A. Course Description

This course has no prerequisite and is an elective course for graduate students of the School of Mathematics Sciences. Its primary emphasis is in knowing the development of mathematics teaching and learning in the United States from 1492 to today and the reasons for the directions it has taken.

We will address such topics as:
(a) How, when, where, and why it all started. Learning about some of the earliest activities in the field of Mathematics Education.
(b) Discuss past and present initiatives and goals of Mathematics Education.
(c) We will also delve into the more recent and projected research needs related to the teaching and learning of mathematics.
(d) We will explore some of the earliest beginnings: from Warren Colburn’s first arithmetic book published in 1821, to the founding of the AMS in 1888, to the Report of the Committee of Ten in 1894, to the founding of the NCTM in 1920.
(e) We will review such reports as the 1980, Agenda for Action and 1981, Priorities in School Mathematics documents which preceded and set the stage for NCTM’s Curriculum and Evaluations Standards of 1989 and the National Research Council’s document Everybody Counts: A Report to the Nation on the Future of Mathematics Education also in 1989. These documents were followed by NCTM’s Professional Standards for Teaching Mathematics in 1991, NCTM’s Assessment Standards for School Mathematics in 1995, and of course in 2000 the Principles and Standards for School Mathematics, as well as the more recent Focal Points of the NCTM.
(f) We will also address MAA's Committee on the Undergraduate Program in Mathematics (CUPM) as it relates to the professional development of mathematics teachers. We will read and discuss such documents as:
   (i) Issues in the Undergraduate Mathematics Preparation of School Teachers: The Journal [http://www.k-12prep.math.ttu.edu/journal/contentknowledge/volume.shtml];
   (ii) A Call for Change: Recommendations for the Mathematical Preparation of Teachers of Mathematics,” a 1991 MAA Report;
   (iii) The Preparation of Teachers of Mathematics: Considerations and Challenges (1996); and

B. Course Objectives

1. To become knowledgeable of mathematics teaching from early America to today;
2. To know and understand the reasons behind the evolution of the mathematics addressed at all educational levels from the early 19th century to today;
3. To identify, discuss and evaluate the different challenges associated with the teaching and learning of mathematics over the years in the US;
4. To know and understand the reasons behind the major movements in mathematics education throughout it’s US history;
5. To explore and research the past, looking for patterns and relationships that might help us predict future directions of mathematics education in the US.

C. Outline of Course Content

1. Mathematics in the Evolving Schools
   a) From Discovery to an Awakened Concern for Pedagogy: 1492 - 1821
      i) The Earliest American Mathematics
      ii) The Content and Processes of Colonial Instruction
      iii) The Latin Grammar School and the Academy
      iv) The Colleges and the Mathematics Community
      v) Self Instruction
      vi) The Teachers and Pedagogy
   b) From Colburn to the Rise of the University
      i) Forces at Work
      ii) The Elementary Schools
      iii) The Secondary Schools
      iv) The Colleges and the Mathematical Community
      v) Teacher Training and Pedagogy
      vi) The Climate of Reform

2. Mathematics Education
   a) in the Nineteenth-Century
      i) Numeracy in the Nineteenth Century
      ii) Pedagogy in Text: An
   b) in the Twentieth Century
   c) in the Twenty First Century

3. Emerging Communities
   a) Historical Contours of the American Mathematics Research Community
   b) The Emergence of a Profession: Mathematics Education in the U.S.

4. Academic and Vocational Mathematics in High Schools
   a) Algebra and Geometry Textbooks in the Twentieth-Century
   b) The Ascendance of Practical and Vocational Mathematics,
   c) Mathematics enrollments and the Development of the US High

5. School Mathematics from WWI to the End of the Twentieth Century
   a) A Time for Uncertainty and Change: School Mathematics from WWI until the New Math
   b) From the New Math to the Agenda for Action
   c) The New Math and Its Aftermath, Grades K-8
   d) Mathematics Curriculum Reform
   e) Changing School Mathematics
   f) A History of the Teaching of Modeling
   g) A Personal History of the UCSMP Secondary School Curriculum, 1960-
   h) Perspective on the Recent History of the NCTM
   i) From Consensus to controversy: The Story of the NCTM Standards

6. Federal and State Governments
   a) The Changing Roles and Priorities of the Federal Government in
Mathematics Education in the US
b) The Role of State Government in the Custody Battle over Mathematics Education

7. Students and Teachers
a) The Mathematics Education Community’s Response to a Diverse and changing Student Population
b) Inescapable Voices: Listening to the Possible in School Mathematics Reform
c) The Education of Mathematics Teachers after WW II: Goals, Programs, and Practices

8. International Connections and Perspectives
a) International Connections in Mathematics Education
b) An Outsider’s View of North American School Mathematics Curriculum Trends

9. Communities of Mathematics Education Researchers
a) From Amateur to Professional: The Emergence and Maturation of the U.S. Mathematics Education Research Community

D. Course Requirements

1. Class participation in discussions, presentation, and write up on assigned readings.
2. One essays or papers addressing a major course topic
3. One essay or paper addressing a topic from it’s inception, through present time and a projection to the future.
3. A Course Project based on a particular theme that runs throughout all or most of the history of mathematics education in the U.S.

E. Method of Evaluation

A letter grade will be assigned based on the following requirements:
1. Class presentation and write up on assigned readings. (20% of course grade)
2. Two essays or papers, one research based, addressing two different Era’s of time. (30% of course grade)
3. A Course Project based on a particular theme that runs throughout all or most of the history of mathematics education in the U.S. (50% of course grade)

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


G. Additional Readings


H. Disability Support Services

Students who believe that they may need accommodations in this class are encouraged to contact Disability Support Services (970) 351-2289 as soon as possible to ensure that accommodations are implemented in a timely fashion.

I. Honor Code

All members of the University of Northern Colorado community are entrusted with the responsibility to uphold and promote five fundamental values: Honesty, Trust, Respect, Fairness, and Responsibility. These core elements foster an atmosphere, inside and outside of the classroom, which serves as a foundation and guides the UNC community’s academic, professional, and personal growth. Endorsement of these core elements by students, faculty, staff, administration, and trustees strengthens the integrity and value of our academic climate.

J. Portable Electronic Devices

Please extend courtesy to your instructor and fellow students by turning off your portable electronic devices such as: cell phones, pagers, and iPods. Although not an audio issue, text-messaging is a distraction to other students and prevents you from full participation in class. You should keep your portable electronic devices in your backpack or purse during class. Your personal electronic devices should not be on your desks. If you know that you may need to accept an emergency phone call during class or if you have children in childcare or school, please let the instructor know. If you need to take a phone call during class, please step out of the classroom while you complete your call. Thank you for your cooperation.