Sample Descriptor - Math 80X

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: Algebra for Transition into Mathematics Intensive Fields Min. Units

General Course Description:

This course is intended to serve as a "bridge course" for students who have been placed into or have completed a transfer-level quantitative reasoning course from a non-mathematics intensive pathway. It covers topics of intermediate algebra that were not required for non-mathematics intensive pathways but will be needed for mathematics intensive courses such as college algebra, trigonometry, and/or precalculus.

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. Additional topics may be added with unit load increased appropriately. This course may be mirrored as a noncredit course based on local need and policy.

Proposed Number: 80

Proposed Suffix (if applicable): X

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 was created in response to concern from college and system leaders that students need a bridge from statistics and liberal arts mathematics to mathematics intended for mathematics intensive fields. Students who complete this course will have completed the equivalent of Intermediate Algebra needed for mathematics intensive fields.

Additional topics commensurate with additional units may be added as needed based on local curriculum content.

Required Prerequisites: Local Decision

Required Co-Requisites: Local Decision

Advisories/Recommended Preparation[1]:

It is expected that students taking this course have been placed into or met a mathematics and quantitative reasoning requirement at the baccalaureate level through a non-mathematics-intensive pathway. Based on local placement policies and practices, this course may be offered in a lecture and/or laboratory format as a preparatory or concurrent course for a college algebra, trigonometry, or a pre-calculus course.

---

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

Course Content:

Required Topics:

The following topics should be covered at a level to prepare students for entry into courses such as college algebra, trigonometry, pre-calculus, and business calculus.

1. Polynomials – Monomial, Binomial, Trinomial
    a. Graphing
2. Inequalities –Quadratic, Rational
    a. Solve
    b. Graphing
    c. Introduction to non-linear inequalities
3. Radical Expressions and Equations – Cube Root, nth root
    a. Rational Exponents
    b. Introduction to Complex Numbers
4. Exponential and Logarithmic Equations
    a. Conversion between basic logarithmic and exponential equations
    b. Properties of logarithms
    c. Solving exponential and logarithmic equations
5. Functions – Polynomial, Rational, Radical, Exponential, Logarithmic
    a. Composition of functions
    b. Domain and Range
    c. Graphing
    d. Inverse Functions
6. Conic Sections – Parabolas and Circles
7. Systems of Nonlinear Equations

Optional Topics:

1. Sequences and Series—Summation Notation
2. Matrices
3. Conic Sections—ellipses, hyperbolas
4. Binomial Theorem
5. Other topics
6. 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. Solve polynomial, rational, absolute value, radical, exponential, logarithmic equations;
2. Solve systems of linear equations;
3. Factor polynomials;
4. Solve linear and absolute value inequalities;
5. Graph linear and nonlinear functions, parabolas, and circles;
6. Apply basic operations on functions;
7. Find inverse functions; and
8. Use mathematical modeling to solve problems relating to topics such as exponential growth and decay, mixing, or optimization.

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.

[For Office Use Only)