Mathematics Curriculum Issues and Trends (Math 6570)
Western Michigan University
Fall 2007

Instructor: Kate Kline
Office: 4426 Everett
Phone: 387-4559
Email: kate.kline@wmich.edu
Office Hours: Before class and by appointment

Course Overview
This course is designed to help you develop a solid understanding of the school mathematics curriculum from a historical perspective. Assigned readings, class discussion, projects, and individual research will enable you to become familiar with the key issues and forces that have influenced curriculum change from about 1890 to 1990 and to become knowledgeable of the major reports, conferences, and curriculum development efforts that have provided direction for, and trends in, school mathematics.

Course Goals
- Identify different issues and forces that influence mathematics curriculum change.
- Characterize some significant periods and trends of significant mathematics curriculum development in the United States.
- Identify and describe some of the major committees, commissions and task forces which have provided curriculum direction for mathematics.
- Identify and describe the nature, goals and audiences of major mathematics curricular projects.
- Recognize that mathematics is indeed a changing curriculum and be able to identify current agents that will influence future trends.

Required Texts

Course Assignments

1. Reading/Writing Assignments - Specific readings will be assigned for each meeting. Class discussion will center upon the assigned readings. You should come to class having read the assigned material thoroughly and thoughtfully. For each assigned reading, you should bring two discussion questions (ideas you found interesting, did not understand completely, etc.). Active participation in class discussion of all readings is expected. Each student will be asked to lead discussion of assigned readings at some time during the semester. You will also have small writing assignments due periodically on the readings.

2. Reports on major committees, commissions or task forces. These reports should:
   a) provide a summary that would be useful to anyone interested in learning about the report’s contents. It should include major headings detailing, What were the specific events that precipitated the formulation of the group? Why was the group appointed? What was their charge? Who comprised the group? What was produced? Significance, i.e., fallout (if any) from the group that influenced curriculum change?
   b) include three significant questions related to this report that stimulate reflection and thinking related to the report.

3. Reports on analysis of mathematics curriculum projects. These reports should:
   a) describe the nature, goals, audience, etc. for the curriculum project.
   b) describe how recommendations from major reports from committees, commissions or tasks forces were utilized in the curriculum project.
   c) identify (at least as you see them) strengths and weaknesses of the project.
   d) identify articles/references that were useful in learning about this project.
   e) include three significant questions related to this project to help focus attention and stimulate reflection about this curriculum project.

4. Independent Research Paper. You will prepare a written paper (15 – 20 pages, including references) that provides an in-depth analysis of the literature on a curriculum-related issue (e.g., technology use, the role of algebra, mathematics for all). You should select your topic in consultation with me by October 1 and submit preliminary work on the paper in the beginning of November. The final paper will be due at the end of the semester.

Evaluation

Course grades will be based on individual written assignments, projects, and class participation. The components will be weighted as follows:

35% Class discussion & writings related to readings
20% Major Committee Report & discussion
20% Curriculum Project Report & discussion
25% Independent Research Paper and discussion
Schedule

Week of September 10

Introduction to Course on Mathematics Curriculum

• Why a historical look?
  – “Those who do not remember the past are condemned to repeat it” (George Santayana)
  – “Experience is recognizing a mistake when it is made again.”
  – “Those who do not study the past will repeat its errors, while those who do will find other ways to err.” (Charles Wolfe)
  – “History is the past seen through the eyes of others.” (Peter Dow)

• What is mathematics curriculum?

• Different perspectives of the mathematics curriculum (CSMC handout)
  What should be taught?  Ideal or envisioned curriculum
  What is in textbooks?  Intended, constructed or developed curriculum
  What is taught?  Enacted, experienced or implemented curriculum
  What is tested?  Assessed curriculum
  What is learned?  Achieved curriculum

Assignment:

1. Read Chapters 1, 7, 8, & beginning of 12, pages 1-8, 93-106 and 155-167, from A History of Mathematics Education in the United States and Canada.

2. Read the Report from the Committee of Ten, pages 127-139.

**Week of September 17**

Early Mathematics Curriculum—Prior to 1894
- Discuss Readings
- Committee Reports
  - Committee of Ten

Assignment:

1. Read Chapter 3, pages 77-109, from *A History of School Mathematics*.

2. Read Chapter 9 and more of Chapter 12, pages 107-117 and 167-196, from *A History of Mathematics Education in the United States and Canada*.


4. *Saber-tooth Curriculum*.

   If you have read the book, be prepared to reflect on the moral of the story. If not, you can access an adapted version at [http://www.grand-blanc.k12.mi.us/qip/saber-tooth%20curriculum.htm](http://www.grand-blanc.k12.mi.us/qip/saber-tooth%20curriculum.htm) Please read this shortened version and be prepared to reflect on the moral of the story.
**Week of September 24**

Early Mathematics Curriculum—1894-1911

- Committee Reports
  - Committee on College Entrance Requirements (1899)
  - National Committee of Fifteen on the Geometry Syllabus
- Highlight contributions from learning theory and implications for curriculum:
  - Johann Pestalozzi (1746-1827)
  - G. Stanley Hall (1844-1924)
  - John Dewey (1859-1952)

**Assignment:**
1. Read Chapter 5, pages 159-193, from *A History of School Mathematics*.
2. Read Chapter 13, pages 197-208, from *A History of Mathematics Education in the United States and Canada*.

---

**Week of October 1**

Mathematics Curriculum—1911-1923

- Discuss readings
- Committee Report
  *National Committee on Mathematical Requirements—1923 Report*
- Highlight contributions from learning theory and implications for curriculum:
  - Edward Thorndike (1874-1949)
  - John Dewey (1859-1952)

**Assignment:**
1. Read the remainder of Chapter 13 (pp. 208-234) from *A History of Mathematics Education in the United States and Canada*.
Week of October 8

Mathematics Curriculum—1923-1940

- Discuss readings
- Committee Reports on
  *The Place of Mathematics in Secondary Education*
  *Mathematics in General Education* (1940)
- Highlight contributions from learning theory and implications for curriculum:
  William Brownell (1895-1977)

Assignment:
1. Read Chapter 14 (pp. 235-246) from *A History of Mathematics Education in the United States and Canada*.

2. Read Chapter 11 “A time of uncertainty and change: School mathematics from World War II until the new math” pp. 493-520 from *A History of School Mathematics*. 
Week of October 15

Mathematics Curriculum—1940-1952

- Discuss readings
- Discuss letter from Admial Nimitz in the Mathematics Teacher in 1942. How would you react as a teacher (parent, politically elected official) to this letter? How did the war impact mathematics curriculum? How did it help set the stage for change?
- Committee Reports
  - Pre-Induction Courses: Essential Mathematics for Minimum Army Needs
- Highlight contributions from learning theory and implications for curriculum: Burrhus F. Skinner (1904-1990)

Reading Assignment for Next Week (October 22):

1. Read Chapter 14 (pp. 246-290) from *A History of Mathematics Education in the United States and Canada*.

Week of October 22

Mathematics Curriculum—1952-1962

- Discuss readings
- Committee Report
  - Commission on Mathematics, College Entrance Examination Board
- Curriculum Project Report on ‘new’ mathematics
  - Comprehensive School Mathematics Project (CSMP)
- Highlight contributions from learning theory and implications for curriculum: Jerome Bruner (1915-)

Reading Assignment for Next Week (October 29):

1. Read Chapter 14 (pp. 291-297) from *A History of Mathematics Education in the United States and Canada*.

2. Discuss the reading Chapter 15 (pp. 623-646) by Bob Davis in *A History of School Mathematics*. 
Week of October 29


- Discuss readings
- Committee Reports
  
  
- Curriculum Project Reports on “new” mathematics
  
  - *School Mathematics Study Group (SMSG)*
  
  - *University of Illinois Committee on School Mathematics (UICSM)*
  
- Highlight contributions from learning theory and implications for curriculum:
  
  - Zoltan Dienes (1916- )

**Reading Assignment for Next Week (November 5):**

1. Read Chapter 13 (pp. 559-598) by Joe Payne in *A History of School Mathematics.*

2. Many different articles—pro and con were written during the 1960s about “new mathematics.” During the next meeting we will focus on the 1960s. Read any 3 of the following articles and be prepared to highlight some of the issues.


Week of November 5

Mathematics Curriculum — 1962-1969 — Part II

- Discuss readings
- Committee Reports
  - *Cambridge Conference on School Mathematics*
  - *Goals for School Mathematics* (1963)
- Highlight contributions from learning theory and implications for curriculum:
  Robert Gagne (1916- )

**Reading Assignment for Next Week (November 12):**

1. Read pp. 10-32 from *Schoolhouse Politics: Lessons from the Sputnik Era.*

2. Read these two articles about the Cambridge Conference:

3. Many different articles—pro and con were written during the 1960s and 1970s about “new mathematics.” Read any 2 of the following articles and be prepared to highlight some of the issues that were addressed.
**Week of November 12**

Mathematics Curriculum 1970-75

- Continue discussing readings
- Committee Reports
  
  *Cambridge Conference*

**Reading Assignment for Next Week (November 19):**


2. Read the “Position paper on basic mathematical skills” prepared by the National Council of Supervisors of Mathematics, January 1977.

---

**Week of November 19**

Mathematics Curriculum 1975-80

- Discuss readings
- Curriculum Reports
  
  *Euclid Conference on Basic Skills*
  
  *National Advisory Committee on Mathematical Education (NACOME), Overview and Analysis of School Mathematics K-12*

- Highlight contributions from learning theory and implications for curriculum:
  
  Richard Skemp (1919-1995)

**Reading Assignment for Next Week (November 26):**

1. Read Chapter 12 (pp. 521-558) “From the New Math to the Agenda for Action by Jim Fey and Anna Graeber in *A History of School Mathematics*. 

---
**Week of November 26**

Mathematics Curriculum 1980+

- Discuss readings
- Committee Reports
  - *Priorities in School Mathematics* (PRISM)
  - *Agenda for Action*
  - *College Board, Academic Preparation for College*

**Reading Assignment for Next Week (December 3):**

1. Read Chapter 19 (pp. 753-818) “From Consensus to Controversy: The Story of the NCTM Standards” in *A History of School Mathematics*.


3. Selected excerpts from the *NCTM Curriculum and Evaluation Standards*.

**Week of December 3**

Textbook Adoption & Current Trends, 1989

- Discuss readings

- Committee Reports
  - *National Research Council Everybody Counts*
  - *NCTM Curriculum & Evaluation Standards*

- Share findings from independent research papers

- Reflect on Forces that impacted mathematics curriculum
  - Discuss examples of how these individually or collectively have helped change/shape the mathematics curriculum.