

**COURSE OVERVIEW:**

The unifying theme of this course is the examination of important “big ideas” of algebra as described in the *Principles and Standards for School Mathematics* (NCTM 2000). This includes reflection on the concepts, principles and mathematical processes in the K-12 algebra curriculum; common difficulties encountered by students; alternatives for structuring learning; and applications of technology, materials, and resources for teaching algebra.

**SCHEDULE:**

**CLASS SESSIONS:** -- Class meets on the following four Saturdays:

January 20, February 10, March 3, and March 31

9:30 a.m. to 3:30 p.m. eastern time (8:30 a.m. to 2:30 p.m. central)

**MAKE-UP DAY:** -- Saturday, April 21, in the event that inclement weather causes cancellation of a regularly scheduled Saturday class. Announcements of official NMU closings due to weather are broadcast on local television and radio stations and are available by calling 906-227-BRRR (2777).

Class originates in West Science 3616 on the NMU campus with a remote site at the Dickinson-Iron ISD.

**BRING YOUR LUNCH:** — Classes use an interactive workshop format. In the interest of those who travel long distances to attend class, we will not prolong the sessions by taking a formal lunch break. You are welcome to bring your lunch. There will be ample opportunities during the session for you to eat a lunch or snack.

**TEXT AND MATERIALS:**

- *Algebraic Thinking, Grades K-12*. Barbara Moses, editor. Reston, VA: National Council of Teachers of Mathematics, 1999.

Available in the NMU bookstore. Students who do not live in Marquette can order from the NMU bookstore at <http://www.nmubookstore.com/>. If you are an individual NCTM member, you can order directly from NCTM (go to <http://www.nctm.org/>) and take advantage of the NCTM member discount.

- *The Geometer's Sketchpad* (computer program).

We will make regular use of *The Geometer's Sketchpad* program, so you will need to have it on your computer. There are three options for getting it:

- a) If you have a NMU laptop, go to the help desk and have the program installed on your machine. (No cost, but they will only install it on NMU laptops.)
- b) If your district, ISD, or school has a site license, you can have a copy installed on your computer under the appropriate site license.
- c) If no site license is available to you, you can go to Key Curriculum Press <<http://www.keypress.com>> and purchase a student version for \$39.95. (That is a very good price.) The student version does everything the site license does, but it requires that the disk be in the computer when the program is in use.

- You will need a computer with Internet access. We will use WebCT for communication among class members between sessions.
- You should have a spread sheet program (Excel) installed on your computer.
- You will need a graphing calculator.

**SUPPLEMENTAL RESOURCES:**

- National Council of Teachers of Mathematics (NCTM). *Principles and Standards for School Mathematics*. 2000.
- *Navigating through Algebra in Prekindergarten-Grade 2*. (NCTM, 2001)
- *Navigating through Algebra in Grades 3–5*. (NCTM, 2001)
- *Navigating through Algebra in Grades 6–8*. (NCTM, 2001)
- *Navigating through Algebra in Grades 9–12*. (NCTM, 2001)
- Michigan Department of Education documents related to the Curriculum Framework and algebra expectations. [http://www.michigan.gov/mde/0,1607,7-140-38924\\_41644\\_42668---,00.html](http://www.michigan.gov/mde/0,1607,7-140-38924_41644_42668---,00.html)

### **ASSIGNMENTS AND CLASS ACTIVITIES:**

Assignments will be mostly of the try-this-in-your-own-classroom nature. The emphasis in this class is on applying content and strategies while reflecting on and evaluating algebraic thinking in the context of your own teaching responsibilities. If you are not in a classroom this semester, try the problems on your family or friends in order to get some insights into how different people think about and solve problems.

Between the regular Saturday class sessions, you are expected (read “required”) to log on to the WebCT class site **at least once a week** to **read what classmates have shared** and **post your own contributions** to the on-going class discussion there. Each week, one or more new questions will be posted—and class members are expected to post their own questions to each other as well. The nature of these discussions will be to share what worked or didn't work in your class and to exchange ideas with other teachers. (WebCT keeps a record of the nature and frequency of individual on-line participation, and these records are monitored and factored into the course evaluation.)

### **GRADING:**

Grading is on an A-F scale; grades are based on attendance at all classes, active participation in in-class and on-line activities, knowledgeable discussion of assigned readings, completion of problems and assignments, presentations to the class, and timely participation in on-line exchanges.

### **ON-LINE COURSE CONNECTION:**

To participate in the WebCT portion of the course, you need Internet access. You also need an NMU user ID and password, which are provided for enrolled students at no charge. Your user ID and password should have been supplied for you when you registered. If for any reason you did not get them, or do not know what you did with them, you need to contact the Help Desk in the Academic Computing Center (lower level of the LRC; 227-2468). They will not give you the information over the phone, but will mail it to you.

### **TO ACCESS WEBCT, DO THE FOLLOWING:**

- Log on to <<http://webct.nmu.edu>>
- On the first page, click on “log in to my webct”
- Enter your user name and password
- Click on MAED 532

Select “discussion” on the class home page (the push-pin icon). There you will find one or more questions that await your response. Answer each question and post your reply. Check back later to see responses from other class members and to reply to one another.

Note: If you try to log on from your school and are unable to do so, check with your school's technology coordinator. Some schools erect firewalls to prevent students from unrestricted use of the Internet.

### **YOUR FIRST WEBCT ASSIGNMENT—DO THIS RIGHT AWAY:**

As a reality check to make sure you can get on, log on to WebCT within the next couple days. In the discussion section, post a message in which you introduce yourself to the class. Tell us where you teach, what you teach, what your interests are, and anything else that will help class members to get to know one another. Your posting will let me know that you can successfully log on and participate in the exchange. If you cannot get through, contact me immediately via e-mail. **PLEASE DO NOT PUT THIS OFF.**

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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.