INTERMEDIATE ALGEBRA
DSM 0840

Class Hours: 5.0   **Credit Hours: 5.0**

Laboratory   **Date Revised: Fall 1998**
Hours: 0.0

Catalog Course Description:

This course includes the study of quadratics, rational & radical functions and their graphs, polynomial expressions, quadratic equations and inequalities, rational expressions and equations, radical expressions and equations, and   related applications. The TI-83 or TI-83 Plus calculator is required and used throughout the course.

Entry Level Standards:

Satisfactory completion of RSR 0710 or equivalent math placement test score

Prerequisite:

DSM 0830 or equivalent math placement score

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

Thomasson/Pesut, *Experiencing Algebra*, Prentice Hall Publishing Company, 1999.
TI-83 or TI-83 Plus graphics calculator. A symbolic manipulator such as the TI-89 or TI-92 is not   permitted.

I. Week/Unit/Topic Basis:

Week	Topic
1	Introduction to polynomials, 9.1; polynomial functions and their graphs, 9.2; quadratic functions and their graphs, 9.3
2	Writing quadratic functions, 9.4; Calculator/Group Work/Modeling Activities; review; Test 1
3	Rules for exponents, 10.1; polynomial operations, 10.2; polynomial multiplication, 10.3; Test 2
4	Common factors and factoring by grouping, 10.4; Factoring Trinomials, 10.5
5	General strategies for factoring, 10.6; Calculator/Group Work/Modeling Activities; review; Test 3
6	Solving equations numerically and graphically, 11.1; solving equations algebraically by factoring, 11.2; solving quadratic equations by using square roots, 11.3

7	Solving quadratic equations by completing the square, 11.4; solving quadratic equations by quadratic formula, 11.5; more real-world models, 11.6
8	Solving quadratic inequalities, 11.7; Calculator/Group Work/Modeling Activities; review; Test 4
9	Rational expressions and functions, 12.1; multiplication and division of rational expressions, 12.2
10	Addition and subtraction of rational expressions, 12.3; solving rational equations in one variable numerically and graphically, 12.4; solving rational equations with one variable algebraically, 12.5; Calculator/Group Work/Modeling Activities
11	More real-world models, 12.6; Calculator/Group Work/Modeling Activities; review; Test 5
12	Evaluating radical expressions and expressions containing rational exponents, 13.1; radical functions and their graphs, 13.2; properties of rational exponents, 13.3
13	Properties of radicals, 13.4; operations on radicals, 13.5; solving radical equations in one variable numerically and graphically, 13.6
14	Solving radical equations algebraically, 13.7; Calculator/Group Work/Modeling Activities; review; Test 6
15	Review and final exam
16	Final exam retesting.

II. Course Objectives*:

DSM 0840 is a mathematics course in the TBR mandated R/D program. The program is designed to provide students with skills which support their success in college-level curricula and enable them to achieve their educational goals. Students who complete the R/D program will experience about the same or better success in college- level classes as students who did not need to enroll in developmental courses.

A. Use function notation: evaluate, determine the domain, and graph a function. III, V

B. Solve quadratic equations and inequalities algebraically, numerically, or graphically. V,IV

C. Solve equations with rational or radical expressions algebraically, numerically, or graphically. V,IV

D. Model word problems algebraically. II,V

E. Interpret graphical information. I

F. Use a calculator to support problem solving. GE-V.6

G. Simplify and evaluate algebraic expressions and formulas. V

*Roman numerals after course objectives reference goals of the Math department.

III. Instructional Processes*:

Students will:

1. Use graphing calculators and/or computer software to graph functions, solve polynomial, rational, radical equations and quadratic inequalities, and simplify expressions with rational exponents and radicals. *Technological Literacy Outcome*

2. Engage in collaborative activities, e.g., modeling projects, teamwork, presentations, and/or other activities involving linear, quadratic, rational, and/or radical functions. *Problem Solving and Decision Making Outcome, Numerical Literacy Outcome, Transitional Strategy, Active Learning Strategy*

3. Use multiple approaches--physical, numerical, graphical, symbolic, and verbal--to solve polynomial, rational, and radical equations. *Numerical Literacy Outcome*

4. Participate in interactive discovery exercises that lead to the development of mathematical relationships. *Active Learning Strategy*

*Strategies and outcomes listed after instructional processes reference Pellissippi State'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. Simplify an expression with rational exponents. G

2. Rewrite a polynomial as a product of factors or state that the polynomial "cannot be factored". G

3. Rewrite a rational expression in simplest form and determine the domain G,A

4. Perform indicated operations on expressions with algebraic fractions. G

5. Find an acceptable solution set for equations or word problems with algebraic fractions. C,F

6. Evaluate and simplify a radical expression. G

7. Find an acceptable solution set for equations or word problems with radicals. C,F

8. Find an acceptable solution set for equations or word problems with quadratics. C,F

9. Calculate the distance between two points using the distance formula. G

10. Solve a quadratic inequality and graph the solution. B,F

11. Evaluate, determine the domain, and graph a linear, radical, rational, or quadratic function. A,F

12. Model and solve word problems with quadratic, rational, or radical equations. D,B,F

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

V. Evaluation:

A. Testing Procedures:

Students have a maximum of three attempts to pass each chapter test. If the student does not achieve 80% proficiency within three attempts, he/she fails the course. Two attempts will be allowed to achieve 60% proficiency on the final exam. If a student does not achieve 60% within two attempts, he/she fails the course.

If a student requires multiple attempts to achieve the required 80% on the chapter tests, the scores on the attempts will be averaged. The student will receive the average of the attempts or 80%, whichever is higher.

If a student requires a second attempt on the final exam to achieve the required 60%, the two attempts will be averaged. The student will receive the average of the two attempts or 60%, whichever is higher.

B. Laboratory Expectations: None

C. Field Work: None

D. Other Evaluation Methods:

Evaluation will be based on class participation, homework, and projects as outlined on the syllabus supplement distributed by the instructor.

E. Grading Scale:

Unless otherwise stated on the syllabus supplement, the course grade will be the average of the individual chapter exams and the final exam.

    A = 94 - 100
    B = 87 - 93
    C = 77 - 86
    F = below 77

To pass the course, the student must:
  1. Achieve a course average of "77%" or better
  2. Achieve at least 60% proficiency on the final exam
  3. Receive an 80% proficiency on each chapter test

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. Students who miss more than the equivalent of one week of class are not eligible for an " I" or " E" grade and are in jeopardy of failing the course.

B. Academic Dishonesty:

Academic dishonesty in any form is prohibited and will be dealt with severely. Penalties range from an F or a zero for the specific project or examination to automatic failure for the course for all students involved. Individual instructors must distribute their policy on academic dishonesty during the first week of class.

C. Two Attempt Rule:

According to TBR policies, a student must complete this course within two semesters of enrollment or

be suspended from all TBR schools for one semester. A final grade of A, B, C, E, F, I, or W counts as one attempt.

Withdrawal:
Students placed and enrolled in an R/D course are not permitted to withdraw except for serious circumstances. Students wishing to withdraw should discuss this matter first with their mathematics instructor and then must confer with a student development counselor.