24, 25, 31, 33, 37, 41, 45, 49, 51, 53, 55, 57, 61, 65
10.3	2, 18, 24, 34, 52	1-49 odd, 51, 53-55
11.2	2, 10, 34, 48, 56	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29-61 odd, 63-66
11.3	2, 6, 18, 26, 36, 58	1-4, 5-67 odd, 69-71
11.4	2, 10, 22, 42, 58	1-4, 5-59 odd, 61, 62
11.5	8, 14, 28, 38, 44	1-41 odd, 43-46