

MA 350 Methods and Materials in Teaching Senior High School Mathematics
Fall Semester 2003 M-W-F 11:00-11:50 WS 3806

Prerequisites: Admission to the methods phase of teacher education. Concurrent (or prior) enrollment in ED 349, MA 312, and MA 331, or consent of instructor. You can take this class now only if you will do student teaching in Winter 2004 or Fall 2004. (See me if you do not fit this description.)

Instructor: Dr. Peggy House office: NSF 1123
phone: 227-2063 e-mail: phouse@nmu.edu

Office Hours: M, W, F 9:30-10:30; other times by appointment.

Required Materials:

- Computer, with Internet access
- Graphing calculator
- The following printed and/or electronic publications:
 - Johnson, David R. *Every Minute Counts: Making Your Math Class Work*. (Purchase at bookstore)
 - Johnson, David R. *Motivation Counts: Teaching Techniques that Work*. (Purchase at bookstore)
 - National Council of Teachers of Mathematics (NCTM). *Principles and Standards for School Mathematics* (PSSM). (You can read on-line at <http://standards.nctm.org/> or read hard copy in the Seaborg Resource Center, WS 2609.)
 - Michigan Department of Education. *Michigan Curriculum Framework*. (Available on CD-ROM or you can read on-line at http://www.michigan.gov/documents/MichiganCurriculumFramework_8172_7.pdf or read hard copy in the Seaborg Resource Center, WS 2609.)
- Student membership in the National Council of Teachers of Mathematics (NCTM). Go to <http://www.nctm.org/membership/> for details. Student membership is \$36/year and includes a 1-year subscription to the journal of your choice (for high school teachers, this is the *Mathematics Teacher*, middle school teachers may prefer *Mathematics Teaching in the Middle School*). Membership also includes the monthly *News Bulletin* and access to the Members-Only Web site where you will find the electronic journal *On Math*, classroom-ready materials in *Student Math Notes*, and other resources. Members also receive 20% discount on purchase of catalog items, so if you want to obtain your own copy of PSSM or other materials, join first and take advantage of this discount. You can join on line, by phone, by fax, or by mail. You will be asked to provide the instructor with proof of membership (membership card or mailing label from journal).
- Other materials to me made or purchased as needed for instruction.

Course Overview:

MA 350 helps to prepare you for student teaching and for your future career as a mathematics teacher. It is designed to acquaint you with the contemporary mathematics curriculum and instructional resources, and to help you develop methods and strategies for teaching high-school mathematics. During the semester you will have opportunities to plan and present lessons to your peers, and the required field experiences will provide opportunities for you to interact with high-school students and teachers. These experiences, together with class activities, discussions, and assignments, will enable you to begin to formulate your own teaching philosophy and instructional style.

Grading:

Points will be assigned for class participation, projects, presentations, assignments, and tests. Your grade will be determined by the percentage of the total possible points that you earn, as follows:

A=93-100%; A—=90-92%; B+=87-89%; B=83-86%; B—=80-82%; etc.

As teachers, you will be expected to communicate with students, parents, administrators, and others in correct and proper English. Therefore, such things as grammar, spelling, punctuation, and syntax will be considered in

the evaluation of your written work. Late assignments will have points deducted unless prior arrangements have been made.

Course Requirements:

- Attend class and participate actively in class discussions and activities.
- Complete assignments on time. Written assignments are to be done with a word processor.
- Field experiences in schools, at least 20 hours during the course of the semester. Written reports of your field experiences will also be required.
- Present and evaluate mini-lessons as assigned, both in this class and in your field placement.
- Attend the Seaborg Fall Conference for mathematics and science teachers on Friday, October 10. Note that there are no NMU classes scheduled for that day, but your attendance at the sessions of this teacher conference is required. This is an important aspect of your professional development.

Course Objectives: During MA 350, students are expected to:

- Develop a philosophy of mathematics teaching.
- Discuss recommendations, goals, and issues in school mathematics.
- Develop an understanding of the curriculum and expected outcomes of school mathematics.
- Develop a variety of teaching strategies employing appropriate instructional materials and technologies.
- Demonstrate ability to plan, deliver, and evaluate mathematics lessons.

Course Content:

- Goals of school mathematics: Overview of K-12 content and recommendations; goals, objectives, and content of 9-12 mathematics (with emphasis on algebra and geometry components); teaching methods, materials, and technology; national and state standards and frameworks.
- Classroom interaction: Strategies for teaching concepts, generalizations, skills; questioning techniques; small- and large-group interaction; classroom management.
- Planning for instruction: Specifying goals and objectives; lesson and unit plans.
- Evaluation: Evaluation vs. testing; methods of evaluation; grading; state and national assessments.
- Professional development for mathematics teachers: Reflective teaching; opportunities for professional growth; professional literature and resources; evaluating teaching effectiveness.

If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability services in the Disability Services Office at 1104 University Center (227-1737). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and university guidelines.