Sample Descriptor - Math 50X

The intent of this template is to provide base-line preparatory/concurrent support courses that colleges may tailor to meet the needs of their student populations, and is not intended for course submission to C-ID

Discipline: Mathematics – Pre-Transfer

Proposed Sub-discipline (if applicable):

General Course Title: Elementary Mathematics

Min. Units: 2

General Course Description:

This course is a review of basic mathematics, operations on real numbers, and algebraic expressions. It includes traditional arithmetic and pre-algebra for students needing to develop or improve computational and quantitative reasoning skills, and an optional introduction to elementary topics in algebra. This course is an option for those students who choose intensive instruction in elementary mathematics.

This course may be offered in lecture or lab format as locally determined. Units are listed as minimum units commensurate with the depth and breadth at which topics are covered as determined locally. This course may be mirrored as a noncredit course based on local need and policy

Proposed Number: 50

Proposed Suffix (if applicable): X

NOTE: Descriptor templates with an X suffix fall outside of SB 1440/440 and are not subject to mandates associated with such legislation.

Any rationale or comment:

This course description includes baseline topics that are necessary for a student to be successful in Math 60X or Math 70X. Topics that might overlap with Math 60X or Math 70X have been made optional to give local discipline faculty flexibility to adapt the course to fit the needs of local student populations and college curricular programs.

Some colleges may choose to offer this course as a corequisite/concurrent course for students choosing to be enrolled in the next pre transfer-level course that may need additional instruction and support, or as a prerequisite/preparatory course for students choosing not to enroll in the next pre transfer-level course concurrently. This course is not a required element of a college's curricular offerings, rather an option for colleges to meet the needs of the local student population. This course is available for students that may need or choose to take it based on their educational backgrounds.

Required Prerequisites: Local decision

Required Co- Requisites: Local decision

Advisories/Recommended Preparation[1]: Local decision

[1] Advisories or recommended preparation will not require validation but are recommendations to be considered by the student prior to enrolling.

Course Content:

The following topics should be covered with a focus on use in elementary mathematics and a first introduction to elementary algebra:

1. Operations with real numbers
   a. The real number line
   b. Mathematical operations and symbols: •, <, >, ≤, ≥, =, ≠ (including order of operations, exponents)
   c. Decimals
   d. Real number properties and absolute value
2. Coordinate Axis – Rectangular Coordinate System
3. Factoring
   a. Prime numbers
   b. Divisibility
   c. Multiples and Least Common Multiple
4. Fractions
   a. Operations
   b. Lowest Common Denominator
5. Algebraic expressions and equations at an introductory level
   a. Order of operations
   b. Linear and nonlinear
   c. Integer exponents
   d. Square root, Cube root
6. Linear equations in one variable.
   a. Solve
   b. Graph
7. Linear inequalities in one variable.
   a. Solve
   b. Graph
8. Ratio and proportion
9. Percents
10. Geometry – Perimeter, Area
11. Problem solving strategies
    a. Using formulas
    b. Translate English phrases and sentences into mathematical notation
12. English and metric measurements and conversions

Optional Additional Topics:

1. Introduction to Quadratic Expressions and Equations
   a. Factoring
   b. Solve equations
   c. Square Roots
   d. Quadratic Formula
   e. Graph Quadratic Equation
2. Geometry
   a. Properties of rectangles, squares, triangles, and circles
3. Affective Domain experiences (to develop being Self-Motivated, Persistent, Skeptical, Focused, Organized, Meta-cognitive, Prepared, Risk-taker, and Adaptable)

Laboratory Activities: (if applicable)

The course content could be offered in a laboratory format at the discretion of discipline faculty.

Course Objectives: At the conclusion of this course, the student should be able to:

1. Apply the four basic operations of integers and rational numbers to solve problems, including applications.
2. Evaluate simple algebraic expressions including the use of order of operations. (optional)
3. Identify, describe, and simplify ratios and rates.
4. Set up a proportion and/or a percent equation to solve problems, including applications.
5. Use geometric formulas to solve problems involving perimeter, circumference, and area.

Work with linear equations and inequalities in one variable.

Methods of Evaluation:

To be determined by local department faculty. The instruments of evaluation require students to demonstrate their mastery of the learning objectives and their ability to devise, organize, and present complete solutions to problems. Departments may wish to consider using departmental final exams and focus on transparency of exam topics and grading rubrics.

Sample Textbooks, Manuals, or Other Support Materials (do not include editions or publications dates)

Instructional materials are a local decision at the discretion of the discipline faculty.

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