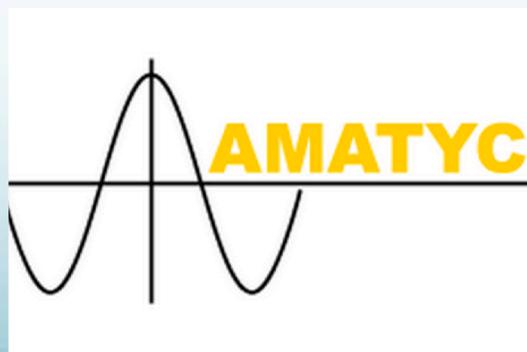
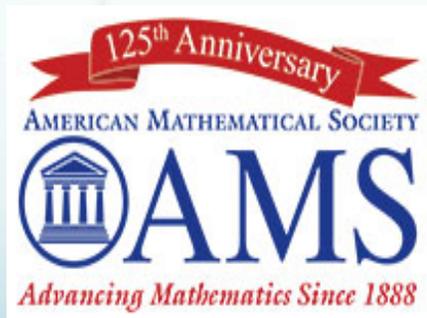




A Common Vision for the Undergraduate Mathematics Program in 2025



The first two years of college math
should prepare students for

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_____, and _____,
and _____, and
_____, and, _____,
and _____, and
_____, and _____,
and, _____, and
_____, and _____,
and _____.

The first two years of college math should prepare students for _____

Math major

Non-STEM major

STEM major

Reading WSJ

doing data analysis

Gaining agility of mind

Thinking logically and without bias

Becoming better citizens

Seeing beauty and relevance of math

- How do we design courses, programs, pedagogies to help our students achieve those goals?
- How do we use technologies to help our students achieve those goals?

- How do we support students in this endeavor?
- How do we support faculty members in this endeavor?

- What works successfully at different types of schools, and how do we know that something is, in fact, successful?

- What works successfully at different types of schools, and how do we know that something is, in fact, successful?
 - Community college
 - Liberal Arts college
 - Research university
 - Land Grant institution
 - Minority Serving Institution

We also have 'problems'

- Recruitment, retention of STEM students
- Recruitment, retention of women and minorities in STEM fields
- 'Mathematically literate' population
- Connections to STEM and non-STEM fields
- Connecting silos
- Appropriate uses of technologies
- Timely completion/grad rates of college and our role in this

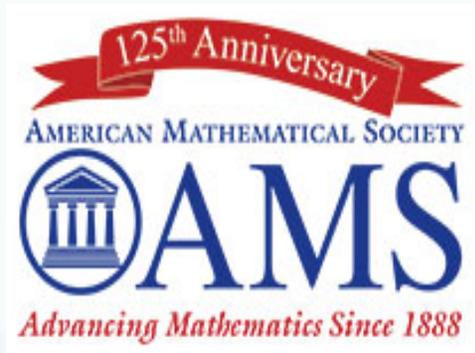
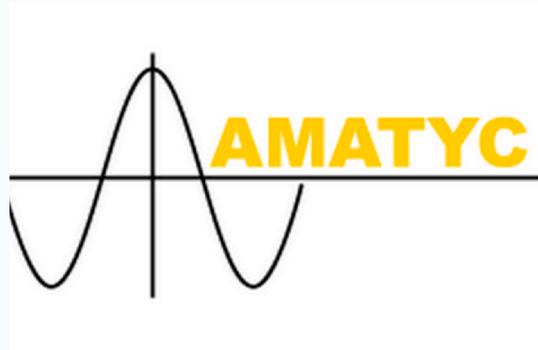
The Good News about undergrad math education

- Many initiatives and recommendations already exist
- There exists increased attention in math community, and also with policy-makers, on undergrad math education

The Good News about undergrad math education

Now is an opportune time to view the landscape from a higher elevation in order to get a broad overview of the state of the undergraduate mathematics program.

Now is an opportune time to identify common themes in approaches to both content and delivery toward the goal of establishing a shared vision for modernized curricula and pedagogies to better prepare students for the demands of their future careers.



The Conference Board of the Mathematical Sciences (CBMS) is an umbrella organization consisting of 16 professional societies all of which have as one of their primary objectives the increase or diffusion of knowledge in one or more of the mathematical sciences.

Of the 16, AMATYC, AMS, ASA, MAA, SIAM are *exactly* the ones with at least part of their focus on undergraduate teaching.

Our Plan

To develop a shared vision of the need to modernize the undergraduate mathematics curriculum, **especially the first two years.**

A vision that a core group of professional societies can endorse and promulgate, and about which the societies have some degree of confidence that a broad cross-section of the community will embrace.

Be more intentional in the way we present our common vision to 'the public.'

Common Vision – Starting Points

- **AMATYC** *Beyond Crossroads in Mathematics standards*
- **AMS** Policy piece: *Mathematicians' Central Role in Educating the STEM Workforce*
- **ASA** *Guidelines for Assessment and Instruction in Statistics Education (GAISE) reports*
- **MAA** *CUPM Curriculum Guide & CRAFTY recommendations*
- **SIAM** *Modeling Across the Curriculum project & Undergraduate Applied Math Programs report*

Common Vision – Starting Points

Further curricular recommendations from

- Dana Center and Carnegie Foundation
- INGenIOuS
- NRC *Mathematical Sciences in 2025*

CONTENT *and* DELIVERY

Common Vision – Starting Points

Began with recommendations from professional societies and identified common themes

We found that these recommendations prioritize

- Improving our practices
- Scaling innovations
- Enhancing public face

Common Vision “Deliverables”

- Executive summary of the society guides
- Joint statement and implications for societies
- Public relations & marketing
- Framework/guide for writing Phase II grants
- Annotated list of successful initiatives

What can you do?

- Email us examples of successful initiatives
- Let us know you want to be involved in a focus group [scheduled for MathFest, AMATYC fall meeting, JMM]

Leadership team

- Karen Saxe, MAA VP2
- Linda Braddy, MAA DED
- Rob Farinelli, AMATYC past President
- Vilma Mesa, MAA-RUME & AMATYC
- Uri Treisman, Dana Center ED
- Peter Turner, SIAM VP for Education

Questions?

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The 5 dimensions of each theme

- Course content
- Course structure and pedagogy
- Delivery models
- Student supports
- Faculty development