ACADEMIC SKILLS AND GENERAL STUDIES DIVISION

CONTACT AND COMMITMENT:

619-4240, Division Dean 619-4331, Secretary

To offer curriculum and instructional methods that guide each learner to develop the skills and attitudes leading to academic and career success.

ACSK 0023 BEGINNING ALGEBRA

This developmental algebra course covers a quick prealgebra review; solving linear equations and inequalities, quadratic equations, and rational equations; graphing lines in the Cartesian coordinate plane; working with exponential properties, polynomial operations, factoring, and rational operations, and emphasizing interwoven problem solving. Upon successful completion, a student may take ACSK 0103, Intermediate Algebra or MATH 1003, Math for AAS General Education. PREREQUISITE: Prealgebra (ACSK 0013) with a grade of C or better, or minimum placement score: COMPASS Prealgebra–39, ASSET Numerical Score–40, or ACT Math–14. Prealgebra background is strongly recommended. If prerequisites have not been met, drop this class or speak to the ACSK Mathematics Lead Faculty or Division Dean.

CREDIT HOURS: 3 credit hours, none counting toward any degree requirements.

TARGET AUDIENCE AND TRANSFER: This course is intended for college students who have had little algebra, or for those students needing a review of elementary algebra concepts to strengthen skills in preparation for intermediate algebra or specialized AAS math study. Beginning Algebra is a non-transfer course.

INTELLECTUAL DEVELOPMENT CORE:

Goals for student thinking that encourage intellectual risk, modeling and problem solving, and independent exploration all lead to the Beginning Algebra course preparing productive workers and citizens with the following skills:

1. Apply and evaluate symbolic approaches to problem solving.
2. Communicate and judge the reasonableness of results.
3. Verify the validity of a statement (based on knowledge of algebraic properties and definitions).
4. Recognize and apply major recurring themes: evaluate, simplify, solve, graph.
5. Comprehend directions and expand connections.
6. Find a natural use of technology as a tool for realistic mathematical problems.

CONTENT CORE:

A student successfully completing Beginning Algebra, ACSK 0023, will demonstrate these primary competencies:

1) Find the solution of a linear equation.
2) Model a linear problem using algebraic process.
3) Graph a linear equation in two variables.
4) Simplify an exponential expression.
5) Factor a second-degree polynomial.
6) Meet all core objectives of Prealgebra.

ADDITIONAL CONTENT EMPHASIS: A student successfully completing Beginning Algebra, ACSK 0023, will also be able to:

1) Solve formulas for a secondary variable.
2) Perform addition, subtraction, and multiplication on polynomials.
3) Factor all types of polynomials.
4) Find the solutions of (factorable) quadratic and rational equations.
5) Perform operations on rational expressions.

REQUIRED FORMS OF ASSESSMENT: In all sections of Beginning Algebra, a divisional pre-diagnostic is given to help evaluate incoming skill relative to course success and end of semester assessments measure core content skill. Grouped statistics on overall student performance are used in faculty discussions on strengthening the learning environment and evaluations. To assess the primary goal for all developmental math courses, an ACSK Developmental Education Performance Report for math success indicates that students who are successful at Intermediate Algebra succeed in College Algebra at a rate comparable to students placed directly into that course.

REQUIRED TEXT: Algebra: A Combined Approach, Second Edition. Martin-Gay. Prentice Hall, Upper Saddle River, NJ.: 2003.

HIGHLIGHT INTRODUCTION (a quick review of PreAlgebra) ***(try these without a calculator).***
Chapter R Pretest: 1, 2, 3, 4, 6, 8, 9, 11, 13, 15, 17, 19, 20, 21
Chapter 1 Pretest: 2, 3, 4, 5, 8, 10, 11, 12, 13, 15, 17, 18, 19, 20, 22, 23, 24, 25
Roots and Radicals Packet: Review Portion: exercises 1, 3, 5, 7, 9
Chapter 2 Pretest: 1, 2, 3, 4, 5, 6

REQUIRED TOPIC LIST (Integrated Reviews are to be included for each chapter here.)

Integrated Reviews for all chapters covered

Ch 2: Equations, Inequalities, and Problem Solving
2.1 Simplifying Expressions
2.2 The Addition Property of Equality
2.3 The Multiplication Property of Equality
} (As a quick review)
2.4 Further Solving Linear Equations
2.5 An Introduction to Problem Solving
2.6 Formulas and Problem Solving
2.7 Percent, Ratio, and Proportion
2.8 Linear Inequalities and Problem Solving

Ch 3: Graphing Equations and Inequalities
3.1 Reading Graphs and the Rectangular Coordinate System
3.2 Graphing Linear Equations
3.3 Intercepts
3.4 Slope
3.5 Graphing Linear Inequalities in Two Variables

Ch 4: Exponents and Polynomials
4.1 Exponents
4.2 Negative Exponents and Scientific Notation
Roots and Radicals Packet: Beginning Algebra Portion
4.3 Introduction to Polynomials
4.4 Adding and Subtracting Polynomials
4.5 Multiplying Polynomials
4.6 Special Products
4.7 a b Dividing Polynomials

Ch 5: Factoring Polynomials
5.1 The Greatest Common Factor
5.2 Factoring Trinomials of the Form $x^2 + bx + c$
5.3 or 5.4 Factoring Trinomials of the Form $ax^2 + bx + c$ (5.3 Using Trial-and-Check or 5.4 Using Grouping; if only 5.4, some practice will be from Exercise Set 5.3)
5.5 Factoring by Special Products
5.6 Solving Quadratic Equations by Factoring
5.7 Quadratic Equations and Problem Solving

Ch 6: Rational Expressions
6.1 Simplifying Rational Expressions
6.2 Multiplying and Dividing Rational Expressions
6.3 Adding and Subtracting Rational Expressions with the Same Denominator and Least Common Denominator
6.4 Adding and Subtracting Rational Expressions with Different Denominators
6.5 Solving Equations Containing Rational Expressions
6.6 Rational Equations and Problem Solving
6.7 Simplifying Complex Fractions

STUDENT RESOURCES: **ACSK 0023 Beginning Algebra**

What……	***Why…….***	***Where…….***	***Product info***
Student Solutions Manual	Step by step solutions to odd-numbered exercises.	NWACC Bookstore	Prentice Hall
Videotape Series	Coverage by text sections. Text publisher.	NWACC Library BH	Free check-out
Digitized Lecture Videos on CD-ROM	All the Videos above in digital form	NWACC Library BH, NWACC Bookstore	Free check-out or purchase
MathPro 5	Online tutorial software	NWACC Bookstore	Prentice Hall
More publisher supports listed pg xvi of Preface	Computer tutorials, multimedia and web supports.	Access available in NWACC Learning Lab BH 1109 or MAT Math Café .10	Prentice Hall
Peer and Faculty **tutors**	Discuss specific homework questions, help prepare for exams.	NWACC Learning Lab BH 1109, Math Café MAT 10.	See Learning Lab Web Site for Schedule Details
Texas-Instruments 82 or 83 **Graphing Calculator**	Permits home practice with the graphing calculator.	Go to Cashier's window in BH, then take receipt to Math Secretary, MAT 02	$30 semester rental cost.