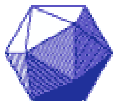


Committee on the Undergraduate Program in Mathematics (CUPM)

*Charged with making recommendations to guide
mathematics departments in designing curricula
for their undergraduate students.*



The Mathematical Association of America



Undergraduate Programs and Courses in
the Mathematical Sciences:

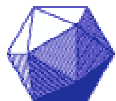
CUPM Curriculum Guide 2004

This is the first CUPM report to address the entire undergraduate mathematics curriculum, for all students.

It is the result of four years of work including extensive consultation with hundreds of mathematicians as well as faculty from biology, chemistry, economics, engineering and other partner disciplines.



Supported by grants from NSF and the
Calculus Consortium for Higher Education



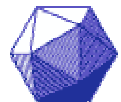
The Mathematical Association of America

Historical Background to the *Guide*

CUPM established 1953 (as *CUP*).

Curriculum guidelines published 1965,
1972, 1981 and 1991 focus on the
major

Work on *CUPM Curriculum Guide 2004*
began in 1999

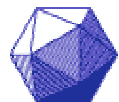


The Mathematical Association of America



CUPM Working Assumptions

- One curriculum is not appropriate for all majors
- Must serve a wide variety of mathematics-intensive majors and be responsive to the needs of other disciplines
- Must serve the needs of a very large population often enrolled in, but not optimally served by, college algebra courses.

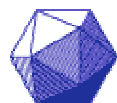


The Mathematical Association of America



Preparing for the *Guide*

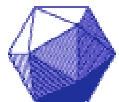
- Focus groups at Joint Math Meetings 2000, 2001 & Mathfest 2002—over 500 participants
- Panel discussions at meetings
- Invited papers, September 2000
- Reports from AMS, AMATYC, ASA, NCTM
- CRAFTY *Curriculum Foundations Project*



The Mathematical Association of America

Common themes in CUPM 1981, 1991, 2004

- Attitudes of mind and analytical skills, reasoning
- Interplay of applications, problem solving and theory
- Broad, flexible major for diverse student goals
- Take advantage of technology
- Recruit and nurture majors; have good advising
- Include data analysis and discrete mathematics in major

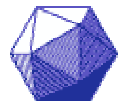


The Mathematical Association of America



New themes, CUPM 2004

- Look outward and include non-majors
- Know students, create appropriate goals, evaluate courses and programs; faculty support
- Specify student expectations vs. lists of topics
- Emphasize mathematical thinking and communication in all courses, incremental approach
- Promote interdisciplinary cooperation, joint majors, introductory statistics and discrete mathematics courses
- Alternative routes to the major

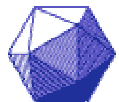


The Mathematical Association of America



Six General Recommendations

1. Understand the student population and evaluate courses and programs.
2. Develop mathematical thinking and communication skills.
3. Communicate the breadth and interconnections of the mathematical sciences.

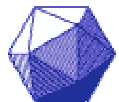


The Mathematical Association of America



Six General Recommendations

4. Promote interdisciplinary cooperation.
5. Use computer technology to support problem solving and to promote understanding.
6. Provide faculty support for curricular and instructional improvement.

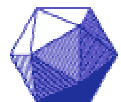


The Mathematical Association of America



Supplementary Recommendations for Specific Student Audiences

- A. General education or introductory courses,
- B. Majors in partner disciplines, elementary & middle school teachers,
- C. Majors in mathematical sciences,
- D. Secondary school teachers, majors preparing for non-academic workforce, majors preparing for graduate school.



The Mathematical Association of America

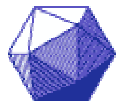


Illustrative Resources

A web-based supplement to *CUPM Guide*

Illustrative Resources describes courses, programs, curricular materials, articles, etc. that illustrate ways the recommendations can be implemented at varied institutions.

The *Guide* and its companion *Illustrative Resources* are available at www.maa.org/cupm



The Mathematical Association of America

