College Algebra- Math 143
3 credits—Summer 2008
Instructor: Lynn Payne
Declo High School # 654-2030
Office Hours 8:00 AM – 3:00 PM
Home # 862 - 3889
E-mail: paylynn@sd151.k12.id.us  annie11@pmt.org

Course Description:
- Fundamental concepts of Algebra; equations and inequalities; functions and graphs; polynomial, rational, exponential and logarithmic functions; systems of equations and inequalities; conics; the Binomial Theorem.
- Credit not granted in both Math 143 and Math 147.

Prerequisites:
- MATH 108 with a grade of “C” or better or Math Placement Test.

Required Textbook and supplies:
- College Algebra by Larson and Hostetler, Seventh Edition
- Scientific calculator
- Graph paper

Expected Outcomes:
- Understand the College Algebra terminology
- Apply this terminology in simple and complex patterns
- Comprehend College Algebra methods used to analyze problems
- Apply these methods to selected “real world” applications

Course Objectives:
Students will demonstrate a working knowledge of the following processes and concepts:
- **Linear equations** (solve all types, simple to complex, model data and solve application problems)
- **Formulas** (solve problems using formulas, isolate a specified variable)
- **Quadratic equations** (solve by factoring, by taking square roots, by completing the square, using the quadratic formula, solve application problems)
- **Solve other types of equations** (polynomial, radical, absolute value, equations that are quadratic in form, equations with rational exponents)
- **Inequalities with one variable** (graph and solve linear, compound, absolute value, quadratic and rational inequalities)
- **Lines** (find slope, graph, write equation, model data, use idea of parallel and perpendicular)
- **Circles** (equation, center, radius, graph, convert equation to standard form)
- **Functions** (definition, domain, range, use vertical line test, evaluate, intervals for increasing and decreasing, odd, even, symmetry, model data)
- **Graph and analyze common functions** (quadratic, cubic, square root, absolute value, step, greatest integer)
- **Transformations and combinations of functions** (vertical shifts, horizontal shifts, reflections, vertical stretching and shrinking, add, subtract, multiply, divide, composition, inverse)
- **Quadratic functions** (graph, standard form, vertex, intercepts, model data, solve application problems)
- **Polynomial functions** (end behavior, leading coefficient test, graph, Remainder Theorem, Factor Theorem, find all zeros)
- **Rational functions** (vertical asymptotes, horizontal asymptotes, slant asymptotes, intercepts, graph, solve application problems)
- **Variations** (direct, inverse, joint, combined)
Exponential functions and equations (evaluate, graph, transform, solve equations, model data and solve application problems)
Logarithmic functions and equations (log notation, properties of logs, evaluate, graph, solve log equations, change bases, model data and solve application problems)
Systems of equations (linear equations in two variables, linear equations in three variables, nonlinear equations in two variables, application problems)
Systems of inequalities (linear, nonlinear, linear programming)
Conic sections (analyze and graph ellipses, hyperbolas and parabolas, find vertices, foci, axis of symmetry, directrix, eccentricity and asymptotes as applicable, model data and solve application problems)
Binomial theorem (expand binomial raised to a power, find one specified term)

These additional, optional topics may be covered by some instructors:
- Cramer’s Rule to solve a system of linear equations
- Partial fraction decomposition
- Matrix operations

Outcomes Assessment:
- Students will be asked to complete a student evaluation at the end of the semester. Regular informal feedback will be solicited in an effort to improve the class as we go along.
- Chapter tests and a comprehensive final exam will be used to assess how well students achieve the course objectives.
- A grade of C or better will show what degree of comprehension the student has achieved the outcome.
- As part of departmental analysis of outcomes in this course and its place in the Mathematics program, student completion of the pre-requisite, success in the current course, success in subsequent courses and student satisfaction will be reviewed by the instructor. A report containing this information will be submitted by department faculty to determine what, if any, changes can be made to improve the course in terms of content, focus, and instruction.

Policies and Procedures:
- Attendance is essential for a student to be successful in this course. CSI policy requires the instructor to drop any student that misses more than two classes, which is double the time of the number of credits taken. If, for one reason or another, you are unable to attend, you will still be responsible for all material covered that day.
- You are assigned to do every odd problem for your assignment. Please do them for your benefit. It will reflect directly with your grade on your test.
- Class time will be Mon. 7:00 PM–10:00 PM
- Late material will not be excepted unless arraignments are made.
- Anyone found cheating on a test will receive a Zero for that test.

Grading Practices:
- All tests will be administrated at the testing center unless other arraignments are made.
- Your grade will be an average of your test grades. You will be able to drop your lowest test grade, (or you’re highest if you wish). The final exam is not one of the tests that can be dropped.
- Your break down of grades will go as follows:
  - 90% - 100% A
  - 80% - 89% B
  - 70% - 79% C
  - 60% - 69% D
  - 0% - 59% F
Aids available to you for this course:

- There will be personal tutoring available. You will have to get a schedule form from the front desk.
- A great help will be, if you could possibly find a person taking the same class, work with each other.
- There will be videos for the class at the front desk.
- There are additional lecture presentations on public television on designating nights.

Disabilities:

- Any student with a documented disability may be eligible for related accommodations. To determine eligibility and secure services, students should contact the coordinator of Disability Services at their first opportunity after registration for a class. Student Disability Services is located on the second floor of the Taylor Building on the Twin Falls Campus. 208-732-6260 (voice) 208-734-9929 (TTY), or E-mail aflannery@csi.edu.

Online course evaluations:

- Students are strongly encouraged to complete evaluations at the end of the course. Evaluations are very important to assist the teaching staff to continually improve the course. Evaluations are available online at: http://evaluation.csi.edu. Evaluations open up two weeks prior to the end of the course. The last day to complete an evaluation is the last day of the course. During the time the evaluations are open, students can complete the course evaluations at their convenience from any computer with Internet access, including in the open lab in the Library and in the SUB. When students log in they should see the evaluations for the courses in which they are enrolled. Evaluations are anonymous. Filling out the evaluation should only take a few minutes. Your honest feedback is greatly appreciated!

TENTATIVE SCHEDULE FOR SUMMER 2008
MATH 143 – 50

June 2  Prerequisite Chapter (P.1 – P.3)
Reviewing all prerequisite using real numbers, exponents, radicals and polynomials.

June 9  Prerequisite Chapter (P.4 – P.7)
Reviewing all prerequisite using real numbers, exponents, radicals and polynomials
Test on Prerequisite chapter must be completed by June 16.

June 11  Chapter 1 (1.1 – 1.4)
Using linear and quadratic equations and applications.

June 16  Chapter 1 (1.5 – 1.8)
Linear and quadratic inequalities. Test on Chapter 1 must be completed by June 23

June 18  Chapter 2 (2.1 – 2.4)
Working with functions and their graphs.

June 23  Chapter 2 (2.5 – 2.7)
Graphing functions, using transformations and combinations. Working with composites and inverse functions. Test on Chapter 2 must be completed by June30

June 25  Chapter 3 (3.1 – 3.3)
Working with quadratic functions. Finding their roots with multiplicity and division. (long and synthetic)

June 30  Chapter 3 (3.4 – 3.5)
Helps in finding roots of polynomials, using Decartes’ Rule of signs. Working with upper and lower bounds and imaginary numbers. Test on Chapter 3 must be completed by July 7
July 2 Chapter 4 (4.1 – 4.4)
Graphing Polynomials and conics using asymptotes. Test on Chapter 4 must be completed by July 9.

July 7 Chapter 5 (5.1 – 5.3)
Definition of logarithmic and exponential functions. Changing logarithmic form to exponential form. Graphing logarithm functions.

July 9 Chapter 5 (5.4 - 5.5)
Learning the properties of logarithms and exponential functions. Modeling the properties to problems. Test on Chapter 5 must be completed by July 16.

July 14 Chapter 6 (6.1 – 6.3)
Solving two variable equations using substitution and addition methods. Solving three variable equations using addition method.

July 21 Chapter 6 (6.5 – 6.6, 8.5)
Linear programming and working with systems of Inequalities. Learning the binomial expansion theorem. Chapter 6 material will be included in the final.

July 23 Course Review

July 25 Final