MAED 514 — Historical Topics in the Mathematics Classroom

Northern Michigan University Summer 2008
Dr. Peggy House Office: 1123 New Science e-mail: phouse@nmu.edu phone: 906-227-2063

Course Overview

The history of mathematics is rich and extensive, and the opportunities to enrich mathematics instruction with historical topics are numerous. In MAED 514 we examine the historical underpinnings of mathematical ideas and cross-cultural contributions to the development of mathematics. Focus is on relating knowledge of the history of mathematical thought to the contemporary curriculum. Of course, in the limited time available, the best we can hope to achieve is a sampling of historical topics and examples of classroom applications. Topics will be selected in that spirit.

In particular, the goals of the course are:

- To enhance students' knowledge and appreciation for the historical roots and "humanness" of mathematics;
- To explore ways in which the rich historical and cultural dimensions of mathematics can be brought to life in the classroom;
- To develop, present, and evaluate sample lessons, activities, and materials for K-12 pupils deriving from historical and multicultural roots;
- To stimulate students' interest to continue reading and studying the history and culture of mathematics after the course is over.

Some themes we will explore are: From where does our mathematics originate? How do we get our knowledge of early mathematics? What are the roots of numeration, arithmetic, geometry, algebra, etc.? How can we show students that mathematics spans all cultures? How can we show students that mathematics is still alive and flourishing?

Texts:

Katz, Victor J., and Karen Dee Michalowicz. *Historical Modules for the Teaching and Learning of Mathematics*. Washington, D.C.: Mathematical Association of America, 2005. (CD-ROM)

Singh, Simon. *Fermat's Enigma*. New York: Anchor Books, 1997.

Equipment:

You will need a computer with CD-ROM drive and *Acrobat Reader* and access to the Internet.

Assignments and class activities:

1. Attend all classes and participate actively in class discussions and activities.
2. Complete assigned readings and activities and prepare to engage actively in class discussion. Assignments are to be completed PRIOR TO CLASS on the indicated date. (See separate assignments list.)
3. Participate in projects that will be assigned and explained in class. Some activities will be assigned to students who will complete the activity and assume responsibility for presenting the results to the class.
4. Complete problems and activities assigned in class and pay special attention to how you can incorporate your own growing appreciation for the history of mathematics into your classroom.
5. Complete a final project as assigned in class.

Grading:

Grading is on an A-F scale. Grades are based on active participation in class activities, knowledgeable discussion of assigned readings, completion of assignments, presentations to the class, and completion of the final course project.

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.