

Precalculus

Recent History Highlights

2014 – OMI decides we need something different

2015 – Quantitative Reasoning guidelines

& rethinking College Algebra

& begin describing in terms of student learning outcomes

2016-2018 – Learning & Learning & Learning → New View

2018-2021 – New Pathways

2021 – Calculus Preparation

Precalculus

Conclusion: College Algebra was not added to the OTM to be Calculus preparation and it still isn't.

Precalculus \neq College Algebra + Trigonometry

Several of our institutions have already realized this and have acted on their own: Reasoning with Functions

The OTM needs to follow their lead.

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Reasoning with Functions

Student:

- **Communication, Reasoning, Logic, Conditions & Conclusions, Justifications, Investigation, Conjectures, Counterexamples, Revision, Perseverance, Critical Think, etc.**
- **Rigor**

These are not filters for choosing students. These are aspects of mathematical thinking that we need to teach.

What are we doing for students in our classroom?

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Reasoning with Functions

Content:

Pretty much the same with a couple of additions.

- **Rate of Change, including Instantaneous Rate of Change**
 - Graphical, & Using Tangent Lines to Parabolas
- **Infinity**
 - $-\infty$ and ∞ are not the least and greatest real numbers that we kept hidden.
 - There is thinking to develop about unboundedness. (Real Numbers)
 - Asymptotes \rightarrow Algebra

Precalculus is the beginning of a discussion that continues through Calculus.

We need to design it that way.

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Problems:

Yes! I hear you.

This changes the matriculation mechanism.

What do students get if they don't continue?

All of these problems are solved by just keeping College Algebra.

It is time to rethink why students are taking Calculus and how to prepare them to understand these new ideas.

Once every century or so, it is ok to clean house and rethink student education.

Get rid of College Algebra and have everyone repick their math requirements.

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Dana Center: Equity in Mathematics Pathways

[chat] Dr. Carrie Diaz Eaton: “one reason people might discount diversity efforts in STEM/math is because they think math/STEM is about content and not people (separating these)”

Students are “seeing” what we are “showing” them.
However, students are not being prepared for Calculus.