

MATHEMATICS 164-01
PRECALCULUS
Fall 2010

Instructor: Dr. Sharon Emerson-Stonnell **Office:** Ruffner 333
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Office Hours: MTWRF 10am – 11am and 2 – 3pm

Text: Precalculus (Fourth Edition). Dugopolski. Pearson Education, Inc. ISBN: 9780321357793

Recommended Supplies: TI-83 Graphing calculator.

Course Description: A study of polynomial, rational, exponential, logarithmic, and trigonometric functions; conic sections; and their applications in order to prepare the student for calculus. Prerequisite: Passing an algebra readiness test. 4 credits.

Course Objectives: Students should be able to

1. Use graphing calculators to graph and analyze functions.
2. Analyze and interpret polynomial, rational, exponential, logarithmic, and trigonometric functions.
3. Understand the relationship between functions and their inverses.
4. Analyze and interpret functions graphically, numerically, and symbolically.
5. Understand the relationships between the trigonometric functions: sine, cosine, tangent, cotangent, secant, and cosecant.
6. Apply functions to business, social science, and natural science applications.

This course meets the General Education criteria and the required outcomes for General Education Goal 5 as indicated in the matrices available through Blackboard.

Course Requirements:

1. There will be three tests. Each test will be worth 18% of your final grade.
2. Attendance is mandatory. Each student is expected to actively participate in all group work and class discussions.
3. Class assignments will constitute 18% of your final grade.
4. A research project will be due on November 15. The project will constitute 10% of your final grade. Details will be provided in early October.
5. There will be a comprehensive final exam for this course. The exam will be worth 18% of your final grade. The date is TBA.
6. Absences are excused only for illness, college sponsored activities, and recognizable emergencies. You must assume full responsibility for all material covered during your absence. A grade of "0" will be assigned for all work missed due to unexcused absences.
7. Make-up tests will be given only when the reason for missing the test meets the criteria for an excused absence. Make-up tests will always be more difficult than regularly scheduled tests.

8. I expect you to conform to the Longwood College Honor Code as contained in the *Student Handbook*. All assignments and tests must be pledged.

Feel free to come by my office at any time during office hours for help. If you are unable to come during office hours call and make an appointment for another time period.

Class Schedule:

Week 1 August 23 - 27

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| Monday | 1.3 Equations and Graphs in Two Variables |
| Wednesday | 1.4 Linear Equations in Two Variables |
| Thursday | 1.5 Functions |
| Friday | No class - conference |

Week 2 August 30 – September 3

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| Monday | 1.6 Quadratic Functions |
| Wednesday | 1.7 Linear and Absolute Value and Inequalities |
| Thursday | 1.7 Linear and Absolute Value and Inequalities |
| Friday | 2.1 Functions |

Week 3 September 6 - 10

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| Monday | 2.1 Functions |
| Wednesday | 2.2 Graphs of Relations and Functions |
| Thursday | 2.2, 2.3 Graphs of Functions, Families of Functions |
| Friday | 2.3 Families of Functions, Transformations, and Symmetry |

Week 4 September 13 - 17

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| Monday | 2.4 Operations with Functions |
| Wednesday | 2.5 Inverse Functions |
| Thursday | 2.6 Constructing Functions with Variation |
| Friday | 3.1 Quadratic Functions and Inequalities |

Week 5 September 20 - 24

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| Monday | P.4 Complex Numbers |
| Wednesday | 3.2 Zeroes of Polynomials |
| Thursday | 3.3 The Theory of Equations |
| Friday | Test Sections 1.3 – 3.1 |

Week 6 September 27 – October 1

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| Monday | 3.4 Miscellaneous Equations |
| Wednesday | 3.5 Graphs of Polynomial Functions |
| Thursday | 3.6 Rational Functions and Inequalities |
| Friday | 3.6 Rational Functions and Inequalities |

Week 7 October 4 - 8

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| Monday | 4.1 Exponential Functions and Their Applications/ Project Assigned |
| Wednesday | 4.2 Logarithmic Functions and Their Applications |
| Thursday | 4.2 Logarithmic Functions and Their Applications |
| Friday | 4.3 Rules of Logarithms |

Week 8 October 11 - 15

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| Monday | Fall Break |
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Wednesday 4.4 More Equations and Applications
Thursday 4.4 More Equations and Applications
Friday **Test Sections 3.2 – 4.3**

Week 9 October 18 - 22

Monday 5.1 Angles and Their Measurements
Wednesday 5.2 The Sine and Cosine Functions
Thursday 5.3 The Graphs of Sine and Cosine Functions
Friday 5.4 The Other Trigonometric Functions and Their Graphs

Week 10 October 25 - 29

Monday 5.4 The Other Trigonometric Functions and Their Graphs
Wednesday 5.5 The Inverse Trigonometric Functions
Thursday 5.5 The Inverse Trigonometric Functions
Friday 5.6 Right Triangle Trigonometry

Week 11 November 1 - 5

Monday 6.1 Basic Identities
Wednesday 6.1 Basic Identities
Thursday 6.2 Verifying Identities
Friday 6.3 Sum and Difference Identities

Week 12 November 8 - 12

Monday 6.4 Double-Angle and Half-Angle Identities
Wednesday 6.5 Product and Sum Identities
Thursday 6.6 Conditional Trigonometric Equations
Friday 6.6 Conditional Trigonometric Equations

Week 13 November 15 - 19

Monday 7.1 The Law of Sines / Project due
Wednesday 7.2 The Law of Cosines
Thursday 10.1 The Parabola
Friday 10.2 The Ellipse and the Circle

Week 14 November 22 - 26

Monday Test Sections 4.4-7.2
Wednesday Thanksgiving Break
Thursday Thanksgiving Break
Friday Thanksgiving Break

Week 15 November 29 – December 3

Monday 10.2 The Ellipse and the Circle
Wednesday 10.3 The Hyperbola
Thursday 10.3 The Hyperbola
Friday Final Exam Review

Final Exam

TBA