PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

INTRODUCTION TO COLLEGE MATHEMATICS
MATH 1030

Class Hours: 3.0   **Credit Hours: 3.0**

Laboratory Hours: 2.0   **Date Revised: Fall 2016**

Catalog Course Description:

This course includes the study of quadratics and rational functions and their graphs, exponents, polynomial expressions and factoring, quadratic equations, rational expressions and equations, radical expressions, and related applications. The TI-83 or TI-84 Plus calculator is required and used throughout the course. This course is a prerequisite to MATH 1130, MATH 1710, and MATH 1730 for students with MATH ACT scores below 23.

Prerequisites

High school algebra I and algebra II and ACT math and reading scores of at least 19 or equivalent math and reading placement scores

Corequisites:

MATH 0030 if required

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

Textbook:
"Introductory and Intermediate Algebra for College Students" by Robert Blitzer. Custom 5th Edition of Chapters 5 – 11.

Technology Requirements:
Accompanying MyMathLab software support as determined by the instructor.

Personal Equipment:
A non-symbolic graphing calculator is required; the TI-84 Plus is preferred.

I. Week/Unit/Topic Basis:

Week	Topic
1	**Adding and Subtracting Polynomials, Multiplying Polynomials. (5.1, 5.2)**
2	**Special Products, Polynomials in Several Variables, Dividing Polynomials. (5.3 – 5.5)**
3	**Negative Exponents and Scientific Notation, Review, Exam. (5.7)**
4	**Greatest Common Factor and Factor by Grouping, Factoring Trinomials Whose Leading Coefficient is 1, Factoring Trinomials Whose Leading Coefficient is Not 1. (6.1 – 6.3)**
5	**Factoring Special Forms, General Factoring Strategy, Solving Quadratic Equations by Factoring. (6.4 – 6.6)**
6	**Applications of Solving Quadratic Equations by Factoring, Review, Exam. (6.6)**
7	**Rational Expressions and Their Simplifications, Multiplying and Dividing Rational Expressions, Adding and Subtracting Rational Expressions with the Same Denominator. (7.1 – 7.3)**
8	**Adding and Subtracting Rational Expressions with Different Denominators, Solving Rational Equations. (7.4, 7.6)**
9	**Applications Using Rational Equations and Proportions, Review, Exam. (7.7)**
10	**Introduction to Functions, Graphs of Functions, Radical Expressions and Functions, Rational Exponents, Multiplying and Simplifying Radical Expressions. (8.1, 8.2, 10.1 – 10.3)**
11	**Adding, Subtracting and Dividing Radical Expressions, Multiplying with More than One Term and Rationalizing Denominators, Radical Equations. (10.4 – 10.6)**
12	**Review, Exam, The Square Root Property, Pythagorean Theorem, Distance Formula. (11.1)**
13	**Completing the Square, The Quadratic Formula, Quadratic Functions and Their Graphs. (11.1 – 11.3)**
14	**Applications of Quadratic Functions, Review, Exam. (11.3)**
15	**Final Exam**

II. Course Goals*:

As a co-requisite supporting course for MATH 1030, Introduction to College Algebra, MATH 0030 will provide students with the algebraic skills essential for success in MATH 1030 and

subsequent college-level mathematics courses required to achieve their educational goals. Students will be introduced to various representations of algebraic relationships.

The course will:

A. Extend student knowledge of the basic definitions and terms used when describing algebraic and mathematical concepts and procedures. VI.1, 4

B. Build on the mathematical and algebraic skills needed to be successful in subsequent courses of mathematics and other courses where mathematical concepts and applications are taught. VI.1,2,3,4,5,6

C. Enhance and expand student knowledge of the appropriate use of the graphing calculator and other technologies. VI.1,5

D. Guide students towards a better understanding of underlying algebraic concepts when those concepts are applied to a variety of real-world applications and models. VI.1,2,3,4,5,6

E. Develop and expand the problem solving skills of students when interpreting and modeling situations, choosing among many different strategies of solution, and presenting the solution to the problem using clear and concise language. VI.1,2,3,4,5,6

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

III. Expected Student Learning Outcomes*:
Students will be able to:

1. Identify polynomials and classify them by degree. A, D

2. Add, subtract, multiply, and divide polynomials. A, B, D

3. Use various laws of exponents to simplify exponential expressions. A, B, D

4. Convert numbers between scientific and standard notation and compute with scientific notation. A, B, D

5. Factor trinomials in quadratic form using various methods. A, B

6. Factor polynomials completely using greatest common factor and factor by grouping. A, B

7. Solve quadratic equations and applications by a variety of factoring methods. A, B, C, D, E

8. Add, subtract, multiply, and divide rational expressions and state their answers in simplest form. A, B, D

9. Determine the domain of a rational function. A, B, D

10. Solve rational equations and applications. B, D, E

11. Determine whether a relation represents a function. A, B

12. Evaluate a function at a given value. A, B

13. Analyze a given function and describe its domain and range using appropriate notation. A, B

14. Simplify, add, subtract, multiply and divide radical expressions. A, B

15. Rewrite radical expressions with rational exponents and simplify. A, B

16. Rationalize the denominator of a radical expression. A, B

17. Solve equations and applications involving radicals. B, C, D, E

18. Solve quadratic equations using the square root property, completing the square and the quadratic formula. A, B, C, D, E

19. Graph quadratic functions using appropriate techniques by determining the vertex and x and y-intercepts of the function. C, D, E

20. Solve and interpret applications involving quadratic functions. C, D, E

*Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

IV. Evaluation:

A. Testing Procedures: 80 – 90% of grade
There will be a minimum of 4 chapter exams administered in class on the scheduled exam date. A required cumulative departmental final exam will be given on a designated final exam date.

B. Laboratory Expectations: 0% of grade
Not included in the course.

C. Other Expectations: 10 – 20% of grade
As determined by instructor.

D. Grading Scale:

A	93 – 100%
B+	88 – 92%
B	83 – 87%
C+	78 – 82%
C	70 – 77%
F	Below 70%

V. Policies:

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.

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.

Accommodations for Students with 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 email or by visiting Alexander 130.

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.