Precalculus
MAT 186

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REQUIRED TEXT
Precalculus: Mathematics for Calculus by Stewart, Redlin, Watson 6th edition, a graphing calculator is also required.

CREDIT: 4 credit hours **PREREQUISITE:** MAT 137 or equivalent.

COURSE DESCRIPTION
This course prepares students for the study of Calculus I. The topics include, but are not limited to: polynomial and rational functions and their graphs, quadratic functions, operations on radical expressions, exponential and logarithmic functions, trigonometric functions and their graphs, trigonometric equations and identities, systems of equations and matrices and determinants.

GRADING POLICY
A student will receive one of the following grades: A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, I, W, P or Audit. Determination of that grade will be based on the following. Throughout the semester there will be five, 100 point exams (an exam will be announced at least one week prior to its administration). Quizzes and/or take-home projects throughout the semester totaling 75 points. Your final grade will be computed by totaling all the points earned on the five tests, quizzes and projects then dividing that total by the 575 possible points.

Grade Equivalents:	A 93 - 100	B 83 - 86	C 73 - 76	D 63 - 66
	A- 90 - 92	B- 80 - 82	C- 70 - 72	D- 60 - 62
	B+ 87 - 89	C+ 77 - 79	D+ 67 - 69	F 59 or less

Quizzes will be during the first 15 minutes of class and cannot be made up. No test can be made up without prior arrangement with the instructor. All makeup tests will take place during final exam week.

COLLEGE WITHDRAWAL POLICY
Course withdrawals are accepted up until the week before classes end. Specific dates are posted in the academic calendar and withdrawal forms are available online or at the Registrar's office. The withdrawal does not have to be signed by the instructor but it is strongly recommended that you speak with your instructor before withdrawing. If you are receiving financial aid you must contact their office for approval before withdrawing. If necessary, you can withdraw over the phone by calling the Registrar's Office at 860-892-5756.

DISABILITIES STATEMENT
If you have a hidden or visible disability which may require classroom or test-taking modifications, please see me as soon as possible. If you have not already done so, please be sure to register with Chris Scarborough.

ACADEMIC INTEGRITY POLICY
All students are expected to demonstrate their knowledge of the material on each quiz and test. Any student caught cheating will receive a zero on that test.

CLASS CANCELATION POLICY
If class is canceled by the instructor a notice will be placed on the classroom door. If time permits, the class will be notified by email.

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Date	Chapters (Sections) covered
1/23	1.5, 1.7
1/25	2.1 - 2.3
1/30	2.4 - 2.5
2/1	2.6 - 2.7
2/6	Review
2/8	Test #1 Chapter 2
2/13	3.1 - 3.3
2/15	3.4 - 3.5
2/22	3.6 - 3.7
2/27	4.1 - 4.2
2/29	4.3 - 4.4
3/5	4.5 - 4.6
3/7	Review
3/12	Test #2 Chapters 3, 4
3/14	6.1 - 6.2
3/26	6.3 - 6.4
3/28	6.5 - 6.6
4/2	Review
4/4	Test #3 Chapter 6
4/9	5.3 - 5.4
4/11	5.5, 7.1
4/16	7.2 - 7.3
4/18	7.4 - 7.5
4/23	7.5
4/25	Review
4/30	Test #4 Chapters 5, 7
5/2	10.3 - 10.4
5/7	10.5 - 10.6
5/9	10.7
5/14	Review
5/16	Test #5 Chapter 10

Course Outcomes

1. For each function, identify the domain, range, end behavior, local behavior and average rate of change over given intervals.
2. From an equation graph each function; and from a graph or data identify an equation
3. To any function, apply transformations involving vertical and horizontal shifting and stretching/shrinking.
4. Perform symbolic manipulations for algebraic representations of the various functions
   a) Factor polynomials
   b) Apply rules for radicals
   c) Evaluate expressions with rational exponents
   d) Apply rules for exponents and logarithms
   e) Apply trigonometric formulas and identities: Pythagorean, reciprocal, sum, difference, double and half angle formulas.
5. Given an independent variable, find the dependent variable (given and x find y): evaluate
6. Given a dependent variable, find all possible independent variables (given y find x):solve
7. Graph piecewise defined functions.
8. Use elementary functions to model data and solve practical problems.

9. Find the sum, difference, product and quotient of functions
10. Compose functions
11. De-compose functions
12. Tell if a function is invertible
13. Find the inverse of a function
14. Tell whether two functions are inverses by composition
15. Graph the inverse of a function using symmetry to y=x

16. Find the six trigonometric values of an acute angle, and the inverse trig values of a ratio of sides.
17. Solve triangles using right triangle trig, distinguish between the angle of depression and elevation.
18. Solve non –right triangles using the laws of sines and cosines
19. Solve applied problems using right triangle trigonometry

20. Add, subtract, multiply and divide complex numbers
21. Evaluate an integral power of i
22. Identify the conjugate of complex numbers

23. Find determinants of an nxn matrix
24. Solve a system using Cramer's rule
25. Solve a system using row reduced echelon form