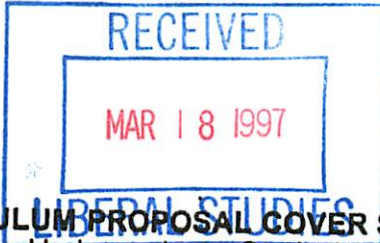


LSC Use Only
Number: _____
Submission Date: _____
Action-Date: _____



97-20
UWUCC USE Only
Number: 9671a
Submission Date: _____
Action-Date: App. 1/20/98
Senate App. 2/3/98

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. CONTACT

Contact Person Gail J. Gerlach Phone x2400
Department Professional Studies in Education

II. PROPOSAL TYPE (Check All Appropriate Lines) Elementary Education

 COURSE _____
Suggested 20 character title

 New Course* _____
Course Number and Full Title

 x Course Revision EL 313 Teaching Mathematics in the Elementary School
Course Number and Full Title

 Liberal Studies Approval + _____
for new or existing course Course Number and Full Title

 Course Deletion _____
Course Number and Full Title

 Number and/or Title Change _____
Old Number and/or Full Old Title
New Number and/or Full New Title

 Course or Catalog Description Change _____
Course Number and Full Title

 PROGRAM: Major Minor Track

 New Program* _____
Program Name

 Program Revision* _____
Program Name

 Program Deletion* _____
Program Name

 Title Change _____
Old Program Name
New Program Name

III. Approvals (signatures and date)

Bernadette Cole Stlaughter Department Curriculum Committee
Thomas D. Voed Department Chair
Julian Berry College Curriculum Committee
Julian Berry College Dean
Mike [Signature] 3/19/98 + Director of Liberal Studies (where applicable) *Provost (where applicable)

97-20



NEW
COURSE SYLLABUS

I. CATALOG DESCRIPTION

EL 313 Teaching Mathematics in the Elementary School 3c-01-3sh

Prerequisites: MA 151 Elements of Mathematics I
MA 152 Elements of Mathematics II
EL 257 Pedagogy I

This course examines contemporary curriculum and methods of instruction used in elementary school mathematics. Students become acquainted with books, materials, and other resources helpful to prospective teachers. Course activities include observations of exemplary teachers and experiences in teaching elementary school mathematics.

II. COURSE OUTCOMES

The student will:

1. examine and demonstrate an understanding of the scope and sequence of the elementary mathematics curriculum.
2. investigate learning theories and methodology used in teaching mathematics in the elementary school.
3. observe teaching methodology of exemplary teachers.
4. prepare and teach lessons that implement a concrete and visual to abstract approach of teaching mathematics in the elementary school.
5. illustrate awareness of current trends related to the teaching of mathematics in the elementary school.
6. examine the importance of positive attitudes in teaching and learning mathematics.
7. learn to integrate problem-solving and real-world applications into the teaching of mathematics.
8. practice communicating mathematical ideas; learning to clarify, refine and consolidate these ideas.
9. connect topics within mathematics and connect mathematics to the outside world.

- 10. use calculators and computers appropriately to develop number awareness and mathematical concepts, as well as to solve problems.
- 11. illustrate awareness of multicultural and individual differences in mathematics and the benefits these differences can bring.
- 12. examine assessment issues, options, and tools.

III. COURSE OUTLINE

A. Development of Pedagogy (3 weeks)

- 1. Helping children construct mathematical concepts. 3 hrs.
- 2. Technology and the elementary school classroom. integrated
- 3. Planning for developmental instruction. integrated
- 4. Assessment in the classroom. 3 hrs.
- 5. Instruction with process problems. 3 hrs.
- 6. The role of affect in the learning of mathematics. integrated
- 7. The role of culture in the learning of mathematics. integrated
- 8. Mathematics and children with special needs. integrated

B. The Teaching of Number Concepts (7 weeks)

- 1. The development of number concepts and relations. 2 hrs.
- 2. Developing meanings for the operations. 2 hrs.
- 3. Helping children master the basic facts. 2 hrs.
- 4. Whole number place value development 2 hrs.
- 5. Pencil-and-paper computation with whole numbers. 2 hrs.
- 6. Mental computation and estimation. 2 hrs.
- 7. Development of fraction concepts. 3 hrs.
- 8. Computation with fractions. 2 hrs.
- 9. Decimal and percent concepts, and decimal computations. 2 hrs.
- 10. Developing the concepts of ratio and proportion. 2 hrs.

C. The Teaching of Non-Number Concepts (4 weeks)

- 1. Developing measurement concepts. 2 hrs.
- 2. Geometric thinking and geometric concepts. 3 hrs.
- 3. Logical Reasoning: Attribute and pattern. 3 hrs.
- 4. Exploring the concepts of probability and statistics. 2 hrs.
- 5. Preparing for algebra. 1 hrs.
- 6. Functions and variables. 1 hrs.

IV. EVALUATION METHODS

Criteria used in assessing the competency of the student will vary depending upon the instructor, but generally include examinations, projects, presentations, field experience, lab activities, writing assignments, and class participation.

More specifically, the following guidelines are recommended:

- 40% Assessments. Tests (midterm and final) consisting of short essay, multiple choice, true-false. Tests provide a summative assessment of topics covered. Performance assessments consist of group and individual tasks that closely resemble those of practicing teachers. Performance assessments may be used as formative as well as summative evaluations.
- 20% Participation and Quizzes. Participation includes attendance, homework, and in-class activities. Quizzes over recently covered material provides a formative assessment of class members' understandings.
- 40% Projects. Projects include but are not limited to: in-class activities, creating manipulatives for classroom use, course topic reflections, school classroom observations, reviews of elementary school journals and textbooks, a portfolio of student's work, and practice teaching. Group and individual projects are assigned. Projects show students' understandings and application of course topics.

Grading Scale:

93 - 100	A
85 - 92	B
77 - 84	C
70 - 76	D
0 - 69	F

V. REQUIRED TEXTS

Van De Walle, J. (1998). Elementary and middle school mathematics: Teaching developmentally, Third Edition. New York: Addison Wesley Longman, Inc.

VI. BIBLIOGRAPHY

Bassarear, T. (1997). Mathematics for Elementary School Teachers. Boston, MA: Houghton Mifflin.

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- Dahlke, R. & Verhey, R.(1986). What expert teachers say about teaching mathematics Palo Alto, CA: Dale Seymour.
- Musser, G. L.,& Burger W. F. (1997). Mathematics for elementary teachers, a contemporary approach, Fourth Edition. New Jersey: Prentice-Hall.
- National Council of Teachers of Mathematics. Teaching Children Mathematics. Reston, Virginia. (Formerly known as the Arithmetic Teacher)
- National Council of Teachers of Mathematics. Yearbooks. Reston, Virginia
- National Council of Teachers of Mathematics. Mathematics Teaching in the Middle School. Reston, Virginia
- National Council of Teachers of Mathematics. Curriculum and Evaluation Standards for School Mathematics, Addenda Series. Reston, Virginia
- National Council of Teachers of Mathematics. (1989) Curriculum and evaluation standards for school mathematics. Reston, Virginia: The National Council of Teachers of Mathematics.
- National Council of Teachers of Mathematics. (1991) Professional standards for teaching mathematics. Reston, Virginia: The National Council of Teachers of Mathematics.
- National Council of Teachers of Mathematics. (1995) Assessment standards. Reston, Virginia: The National Council of Teachers of Mathematics.
- O'Daffer, P. G., Clemens, S. R.(1977). Geometry: an investigative approach. Menlo Park, CA: Addison-Wesley.
- O'Daffer, P., Charles, R., Cooney, T., Dossey, J., Schielack, J. (1998). Mathematics for Elementary School Teachers. Menlo Park, CA: Addison-Wesley.
- Trafton, P. R. & Shulte, A. P. (Eds.) (1989) New direction in elementary mathematics. Reston, Virginia: The National Council of Teachers of Mathematics.
- Wheeler, R. (1988). Modern mathematics. Pacific Grove, CA: Brooks/Cole.
- Worth, J. (Ed.) (1988). Preparing Elementary School Mathematics Teacher: Readings from the Arithmetic Teacher. Reston, Virginia: The National Council of Teachers of Mathematics.

Part II **Description of the Curriculum Change**

1. Course Syllabus

A revised syllabus for EL 313 is attached. The only change in the syllabus is the addition of EL 356 as a prerequisite.

2. A summary of the proposed revisions

EL 313 Teaching Mathematics in the Elementary School
Prerequisite: MA 151, 152, **Add EL 356**

3. Justification/rationale for the revision

EL 313 Teaching Mathematics in the Elementary School is taught by Mathematics Department faculty. A rationale is provided by Dr. Buriok, Chairman, Mathematics Department in the attached letter.

4. The old syllabus of record

The old syllabus is the same as the new syllabus without EL 356 as a prerequisite.

Part III **Letters of Support**

Attached is a letter of support for the proposal from Dr. Gerald Buriok, Chairperson, Mathematics Department.

Department of Mathematics
Indiana University of Pennsylvania
233 Stright Hall
Indiana, Pennsylvania 15705-1072

(412) 357-2608



To: Dr. Gail Gerlach
Department of Professional Studies in Education

From: Gerald Buriok, Chairman *G m B*
Mathematics Department

Date: January 27, 1997

Subject: Prerequisite for EL 313

Based on the recommendation of our Elementary Mathematics Education Committee (EMEC), the Mathematics Department supports the addition of EL 356 Pedagogy I as a prerequisite for the course EL 313 Teaching of Mathematics in the Elementary School. EMEC includes several faculty who consistently teach EL 313 and the committee is unanimous in their support of this prerequisite. They believe that students will be better prepared for certain activities in EL 313, such as lesson planning and developing activities for teaching, as a result of completing EL 356 prior to enrolling in EL 313.

Please contact me if you need additional information.