PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE  
MASTER SYLLABUS  

PRECALCULUS  
MATH 1710  
Class Hours: 3.0  
Credit Hours: 3.0  
Laboratory Hours: 0.0  
Date Revised: Spring 07  

Catalog Course Description:  
Precalculus Algebra for students in University Parallel/transfer programs of science, mathematics,  
engineering or computer science. This is one of two courses in a sequence which prepares students  
for Calculus I. It provides a review of algebraic, logarithmic and exponential functions. Topics  
include systems of equations and inequalities, maximization, polynomial graphs, equations,  
exponential and logarithmic functions and complex numbers.  

Entry Level Standards:  
Students must be able to read at the college level.  

Prerequisites:  
High school algebra I and algebra II and ACT math score of at least 19; or DSPM 0850 or equivalent  
math placement score  

Textbook(s) and Other Reference Materials Basic to the Course:  
Textbook:  
References:  
Company, Boston, Massachusetts, 1997.  

Personal Equipment:  
A graphics calculator is required; the TI-83, TI-83 Plus, TI-84, or TI-84 Plus is recommended. A  
symbolic manipulator such as the TI-89 or TI-92 is not permitted.  

I. Week/Unit/Topic Basis:  

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<tr>
<th>Week</th>
<th>Topic</th>
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| 1    | Brief review of algebra topics, readiness test and introduction to functions. Chapter P  
      sections P.1 – P.6 |
| 2    | Equations, linear and absolute value inequalities. P.7 – P.9 |
| 3    | Test 1. Functions and their graphs. 1.1 – 1.3 |
| 4    | Linear functions and interpreting slope. 1.4 – 1.5 |
Transformations and combinations on functions. 1.6 – 1.7
Inverse functions. Distance and Midpoint formulas; equation of a circle. 1.8 – 1.9
Function modeling and complex numbers. 1.10 – 2.1
Quadratic functions, Test 2. 2.2
Polynomial graphing and division algorithms. 2.3 – 2.4
Fundamental Theorem of Algebra and Rational Function graphs. 2.5 – 2.6
Polynomial and rational inequalities, Variation modeling, 2.7 – 2.8
Test 3, Exponential functions 3.1
Logarithmic functions and properties. 3.2 – 3.3
Exponential and logarithmic equations and applications, Test 4 3.4 – 3.5
Final Exam

II. Course Objectives*:

A. Demonstrate mastery of the algebraic and geometric manipulation skills necessary for success in the engineering technologies and transfer programs. VI.2, 3
B. Use and interpret function notation and concepts. VI.2, 3
C. Interpret algebraic function graphs. VI.1, 2, 3
D. Translate verbal situations into an algebraic equation by using appropriate problem-solving techniques. VI.2,
E. Solve and apply exponential and logarithmic equations. VI.2, 3, 4, 5
F. Demonstrate mastery of complex number arithmetic and equation solving. VI.3, 4
G. Fit data by modeling. VI.1, 2, 3, 4

*Roman numerals after course objectives reference TBR’s general education goals.

III. Instructional Processes*:

Students will:

1. Work in teams to solve problems involving modeling. Communication Outcome, Mathematics Outcome, Active Learning Strategy
2. Employ graphics calculators and/or computer software as tools for solving algebraic, exponential and logarithmic equations. Mathematics Outcome, Technological Literacy Outcome
3. Analyze real life problems such as: using exponential growth to find the best rate of increase in financial problems and studying population growth in diverse populations, and using exponential decay to find the rate of decay for various radioactive substances used in science and engineering. Communications Outcome, Mathematics Outcome, Transitional
Strategies, Active Learning Strategies

*Strategies and outcomes listed after instructional processes reference TBR’s goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

Upon successful completion of this course, the student should be able to:

1. Compute areas and volumes of simple geometric figures and solids.   A
2. Solve elementary algebraic equations and literal formulas.   A
3. Translate verbal situations into an algebraic equation by using appropriate problem-solving techniques.   F
4. Interpret, graph, and manipulate polynomial and rational functions.   B, C, F
5. Solve equations algebraically, numerically and graphically.   B, C
6. Model data mathematically.   J
7. Solve fractional and quadratic equations and applications.   A
8. Simplify rational and fractional exponent expressions and convert to radical equivalent.   A
9. Convert from exponential to logarithmic form and vice versa.   A
10. Solve exponential and logarithmic equations and work problems.   F, G
11. Solve equations involving complex numbers.   H
12. Solve radical equations.   A

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures:

Students are evaluated primarily on the basis of tests, quizzes, and homework. A minimum of four major tests is recommended.

B. Laboratory Expectations:

As assigned by instructor

C. Field Work:

As assigned by instructor

D. Other Evaluation Methods:

As assigned by instructor
E. Grading Scale:

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>93 - 100</td>
<td>A</td>
</tr>
<tr>
<td>88 - 92</td>
<td>B+</td>
</tr>
<tr>
<td>83 - 87</td>
<td>B</td>
</tr>
<tr>
<td>78 - 82</td>
<td>C+</td>
</tr>
<tr>
<td>70 - 77</td>
<td>C</td>
</tr>
<tr>
<td>60 - 69</td>
<td>D</td>
</tr>
<tr>
<td>Below 60</td>
<td>F</td>
</tr>
</tbody>
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VI. Policies:

A. Attendance Policy:

Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic and Student Affairs, may have requirements that are more stringent.

B. Academic Dishonesty:

Individual instructors must distribute their policies on academic dishonesty and calculator use during the first week of classes. In addition to other possible disciplinary sanctions that may be imposed as a result of academic misconduct, the instructor has the authority to assign either (1) an F or zero for the assignment or (2) an F for the course.

C. Accommodations for Disabilities:

If you need accommodations because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please inform the instructor immediately. Please see the instructor privately after class or in his/her office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127 or 131 or by phone: 694-6751 (Voice/TTY) or 539-7153.

D. Other Policies:

Make Up Work:
Instructor discretion about make-up tests and/or assignments.

Cell Phones:
Cell phones are to be either turned off or put on vibration mode while in class. Instructor discretion as to penalty.

Posted: February 15, 2007