

## SYLLABUS FOR T103

Revised Spring 2007

**Books:** A Problem Solving Approach to Mathematics for Elementary School Teachers, Ninth Edition by Billstein, Libeskind and Lott, Addison Wesley Publishing Company; ISBN: 0-321-33179-6  
Mathematics Activities for Elementary Mathematics Teachers, Sixth Edition, by Dolan, Williamson, Muri, Pearson Addison Wesley Publishing Company; ISBN: 0-321-40898-5

**Comments:** This text is very strong on problem solving, which is a frustration for many future elementary teachers. Our goal for future elementary teachers is understanding rather than memorization of algorithms. Teachers tend to teach as they've been taught. Instructors are encouraged to use cooperative learning, study groups, student journals, and other techniques to improve students' mastery of content. The students should have the Mathematics Activity Book associated with this text; therefore selected activities should be done in groups in class or assigned. Students may sequence the T-courses as T101/T102/T103 or T101/T103/T102. Geometry is challenging for many students, as many students' background in Geometry is weak or nonexistent. Special emphasis on activities should be provided to teach understanding of the concepts of measurement - rather than the heavy use of "which formula". There is a resource binder for the T-courses in LF248. The final exam for this course is comprehensive and should count as at least 25% of the student's grade. A review for the final is available online at: <http://homepages.ius.edu/pmiller/ReviewForFinals.htm>

### **Course Objectives:**

By the end of this course, students should be able to:

- Precisely describe, classify, and analyze 2- and 3-dimensional objects using their defining properties
- Identify congruence and similarity through constructions and solve related problems
- Determine the measurements of perimeter, area, surface area, and volume with and without formulas
- Apply and analyze geometric transformations
- Work in groups to solve problems

### **Recommended Syllabus:**

- Chapter 9: Sections 1-4.
- Chapter 10: Sections 1-4. Section 5 and 6 are optional . Provide opportunities for students to experience the concepts of construction via paper-folding and the use of the Mira (available in cabinet)
- Chapter 11: Sections 1-5. Mass & temperature have been included in section 5, but are still optional. This is a very important chapter! Students must obtain understanding of what they are measuring with perimeter, area, surface area and volume. These topics cannot be mastered as formula memorization. Tests and quizzes should be designed to include composite figures (semicircles, cones on top of cylinders, etc.) to prevent formula-only approaches.
- Chapter 12: Sections 1-5. Minimize the formal treatment of transformations, but encourage the use of wax paper or tracing paper to perform these motions, rather than compass and straightedge.

**Note:** Geometer's Sketchpad is now available to student's through the IUS Website. Student use of Geometer's Sketchpad to explore some of the ideas of geometry is encouraged.