

**Departmental Syllabus**  
**Math 3020 -- Teaching of Mathematics in the Middle and  
Secondary School**

**Textbook:** *Principles and Standards for School Mathematics: NCTM*  
(This book is purchased by the student.) (PSSM)  
*Planning Curriculum in Mathematics:* Wisconsin Department of Public  
Instruction  
*Teaching Mathematics for the 21<sup>st</sup> Century;* Huetinck/Munshin (TM)

**Prerequisites:** MATH 2740, junior standing, and admission to the School of Education

**Calculators:** Graphing calculator required; TI-83, 85, or 86 recommended.  
(NOTE: On occasion, individual instructors may restrict the use of any type of calculator).

**Course Description:**

This course is designed to prepare prospective candidates to become middle school and/or high school mathematics instructors. Each candidate will be responsible for creating a course portfolio. This portfolio will include topics covered in the course and materials that may help you in the mathematics classroom. Each candidate will be responsible for teaching mini-lessons to the class. This class requires participation.

The course is divided into four strands. Each of these strands is interwoven throughout the duration of the course. These strands are middle school and high school mathematical content, strategies for teaching mathematics, classroom management, and professional growth.

**Topics and sections to be covered:**

Expectations of a Middle School/High School Teacher

Content Standards for middle school and high school students recommended by the  
NCTM and required by Wisconsin DPI

*Read PSSM Chapter 3, <http://www.dpi.state.wi.us/dpi/standards/>*

Process Standards

Problem Solving – includes strategies in problem solving, teaching problem solving

*Read: PSSM Problem Solving Standard*

Connections – includes connections within mathematics and with other topics

*Read: PSSM Connections Standard*

Communication – includes writing mathematics, speaking mathematics, and cooperative learning groups

*Read: PSSM Communication Standard and TM Chapter 7 and Chapter 11*

Representations

*Read: PSSM Representations Standard*

- Proof and Reasoning – Types of reasoning done in the middle school and high school classroom and basic examples  
*Read: PSSM Proof and Reasoning Standard*
- Principles of Mathematics Education
- Teaching Principle – includes classroom organization, classroom planning, and classroom instruction and what changes between middle school and high school instruction  
*Read: PSSM Teaching Principle and TM Chapter 6*
- Learning Principle – includes motivational techniques and discipline issues and differences in learning between middle school and high school students  
*Read: PSSM Learning Principle and TM Chapter 2*
- Curriculum Principle – includes evaluating reform versus traditional curriculum and differences between high school and middle school curricula  
*Read: PSSM Curriculum Principle and TM Chapter 4*
- Assessment Principle – includes writing, grading of tests and homework, DPI Graduation Test, 8<sup>th</sup> grade WKCE  
*Read: PSSM Assessment Principle and TM Chapter 8 and Chapter 10*
- Technology Principle – includes teaching with spreadsheets, calculators, and computer programs; also the use of other manipulatives (Geoboard, Cuisenaire Rods, Math Tiles, Compass) in the classroom.  
*Read: PSSM Technology Principle and TM Chapter 3*
- Equity Principle – includes racial and gender equity issues  
*Read: PSSM Principle and TM Chapter 9*
- Professional Growth – includes being and acting professional and keeping current in mathematical issues  
*Read: TM Chapter 12*