Course Outline

Department of Mathematics
and Statistics

Minnesota State University, Mankato

Math 487 - Teaching Experiences in Mathematics (1 semester hours)

Course Description:

Student will work with an experienced member of the faculty in teaching a college mathematics course.

Pre-Requisites: none

Learning Outcomes:

Student will be able to

1. Discuss preparations made by instructor to teach the class
2. Prepare and teach a topic or unit to the class
3. Prepare, administer, and evaluate an assessment related to the topic prepared or taught to the class
4. Reflect on the outcomes of the assessment and possible revisions that could be made when teaching the topic again

Content Outline:

3. Teaching strategies and physical models for:
   a. Mathematical concepts
   b. Mathematical generalizations
   c. Mathematical skills
   d. Mathematical problem solving
   e. Mathematical applications through laboratory activities
4. Examination of selected mathematical topics
5. Multicultural mathematics and multicultural math classroom
6. Management of a successful mathematics classroom
7. Micro-teaching experiences
   a. in the class, peer-teaching
   b. in a local junior high/high school
8. Developing tests and using instruments for assessing students' achievement
Textbook/Related Readings/Materials:

Cofman, Judith, What to Solve? Problems and Suggestions for Young Mathematicians
Cooney, T., Davis, E. and Henderson, K, Dynamics of Teaching Secondary Mathematics
Crouse, R., and Sloyer, C. Mathematical Questions From the Classroom
Henderson, K., What Research Says to the Teachers
Johnson, D., Making Minutes Count Even More, A Sequel to Every Minute Counts
Johnson, D., Every Minute Counts: Making your math class work
Minnesota, Department of Education,, Model Learner Outcomes for Mathematics Education.Minnesota Curriculum Services Center, 1988.
NCTM, Arithmetic Teacher
NCTM, Mathematics Teacher
NCTM, Professional Standards for Teaching Mathematics
NCTM, Results from the Fourth Mathematics Assessment
NCTM, Research Agenda for Mathematics Education (Volumes 1-5)
NCTM, Yearbooks
National Research Council, Everybody Counts
Postamentier, A. and Stepelmen, J. Teaching Secondary School Mathematics
Reys, R.Z., The Mathematics Laboratory, Theory to Practice
School Science and Mathematics Association, School Science and Mathematics
Skemp, P. The Psychology of learning Mathematics
Tobias, S., They're Not Dumb, They're Different
Van Hiele, P., Structure and Insight
Zaslavsky, C., The Multicultural Math Classroom, Bringing in the World

Matherials: Manipulatives including ones for algebra, geometry and other secondary content technology