1. **Current GER Mathematical Skills requirement (taken from Faculty Document No 1382)**

The Mathematical Skills requirement is satisfied by:
   a. Obtaining a grade of C or higher in Mathematics 105, 106, 109/175 or equivalent courses; or
   b. Achieving a placement code of 30 on the UW System Placement Test.

Note: The equivalent of 105, 106, 109/175 includes any courses for which Mathematics 105, 106, or 109/175 are prerequisites.

2. **Assessment activities of GER Mathematical Skills requirement.**

   **Level One Assessment**

   a. Track how students meet the requirement, i.e., maintain data on percentage of entering students who achieve a placement code or 30 or higher and thereby also collect data on percentage of students who must take a course to meet the Mathematical Skills requirement.
   c. Track student grades in Math 105, 106, and 175 (Math 109 is no longer current), separated by first time taking or repeat taking.
   d. Track student grades in the “next” math course separated by entry through 105/175 or placement score. Courses include: Math 116, 117, 176, 205, 211, 225 and Math Stat 215.
   e. Document department’s ongoing activities/initiatives to monitor and improve student performance in Math 105, 106 and 175. See Item 3 below.
Level Two Assessment

a. Examine Math 105, 106, and 175 to identify and assess common learning goals. To be undertaken beginning Fall 2004.

3. Department activities/initiatives related to Math 105, 106, and 175 and subsequent courses.

- Each of Math 105, 106, and 175 have a faculty member who serves as the Course Coordinator. Activities of the course coordinator include but are not limited to:
  - Determines material in text to be covered, the order it is to be covered, time to be spent on each topic. Student performance and subsequent course needs are taken into account.
  - Provides instructors ongoing assistance and guidance on how to present material so as to maximize student understanding. Reviews all syllabi.
  - Assisting with student concerns about instruction or grading.
- The department’s Undergraduate Curriculum Committee (UCC) reviews curriculum issues and brings them to the department as they arise.
  - Professors Arnold (Math 106 Coordinator), Key (Chair of Undergraduate Curriculum Committee), O’Malley (member of Undergraduate Curriculum Committee), and Solomon (Math 105 Coordinator) regularly monitor, assess, and revise math placement matters.
  - Most recently the UCC reviewed and revised Math Placement Codes. One outcome was the identification of students who know enough trigonometry to enter calculus but not enough algebra. Previously the placement scores were too coarse to identify this distinction and these students were forced to complete both an algebra course and a trigonometry course (when indeed all that was needed was the algebra).
- Professor Key and O’Malley have created the Placement Enhancement Program (PEP) to assist students achieve an accurate Math Placement Score. Hence, this program assists with correct student placement into 105, 106, 175, and other math courses. See: [http://www.uwm.edu/~ericskey/MATHPEP/mathpep.html](http://www.uwm.edu/~ericskey/MATHPEP/mathpep.html).
- Professor McLeod is PI on the NSF Milwaukee Mathematics Partnership (MMP) Grant. Activities include revision of Math 175 and 176, and transition to college issues. The department has hired (August 2004) a probationary teaching academic staff member to assist in the revision, coordinating, and teaching of Math 175 and 176, along with other undergraduate instruction and curriculum activities. The transition to college component includes activities targeting Math 095, 105, and 116. The 2003-2004 academic year was the first year of the five year MMP grant.
- The department’s Math Education Committee (MEC) reviews and advises on issues relating to teacher preparation, and K-12 mathematics. Our MEC also serves as a liaison with the UW Milwaukee School of Education, MPS, and other
schools and colleges in the area. This committee is actively engaged in MMP grant activities, including activities involving math 175 and 176.

- Course coordinators for Math 095, 105, and 116 (our three algebra courses) regularly review, revise, and coordinate course content.
- Professors Key and O’Malley coordinate the ALEKS sections of Math 095, 105, and 116. ALEKS is an adaptive learning tool. The online adaptive learning program provides the student and instructor detailed ongoing information as to topics the student has successfully mastered and those where the student is weak. In addition, some of the stronger students in 095 (105) have been able to successfully complete 095 and 105 (105 and 116) in the same semester. Weaker students have been quickly identified and transferred to an appropriate course.

4. **Recommendations from the 2004 Report by the Committee on the Undergraduate Program in Mathematics (CUPM) of the Mathematical Association of America concerning general education or introductory collegiate courses in the mathematical sciences.**

The report includes the following two recommendations.

**A:** ‘All students meeting general education or introductory requirements in the mathematical sciences should be enrolled in courses designed to
i. Engage students in a meaningful and positive intellectual experience;
ii. Increase quantitative and mathematical abilities that will be useful to students in other disciplines;
iii. Improve every student’s ability to communicate quantitative ideas orally and in writing;
iv. Encourage students to take at least one additional course in the mathematical sciences.’

**B:** ‘General education and introductory courses in the mathematical sciences should be designed to provide appropriate preparation for students taking subsequent courses, such as calculus, statistics, discrete mathematics, or mathematics for elementary school teachers. In particular, departments should
i. Determine whether students who enroll in subsequent mathematics courses succeed in those courses, and if success rates are low, revise introductory courses to articulate more effectively with subsequent courses;
ii. Use advising, placement tests, or changes in general education requirements to encourage students to choose a course appropriate to their academic and career goals.’

The design and implementation of Math 105, 106, and 175 meet A. Activities from Items 2 and 3 above meet B.