MAU 580: The Curriculum in Secondary Mathematics

I. Three semester hours; three clock hours; this course is an elective course for mathematics majors in the Master of Education degree program and satisfies the Theory with Practice component requirement for this degree.

II. Catalog Description

MAU 580: The Curriculum in Secondary Mathematics 3 s.h.

The history of the modern mathematics curriculum is studies with special emphasis on the past twenty years; present-day secondary mathematics curricula are reviewed; proposals for future changes in the mathematics education curriculum are examined; the recent “back to the basics” movement is studies and contrasted with a problem solving/applications approach; the emphasis is on helping the student to develop an improved mathematics program in his/her school.

III. Course Objectives:

Upon completion of this course the student should be able to:

A. Teach mathematics more effectively within the context of his/her present school situation through:

1. Better understanding of the forces that lead to curricular change.
2. Clearer knowledge of the goals of current mathematics programs.
3. Acquaintance with recent curricular developments.
4. Increased familiarity with some of the materials used as aids in teaching mathematics.

B. To contribute more fully to the improvement of the mathematics program in his/her school as a result of:

1. Better knowledge of how different individuals learn mathematics.
2. Familiarity with suggestions for future revision of mathematics curricula.
3. Increased knowledge of the types of programs and equipment that are available to the mathematics teacher.
4. Familiarity with some of the problems facing education today and with some attempts to meet and solve these problems.

IV. Course Assessment

The course assessment will be a subset of tests, projects, presentations, quizzes, homework, team assignments and final exam.
V. Course Outline

A. The following topics are covered with both students and instructor using a variety of sources and contributing to the development of the topic at hand.

1. The history of the mathematics curriculum is traced from the beginning of public education to the present day. The effect of various innovations from the blackboard to the hand calculator are discussed. Societal forces that have led to curricular changes are studies with special emphasis upon recent events.
2. The mathematics programs that have been adopted in the past several decades will be examined.
3. Proposals that have been made in recent years to further improve the mathematics program will be examined, including the “agenda for action” which emphasized problem solving, estimation skills and applications and the most recent “Curriculum and Evaluation Standards” along with the “Professional Standards for Teaching Mathematics.” All are published by the NCTM.

B. Since no improvement in teaching can take place without the consent and active participation of the teacher, this course is designed to encourage the students to locate problem area in their own mathematics teaching and find their own solutions to these problems. To accomplish this goal each student undertakes an individual study project on some aspect of the secondary school mathematics curriculum. Several class periods are devoted to discussion of these projects. At this time individual students give progress reports and the other class members are encouraged to make comments and suggestions. A final report, written or oral, is required during the last two weeks of class.

VI. Instructional Resources


