

MAT 186, PRECALCULUS  
Prof. Larisa Alikhanova  
Summer 2010

**PREREQUISITE:** MATH 137, Intermediate Algebra  
**TEXT:** Precalculus, 5<sup>th</sup> edition by: J. Stewart, L. Redlin, and S Watson  
**SUPPLEMENTARY MATERIAL:** TI – 83 calculator

**COURSE DESCRIPTION:** This course prepares students for the study of Calculus I. The topics include: polynomials and rational functions and their graphs, quadratic and absolute inequalities, radical expressions, conic sections, exponential and logarithmic functions, trigonometric functions, trigonometric identities and applications.

**MEASUREMENTS:** Quizzes, projects - 15%, each test – 20%, final exam – 25%.

**ATTENDANCE:** Attendance is extremely important. Your attendance, participation in classroom work and preparation for each class is required and is essential for your success in the course.

**Plagiarism and Academic Honesty:** At TRCC, we expect the highest standards of academic honesty. The Board of Trustees' Proscribed Conduct Policy prohibits cheating on examinations, unauthorized collaboration on assignments, unauthorized access to examinations or course materials, plagiarism.

**SUPPORT SERVICES:** Tutorial services. Peers. Meeting with me for extra help on an appointment basis.

**OFFICE HOURS:** T, r 4:30 p.m.-5:30 p.m. Room C104  
E-mail [alikhanova@trcc.commnet.edu](mailto:alikhanova@trcc.commnet.edu)  
Check your e-mail regularly for test/quiz/homework announcements. Check you email and MyCommNet for class cancellations.

#### **DISABILITIES**

**STATEMENT:** Students with disabilities, who may require special accommodations and support services, are encouraged to notify:

1. Chris Scarborough, who is coordinating services to students with disabilities.
2. The instructor during the first two weeks of class.

**COURSE CONTENT:**

**CHAPTER 2**            Functions  
                              SECTIONS 2.1-2.8

**TEST**

**CHAPTER 3**            Polynomial and rational functions  
                              SECTIONS 3.1-3.6

**CHAPTER 4**            Exponential and logarithmic functions  
                              SECTIONS 4.1- 4.5

**TEST**

**CHAPTER 5**            Trigonometric functions of real numbers  
                              SECTIONS 5.3- 5.4

**CHAPTER 6**            Trigonometric functions of angles  
                              SECTIONS 6.1- 6.5

**TEST**

**CHAPTER 7**            Analytic Trigonometry  
                              SECTIONS 7.1- 7.5

**Chapter 9**            SYSTEMS OF EQUATIONS  
                              Sections 9.3, 9.7, 9.8

**FINAL EXAM**

**OUTCOME:**

After the successful completion of the course the student must be able to:

1. Evaluate a function at any given value of  $x$ .
2. Find the domain and range of the function.
3. Graph the functions, using the tables, transformations.
4. Graph the piece-wise defined functions.
5. Determine whether the function is even, odd, or neither.
6. Find local max, min for some functions
7. Model with functions.
8. Combine the functions, find their compositions, inverses.
9. Graph polynomials, find their zeroes, analyze their end behavior.
10. Graph rational functions, find the asymptotes.
11. Perform the operations with complex numbers.
12. Evaluate, graph exponential and logarithmic functions.
13. Solve exponential and logarithmic equations, model with exponential and logarithmic equations.
14. Find the angle measure in radian, degree.
15. Find all trigonometric ratios in a right triangle.
16. Find the values of trigonometric functions from the information given.
17. Solve a right triangle.
18. Solve a triangle using the Law of Sines, the Law of Cosines.
19. Graph the trigonometric functions.
20. Use the trigonometric identities, addition, subtraction, double, half-angle formula.
21. Evaluate inverse trigonometric functions.
22. Solve trigonometric equations.
23. Solve systems of linear equations in several variables using determinants.
24. Find the partial fraction decomposition of rational functions

Homework( odd numbers): This is a guide only. Assignments may vary.

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2.2 p.167 11, 13, 15, 23, 25, 37, 41, 49, 53, 55, 57  
2.3 p.179 1, 3, 5, 17  
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