**PREREQUISITE:** MATH 172, College Algebra

**TEXT:**  PreCalculus, By John Coburn, J.D. Herdlick

**COURSE DESCRIPTION:**

This course prepares for the 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, and introduction to sequences and series.

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**Grading:** Quizzes, projects - 20%, 3 tests, each test – 20%, final exam – 20%.

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:** Attendance will be taken at each class. Your attendance record will be considered for borderline grades. I look forward to seeing you at each class.

**Office Hours:**  I will be available to meet with students before and after class or by appointment as needed.

Email: joseph.m.amarello@dom.com

**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.

**HOMEWORK**: An assignment will be given at the end of each class. You are expected to have completed the assignment for the next class session. Questions on the homework will be discussed at the beginning of each class.

**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](https://www.mail.commnet.edu/owa/redir.aspx?C=a90b94c325424acebc5fc69a405eb4e5&URL=http%3a%2f%2fwww.trcc.commnet.edu%2fdiv_it%2feducationaltechnology%2fTutorials%2fmyCommNetAlert%2fMIR3.html)

**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.

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| **TRCC Disabilities Service Providers**  Counseling & Advising Office  Room A-119 | |
| **Matt Liscum**  (860) 383-5240 | * Physical Disabilities * Sensory Disabilities * Medical Disabilities * Mental Health   Disabilities |
| **Chris Scarborough**  (860) 892-5751 | * Learning Disabilities * ADD/ADHD * Autism Spectrum |

**Digication**: All students are required to maintain an online learning portfolio in Digication that uses the college template. Through this electronic tool students will have the opportunity to monitor their own growth in college-wide learning. The student will keep his/her learning 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

**COURSE CONTENT:**

**Review of Functions and Inverse Functions 8/28/2019 – 9/4/2019**

1.3 Functions and Graphs

2.1 Analyzing the Graph of a Function

2.2 The Toolbox Functions and Transformations

5.1 One-to-one Functions and Inverse Functions

**Chapter 6: An Introduction to Trigonometric Functions 9/9/2019 – 9/30-2019**

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 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 Coordinate Plane

6.8Trigonometric Equation Models

**Test #1 9/30/2019**

**Chapter 7: Trigonometric Identities, Inverses, and Equations 10/2/2019 – 10/23/2019**

**(10/21-2019 – Joe Vacation Day)**

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 there Applications

7.6 Solving Basic Trigonometric Equations

7.7 General Trigonometric Equations and Their Applications

**Test #2 10/23/2019**

**Chapter 8: Applications of Trigonometry 10/28/2019 – 11/6/2019**

8.1 Oblique Triangles and the Law of Sines

8.2 The Law of Cosines, and the Area of a Triangle

8.5 Complex Numbers and Trigonometric Form

8.6 De Moivre’s Theorem and the Theorem on Nth Roots

**Chapter 10: Analytic Geometry and Conic Sections 11/11/2019 – 11/25/2019**

10.1 A Brief Introduction to Analytic Geometry

10.2 The Circle and Ellipse

10.3 The Hyperbola

10.4 The Analytic Parabola

10.5 Non-Linear Systems of Linear Equations and Inequalities

**Test #3 11/25/2019**

**Chapter 11: Additional Topics in Algebra and Review for Final 11/27/2019 – 12/11/2019**

11.1 Sequences and series

11.2 Arithmetic Sequences

11.3 Geometric Sequences

**Test #4 – Final Exam 12/11/2019**

**Course Outcomes:**

**Upon Completion of the course, the student should be able to:**

1. Evaluate a function at any given value of X
2. Find the domain and range of a function
3. Graph the function using the tables and transformations
4. Graph the piece-wise defined functions
5. Determine if the function is even, odd, or neither
6. Identify local maxima and minima on the graphs of functions, and intervals of increase/decrease
7. Model with functions
8. Find the functions, find their compositions and inverses
9. Find the angle measures in Angles and Degrees
10. Find all Trig ratios in a right triangle
11. Find trigonometric functions of real numbers using the 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 the trigonometric function
15. Use the trigonometric identities, addition, subtraction, double, half-angle formulas
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 a complex plane
21. Write the trigonometric form of a complex number
22. Use the De Moivre Theorem
23. Work with sequences, series, and factorials
24. Work with arithmetic, geometric sequences
25. Model the real-life problems with the arithmetic, geometric sequences

**HOMEWORK** (odd numbers): A homework assignment will be given at the end of each class. You are expected to have completed the assignment prior to the next class session. Questions on the homework will be discussed at the beginning of the next class session. This is a guide only and may be modified as we progress through the course.

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