

EXISTING COURSE ADOPTION PROCEDURE (ECAP)
INTERIM PROCEDURE FOR BRINGING COURSES OFF THE MASTER COURSE LIST
Drafted by Curriculum Committee, Indiana University East
Sept. 2001

Please fill out the following form when sending courses to the Curriculum Committee for consideration:

PART 1:

Course number: *Math M117*

Course Title: *Intermediate Algebra*

Credit hours: *3 cr. hrs.*

Division offering: *Natural Sciences and Math*

Faculty member submitting this proposal: *Markus Pomper*

PART 2:

Have you contacted all campuses in the IU system who are currently teaching this course and examined their methods of teaching this course? (you should consult the office of the Vice Chancellor of Academic Affairs for help in contacting campuses and procuring sample syllabi)

Below, please list all those campuses, which teach the course in question:

IU Northwest (being implemented)

IU Kokomo

IU Southeast

PART 3:

Please provide the following elements to the model framework as required by the University Faculty Council (you may attach additional pages):

1) Describe the course content and your rationale for bringing it forward:

Math M117 is a course in intermediate algebra. It replaces the existing course Math M014.

Topics covered are:

- 1. Linear Functions: Solving linear equations, equations of a line, graphing linear functions, systems of two linear equations in two variables, linear inequalities, applications;*
- 2. Polynomial functions: Multiplication, factoring, zeros, polynomial equations, applications;*
- 3. Rational Functions and Equations: Domain, simplifying fractions, algebraic operations, solving rational equations and extraneous solutions, applications;*
- 4. Radical Functions: Domain, fractional exponents, radical equations, applications;*
- 5. Quadratic functions: Graphs, solving quadratic equations, applications.*

The topics covered in this course will prepare students for Math M118 (Finite Mathematics). It also provides the basic algebraic tools that are needed for Pre-Calculus (Math M125).

Rationale for bringing the course forward:

The Division of Natural Sciences and Mathematics brings this course forward to comply with the Agreement between Indiana and Purdue Universities and the Commission of Higher Education. This Agreement describes the role of the Universities, the regional campuses, and the Community College of Indiana. It limits the number of developmental mathematics courses taught through the University system to 6 credit hours. We currently offer 10 credit hours of developmental mathematics. Removing Math M014 (4 cr. hrs.) and replacing it by Math M117 would enable us to comply with the agreement while still allowing us to offer a comprehensive program of courses. The introduction of Math M117 at IU East as proposed above would make uniform the mathematics sequence across the IU system, bringing the number of regional campuses with this numbering system to 4. Three of the remaining four campuses have a similar curriculum, which uses a different numbering system.

2) Describe the course's placement in the program, including its intended audience and any prerequisites.

The course is intended to prepare students for Math M118, Math M125, Math K300, and Math T101. Its prerequisite is Math M007 with a grade C or better, or an appropriate placement exam.

3) List the anticipated student learning objectives and outcomes.

The course will address the following Campus Learning Objectives.

"Educated persons should be exposed to a broad variety of academic fields traditionally known as the Liberal Arts in order to develop a critical appreciation of diversity of ideas and expression."

"Educated persons should be able to relate computational skills to all fields so that they are able to think with numbers. At a minimum, students should be able to carry out basic algebraic and arithmetical functions; they should have a working concept of simple statistics; and they should be able to use data in various forms."

The following course learning objectives contribute significantly to these two Campus Learning Objectives:

Mathematics is one of the liberal arts; college graduates are expected to have a working knowledge of algebra; be familiar with its methods and its applications.

This course covers basic algebraic operations and functions with polynomial, rational and radical functions. Students will be able to multiply polynomials and add, multiply and divide rational expressions. Students will be able to use effectively the binomial formulas.

Further, students will be familiar with basic techniques for solving linear, quadratic, and

polynomial equations. They will understand how to use the quadratic formula, how to factor polynomials and use this to find zeros of polynomials.

Students will understand the concept of function, domain of function and graph of function. They will be able to determine domains of rational and radical functions. They will be able to recognize the graphs of basic linear, quadratic, polynomial, rational and radical functions and draw those graphs without the help of a graphing utility.

Students will see a wide range of applications of the methods discussed in the topics above. They will be able to translate a given problem into a mathematical model; solve the problem analytically and give an interpretation of their result in the context of the problem.

4) Discuss any special features of the course (eg. a service learning component)

None

PART 4:

Representatives of your Division need to examine the sample syllabi and other materials from these campuses and determine whether your approach will be comparable. Please describe below your Division's final determination on this point and provide the chair's signature.

The NSM faculty has examined the syllabi and textbooks of Math M117 of the Southeast and Kokomo campuses. The content of this course is comparable to the list of topics described above.

IU Northwest is in the beginning stages of implementing this course. No syllabus was available from this campus.

A delegation of the mathematics faculty discussed the contents of Math M117 with representatives of all IU campuses and came to the conclusion that the proposed course and the sequencing of math courses fits the needs of IU East students.

I approve the above-mentioned course as following the model framework given by other campuses in the IU system.

Division Chair

Date