Course Proposal Format

Details

a. Course Title : Basic Algebra I

a. Sponsor(s): Ron Czochor, Tonya Davenport, James Poinsett, Jay Schiffman, and the Mathematics Department

b. Credit Hours: 2 SH
c. Course Level: Developmental (09* level)
d. Prerequisites: Below 57 on Accuplacer (or other comparable placement test)
e. Suggested time and scale of implementation: Beginning Fall 2008 and continuing every semester.

Curricular Effect

Include a description of how the course implementation will affect other department, college, and university.

- Offerings – This course will replace the 3 SH developmental course entitled Basic Algebra and the 3 SH Intermediate Algebra. It will be the first of a two course sequence for all students.
- Adequacy of the present staff, resources, space needs, and any other additional requirements for implementation. This will be part of a sequence that will replace Basic Algebra and Intermediate Algebra. The sequence of Basic Algebra I and II should have no more of a demand on resources than the current Basic Algebra course. The current resources for Basic Algebra are inadequate. Currently the Basic Algebra course at the Glassboro campus has one instructor and one half-time graduate assistant. In the recent past there was one instructor, one full-time graduate assistant, one half-time graduate assistant, and some work-study help. While the resources have been reduced , the demand has climbed. The space assigned for the class and tutoring sessions is also inadequate.
- Recommended Library Resources: No library resources will be needed for this course.

Rationale

Currently students majoring in any discipline at the university who are deficient in basic skills as determined by the Accuplacer Instrument are required to enroll in Basic Algebra for 3 non-degree credits and subsequently are strongly advised to select Intermediate Algebra if their major dictates the need for College Algebra, Precalculus or beyond. This course will be the first of a two part sequence in basic algebra that will be the starting point for those who score very low on the placement test. By splitting Basic Algebra into two levels we can be sure to adequately serve those who need remedial help in mathematics. Through the self-paced nature of the course this will provide more time for

those in the most need to master the ideas before going onto Basic Algebra II. Those students placed directly into Basic Algebra II will start at a higher level and again be able proceed at their own pace.

Essence of the Course

a. Objectives of the course in relation to student outcomes. After completing this course, students will be able:
   i. To simplify algebraic expressions
   ii. To solve problems involving equalities, inequalities, and percents
   iii. To graph linear equations
   iv. To factor polynomials
   v. Simplify rational expressions

b. Topical Outline/Content (This may be replaced by attaching a syllabus or by indicating that the objectives are specific and reflect the exact content).

Basic Algebra I

Topical Outline/Content

1. Introduction to Real Numbers and Algebraic Expressions.
   i. Introduction to Algebra.
   ii. The Real Numbers.
   iii. Properties of Real Numbers.
   iv. Simplifying Expressions; Order of Operations.
2. Solving Equations and Inequalities.
   i. Solving Equations: The Addition and Multiplication Principle.
   ii. Formulas. Percent and Problem Solving
   iii. Solving Inequalities.
3. Graphs of Linear Equations.
   i. Graphs, Intercepts, Slope and Applications.
4. Polynomials: Operations.
   i. Exponents and Scientific Notation.
   ii. Introduction to Polynomials.
   iii. Operations of Polynomials.
   iv. Operations with Polynomials in Several Variables.
5. Polynomials: Factoring.
   i. Introduction to Factoring.
   ii. Factoring Trinomials, Trinomial Squares and Differences of Squares.
   iii. Solving Quadratic Equations by Factoring.
6. Rational Expressions and Equations.
   i. Adding, Subtracting, Multiplying, Dividing, and Simplifying Rational Expressions
   ii. Least Common Multiples and Denominators.