LSC Use Only
Number: 235
Submission Date:
Action-Date:

FEB 27 2002
LIBERAL STUDIES

UWUCC USE Only
Number: 01-62b
Submission Date:
Action-Date: UWUCC App 4/9/02
Senate App 5/7/02

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. CONTACT

Contact Person Gerald Buriok Phone 7 2608

Department Mathematics

Part II. Description of Curriculum Change

1 [redacted]

2. Summary of proposed revisions.

The proposed change is in the prerequisite and in the wording of the catalog description. MATH 110

Part III. Letters of Support (Attached.)

I. Catalog Description

MATH 110 Elementary Functions

3 credits
3 lecture hours
0 lab hours
(3c-0l-3sh)

Prerequisite: MATH 100 or appropriate Placement Test score or permission of the Mathematics Department Chairperson.

Note: Students may not take MATH 110 after successfully completing a calculus course

[redacted]

Prepares mathematics and science students for the study of calculus. Topics include detailed study of polynomial, exponential, logarithmic, and trigonometric functions.

II. Course Objectives

1. Students will understand and take advantage of pattern recognition in the study of mathematics.
2. Students will make a careful study of functions and their application to science.
3. Students will understand how to interpret functions expressed analytically and graphically.
4. Students will be able to calculate the rate of change of a function and interpret its meaning
5. Students will leave the course with a solid set of skills and a conceptual framework to equip the students for the future study of calculus and science.

C. Polynomials and Rational Functions (5 hours)

1. Polynomial Functions and Their Graphs
2. Real Zeros of Polynomials
3. Remainder and Factor Theorems, and Upper and Lower Bound Theorem only
4. Rational Functions

Note : Oblique asymptotes are optional

IV. Evaluation Methods

The final grade for the course will be determined as follows:

50% Tests. Tests will include problems on basic competency and critical thinking.
20% Final Examination. The final examination will be comprehensive and cover both basic competency and critical thinking.
30% Homework, Quizzes, and Projects. These will cover textbook assignments and applications to business and economics.

Grades will be assigned as follows:

A: 90%-100%
B: 80%-89%
C: 70%-79%
D: 60-69%
F: 0%-59%

V. Required Textbook

Stewart, James, Lothar Redlin, and Saleem Watson. Precalulus: Mathematics for Calculus. Upper Saddle River, NJ: Prentice-Hall, Inc., 2002.

VI. Special Resource Requirements

Mathematics Department
Indiana University of Pennsylvania
Indiana, PA 15705

Course Number: MA 110

Course Title: Elementary Functions

Credits: 3 semester hours

Prerequisites: student may not have successfully completed a calculus course

Textbook: *Mathematics for Calculus*, 2nd ed.
by Stewart, Redlin, Watson
Brooks/Cole

Revised: 8/93

Catalog Description:
For students not prepared to begin the study of calculus; [redacted] exponential, logarithmic, and

3. Polynomials and Rational Functions
   3.1 Polynomial Functions and Their Graphs
   Note: Cover graphing factored polynomials (i.e. $(x-3)(x+2)^2(x-1)$) though it is not in the text.

[redacted]

Note: Only the Rational Root Theorem
3.5 Irrational Roots
3.9 Rational Functions
Note: Oblique asymptotes are optional
3.11 Polynomial and Rational Inequalities

4. Exponential and Logarithmic Functions
   4.1 Exponential Functions
   4.2 Application: Exponential Growth and Decay

[redacted]

4.4 Laws of Logarithms
4.5 Applications of Logarithms

5. Trigonometric Functions of Real Numbers
   5.1 The Unit Circle
   5.2 Trigonometric Functions of Real Numbers
   5.3 Trigonometric Graphs
   5.4 More Trigonometric Graphs

6. Trigonometric Functions of Angles
   6.1 Angle Measure
   6.2 Trigonometry of Right Angles
   6.3 Trigonometric Functions of Angles
   Note: Omit area of a triangle formulas.

[redacted]

MATH 110

LIBERAL STUDIES COURSE APPROVAL, PARTS 1-3: GENERAL INFORMATION CHECK-LIST

I. **Please indicate the LS category(ies) for which you are applying:**

LEARNING SKILLS:

____ First Composition Course ____ Second Composition Course
✓ Mathematics

KNOWLEDGE AREAS:

[redacted]

____ Humanities: Literature ____ Non-Western Cultures
____ Natural Sci: Laboratory ____ Health & Wellness
____ Natural Sci: Non-laboratory ____ Liberal Studies Elective

II. **Please use check marks to indicate which LS goals are primary, secondary, incidental, or not applicable. When you meet with the LSC to discuss the course, you may be asked to explain how**

[redacted]

(MATH)

LIBERAL STUDIES COURSE APPROVAL, PART IV:

A. There will be a common syllabus of topics that should be covered by each of the individual instructors teaching this course. The common syllabus will include, but not be limited to, topics which introduce the student to deductive reasoning, develop problem solving skills, and [illegible]

MATH 11C

CHECK LIST -- MATHEMATICS
(Learning Skills Area)

Mathematics Criteria which the Course must meet:

✓ Introduce students to deductive reasoning

✓ Develop in the student problem solving techniques appropriate for the course

✓ Enable the student to understand the underlying principle of formulas

✓ Enable the student to use and interpret numerical information

Courses appropriate to the Mathematics Learning Skills Area must be either:

✓ **A.** Mathematics courses that develop significant mathematical skills required by a major discipline

____ **B.** Mathematics courses designed for Liberal Studies

Additional criteria which courses in Category B must meet:

____ Develop the student's confidence in handling numerical problems and data.

____ Be sensitive to the diverse background characteristics of the student

Include elements on the history or appreciation of mathematics

01-626

Mathematics Department Curriculum Changes

Response Form

✓ The Mathematics Department has informed me of the proposed changes listed below, and I support these changes.

___ The Mathematics Department has informed me of the proposed changes listed below, and I do not support these changes.

Comments:

Nursing & Allied Health Professions
Department

Chairperson / Date 6-4-01

1. MATH 110 Elementary Functions: Change in prerequisite.

2. MATH 123 Calculus I for Physics, Chemistry, and Mathematics: Change in prerequisite, catalog description, and title.

3. MATH 124 Calculus II for Physics, Chemistry, and Mathematics: Change in prerequisite and title.

Mathematics Department Curriculum Changes

Response Form

X The Mathematics Department has informed me of the proposed changes listed below, and I support these changes.

[redacted]

Mathematics Department Curriculum Changes

Response Form

The Mathematics Department has informed me of the proposed changes listed

[redacted]

The Mathematics Department has informed me of the proposed changes listed

[redacted]

Mathematics Department Curriculum Changes

Response Form

[redacted]

___ The Mathematics Department has informed me of the proposed changes listed below, and I do not support these changes.

Mathematics Department Curriculum Changes

Response Form

✓ The Mathematics Department has informed me of the proposed changes listed below, and I support these changes.

The Mathematics Department has informed me of the proposed changes listed

below, and I do not support these changes.

Comments:

pre-professional

Natural Science

Department

Andrew C. Browe

Chairperson / Date

1. MATH 110 Elementary Functions: Change in prerequisite.

Mathematics Department Curriculum Changes

Response Form

✓ The Mathematics Department has informed me of the proposed changes listed below, and I support these changes.

___ The Mathematics Department has informed me of the proposed changes listed below, and I do not support these changes.

Comments:

Geoscience — Department

Darlene Richardson — Chairperson / Date 6/13/10

1. MATH 110 Elementary Functions: Change in prerequisite.

2. MATH 122 Calculus I for Physics, Chemistry, and Mathematics: Change in prerequisite

[redacted]

catalog description, and title.