

**PELLISSIPPI STATE COMMUNITY COLLEGE  
MASTER SYLLABUS**

**PRECALCULUS  
MATH 1710**

**Class Hours: 3.0**

**Credit Hours: 3.0**

**Laboratory Hours: 0.0**

**Date Revised: Fall 2016**

**Catalog Course Description**

Precalculus algebra for students in University Parallel/Transfer Programs of science, mathematics, engineering or computer science. This is the first of two courses in a sequence that prepares students for Calculus I. Topics include algebraic concepts, equations, inequalities, complex numbers, maximization, and exponential and logarithmic functions.

**Prerequisites**

High school algebra I and algebra II and ACT math score of at least 22; and an ACT reading score of at least 19 or equivalent math and reading placement scores or MATH 1030 or equivalent course.

**Textbook(s) and Other Reference Materials Basic to the Course**

Textbook:

Blitzer, Robert F. Precalculus Essentials w/MML for Pellissippi State CC. 4<sup>th</sup> custom edition. Pearson Learning Solutions, 2013.

References:

Algebra and Trigonometry with Analytic Geometry, 12<sup>th</sup> edition, Swokowski/Cole, Cengage;  
Algebra and Trigonometry, 2<sup>nd</sup> Edition, Stewart/Redlin/Watson, Cengage.

Personal Equipment:

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

**Week/Unit/Topic Basis**

| Week | Topics  |
|------|---|
| 1    | Brief review of fundamental algebra topics, readiness test. 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                    |
| 5    | Transformations and combinations of functions. 1.6 – 1.7              |

|    |  |
|----|--|
| 6  | Inverse functions, Distance and midpoint formulas, Equation of a circle. 1.8 – 1.9 |
| 7  | Modeling with functions, Complex numbers. 1.10 – 2.1                               |
| 8  | Quadratic functions. 2.2, Test 2   |
| 9  | Polynomial functions and graphs, Division algorithms. 2.3 – 2.4                    |
| 10 | Fundamental Theorem of Algebra, Rational functions and graphs. 2.5 – 2.6           |
| 11 | Polynomial and rational inequalities, Modeling using variation. 2.7 – 2.8          |
| 12 | Test 3, Exponential functions. 3.1   |
| 13 | Logarithmic functions and properties. 3.2 – 3.3                                    |
| 14 | Exponential and logarithmic equations, Applications. 3.4 – 3.5, Test 4             |
| 15 | Final Exam   |

### Course Goals

NOTE: Roman numerals after course goals reference the General Education Goals of the Mathematics program.

The course will:

- A. Build the algebraic and geometric manipulation skills necessary for success in the engineering technologies and transfer programs. VI.1,2,3
- B. Use function notation and concepts for evaluating algebraic functions and interpreting the results. VI.1,2,3
- C. Illustrate techniques for interpreting algebraic graphs and demonstrate how they relate to other disciplines. VI.1,2,3,4
- D. Look at technology as a tool for analyzing data, graphs, and solutions to enhance understanding of algebraic concepts and determining if solutions are reasonable. VI.2,3,4,5,6
- E. Develop the problem solving skills for solving real world applications that require the use of algebraic equations for a wide-range of disciplines with emphasis on the sciences and engineering. VI.3,4,5,6

### Expected Learning Outcomes

NOTE: Capital letters after Expected Student Learning Outcomes reference the course goals listed below.

Students will:

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 algebraic equations by using appropriate problem-solving techniques. E
4. Interpret, graph, and manipulate polynomial and rational functions. B, C, D
5. Solve equations algebraically, numerically and graphically. A, B, C, D
6. Model data mathematically. D
7. Solve fractional and quadratic equations and applications. A, E
8. Simplify rational exponential 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. A, E
11. Solve equations involving complex numbers. A
12. Solve radical equations. A

## **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**

|          |    |
|----------|----|
| 93-100   | A  |
| 88-92    | B+ |
| 83-87    | B  |
| 78-82    | C+ |
| 70-77    | C  |
| 60-69    | D  |
| Below 60 | F  |

## **V. Policies**

### **A. Attendance Policy**

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning 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 Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

## **B. Academic Dishonesty**

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

## **C. Accommodations for Disabilities**

Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Disability Services (DS) in order to receive accommodations in this course. Disability Services (<http://www.pstcc.edu/sswd/>) may be contacted via Disability Services email or by visiting Alexander 130.

## **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.