MAT 186, PRECALCULUS, 30759, 1:30pm – 3:10pm, room D211
Fall 2016
Prof. Larisa Alikhanova

PREREQUISITE: MATH 172, College Algebra
TEXT: Precalculus, by John Coburn, J.D. Herdlick

COURSE DESCRIPTION: The course prepares for study of calculus. Students will expand their knowledge of algebraic and some early transcendental functions, and develop skills required for higher level math courses. Topics will also include: trigonometric functions, trigonometric identities and applications, introductory sequences and series.

MEASUREMENTS: Quizzes, projects - 15%, 3 tests, each test – 20%, final exam – 25%.
Grade equivalents: A 93 – 100, A- 90 – 93, B+ 87 -89, B 83 – 86, B- 80 – 82, C+ 77-79, C 73 – 76, C- 70 – 72, D+ 67 – 69. D 63 – 66. D- 60 – 62, F below 60.

Attendance: Your attendance in the classroom, participation in classroom work/projects and preparation for each class is required and is essential to success in the course.

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Support Services: Tutorial services. Peers. Meeting with me for extra help on an appointment basis.

Office Hours: M W 9:45 am – 10:30 am, 3:15 pm -4:30 pm Room **C104**

Email lalikhanova@trcc.commnet.edu , Phone (860)- 215-9401

Class Cancellation: In case of increment weather, check the college website for class cancellations or call 860-215-9000 for recorded message on the college phone.

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.

MyCommNet Alert: **MyCommNet** is a system that sends text messages and emails to anyone signed up in the event of a campus emergency. Additionally, TRCC sends messages when the college is delayed or closed due to weather. All students are encouraged to sign up for myCommNet Alert. A tutorial is available on the Educational Technology and Distance Learning Students page of the web site.
http://www.trcc.commnet.edu/div_it/educationaltechnology/Tutorials/myCommNetAlert/MIR3.html

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Disabilities If you have a disability that may affect your progress in this course, please meet with a Disability Service Provider (DSP) as soon as possible. Please note that accommodations cannot be provided until you provide written authorization from a DSP.

College Disabilities Service Provider	
Matt Liscum, Counselor (860) 215-9265 Room A113	• Learning Disabilities • ADD/ADHD • Autism Spectrum • Mental Health Disabilities
Elizabeth Willcox, Advisor (860) 215-9289 Room A113	• Medical Disabilities • Mobility Disabilities • Sensory Disability

Digication Statement: All students are required to maintain an online learning portfolio in Digication that uses the college template. Through this electronic tool student will have the opportunity to monitor their own growth in college-wide learning. The student will keep his/her earning portfolio and may continue to use the Digication account after graduation. A Three Rivers General Education Assessment Team will select and review random works to improve the college experience for all. Student work reviewed for assessment purposes will not include names and all student work will remain private and anonymous for college improvement purposes. Students will have the ability to integrate learning from the classroom, college, and life in general, which will provide additional learning opportunities. If desired, students will have the option to create multiple portfolios

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COURSE CONTENT:

*Review of Functions/Inverse Functions **8/29/2016 - 8/31/2016**

1.3) Functions, graphs
2.1) Analyzing the graph of a function
2.2) The toolbox functions and transformations
5.1) One-to-one functions, inverse functions

Chapter 6: **An Introduction to Trigonometric Functions 9/07/2016 – 10/10/2016**

6.1) Angle Measure, Special Triangles, and Special Angles
6.2) Unit Circle and the Trigonometry of Real Numbers
6.3) Graphs of Sine and Cosine Functions
6.4) Graphs of the Cosecant, Secant, Tangent, and Cotangent Functions
6.5) Transformations and Applications of Trigonometric Graphs
6.6) The Trigonometry of Right Triangles
6.7) Trigonometry and the Coordinate Plane
6.8) Trigonometric Equation Models

TEST 10/10/2016

Chapter 7: **Trigonometric Identities, Inverses, and Equations 10/12/2016-11/07/2016**

7.1) Fundamental Identities and Families of Identities
7.2) More on Verifying Identities
7.3) The Sum and Difference Identity
7.4) The Double-Angle, Half-Angle and Product-to-Sum Identities
7.5) The Inverse Trig Functions and Their Applications
7.6) Solving Basic Trig Equations
7.7) General Trig Equations and Applications

Test 11/07/2016

Chapter 8: **Applications of Trigonometry 11/09/2016-11/17/2016**

8.1) Oblique Triangles and the Law of Sines
8.2) The Law of Cosines; the Area of a Triangle
8.5) Complex Numbers in Trigonometric Form
8.6) De Moivre's Theorem and the Theorem on *n*th Roots

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Chapter 10**:** **Analytic Geometry and the Conic Sections** **11/21/2016 – 12/05/2016**

10.1) A brief Introduction to Analytic geometry
10.2) The Circle and the Ellipse
10.3) The Hyperbola
10.4) The Analytic Parabola
10.5) Nonlinear Systems of Equations and Inequalities

TEST 12/05/2016

Chapter 11: **Additional Topics in Algebra (time permitting)** **12/05/2016 – 12/14/2016**

11.1) Sequences and Series
11.2) Arithmetic Sequences
11.3) Geometric Sequences

FINAL EXAM 12/19/2016

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

Chapter 1:	1.3	p.43	9, 11, 15, 19-29, 57-67 99, 105 review
Chapter 2:	2.1.	p. 114	7-25 review
	2.2	p. 131	11-21, 29,31 review
Chapter 5	5.1	p. 418	9 15, 27, 39-45, 47, 49, 53-57 review
Chapter 6:	6.1	p.522	7 - 13, 19, 21, 27-35, 41-47, 51-55, 57-61, 63-83
	6.2	p. 537	7-13, 19-27, 29-35, 37-43, 45-51, 53-65, 71-77, 79-83
	6.3	p.556	7-19, 21-31, 41-47, 51, 53, 57
	6.4	p.572	7-15, 19-25, 29-31, 33 – 37
	6.5	p.590	7-15, 23, 25
	6.6	p. 604	7-21, 43-57
	6.7	p.618	7,9,13, 15, 21, 27, 33-63, 65, 69, 73, 75, 77, 81, 85
	6.8	p. 628	7
Chapter 7:	7.1	p. 659	7-23, 25,27, 29, 35-37, 39,41, 45-49, 51-55
	7.2	p. 666	7 - 23
	7.3	p.676	7-33, 35, 39,43,45,47
	7.4	p.688	7-19, 23-29, 31, 33, 37, 39, 45-51
	7.5	p.706	7-11, 17-21
	7.6	p.718	7, 9, 15-27, 29-35, 47- 61
	7.7	p.728	7,10,13,15,17,19,21
Chapter 8:	8.1	p. 754	13-21, 33, 35
	8.2	p. 767	7, 9, 21-27
	8.5	p.810	7-13, 19, 21, 27, 35, 37, 39
	8.6	p.819	7, 11
Chapter 10:	10.1	p.967	9, 15, 19
	10.2	p.979	9,13,15,19,21
	10.3	p.994	13,23,29, 33
	10.4	p.1003	9,15,19-23
	10.5	p.1015	7,11,13,19,21,25
Chapter 11:	11.1	p.1086	7, 11, 19, 33-37, 41-45, 57
	11.2	p. 1096	7,11,15, 19, 31, 37, 43
	11.3	p. 1108	9,11,19, 25,33, 39, 47

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COURSE OUTCOMES:

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. Identify local maxima, minima on the graphs of functions, and intervals of increase/decrease.
7. Model with functions.
8. Combine the functions, find their compositions, inverses.
9. Find the angle measure in radian, degree.
10. Find all trigonometric ratios in a right triangle.
11. Find trigonometric functions of real numbers using unit circle approach
12. Find the values of trigonometric functions on the coordinate plane from the information given.
13. Graph the trigonometric functions, apply transformations of graphs.
14. Model the real life problem with a trigonometric function.
15. Use the trigonometric identities, addition, subtraction, double, half-angle formula.
16. Evaluate inverse trigonometric functions.
17. Solve trigonometric equations.
18. Solve right triangles.
19. Use the law of Sines and the Law of Cosines to solve a triangle.
20. Plot the complex numbers on the complex plane.
21. Write the trigonometric form of a complex number.
22. Use the De Moivre 's theorem.
28. Work with sequences, series, factorials
29. Work with arithmetic, geometric sequences.
30. Model the real-life problems with arithmetic, geometric sequences.

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