**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 21st Century; Huetinck/Munshin (TM)*  

**Prerequisites:** “B-” or better in both Math 2640 and 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.

**Student Learning Outcomes:** Students should be able to:  
- differentiate between deep and superficial understanding with respect to procedural fluency, conceptual understanding, mathematical reasoning, and problem solving;  
- create effective mathematics lesson plans that address mathematical proficiency;  
- create engaging mathematical activities; and  
- create formative and summative assessments.

**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, 8th 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

If you require an accommodation due to a disability, please make an appointment to see me as soon as possible to discuss arrangements for the accommodations. You will need a Verified Individualized Services and Accommodations (VISA) form from Services for Students with Disabilities.