

Florida Math Pathways: Putting Students at the Center

October 26, 2023

Welcome!



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Questions & Conversation

- Submit your questions in the box
- Share on social media
 - Twitter: [@FLCollegeAccess](#)
 - [#FCAN](#)
 - [#TalentStrongFL](#)

This webinar is being recorded; all materials will be available within a week of recording



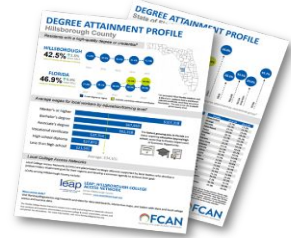
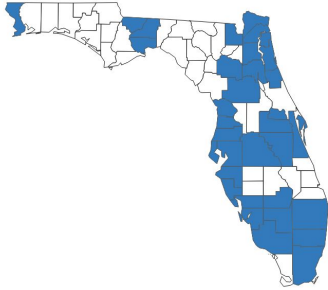
Our mission:

We lead the collaborative movement to ensure every Floridian achieves an education beyond high school and a rewarding career.

Our vision:

A Florida working together, where education is the pathway to economic mobility for all.

FCAN's Work



Research and Data: FCAN publishes research and data on evidence-based practices and policy opportunities to strengthen Florida's talent pool.

Advocacy: FCAN engages with stakeholders, policy makers and community-based organizations to find ways for improving every students' postsecondary journey.

Storytelling: FCAN focuses on students and their communities to understand and share the impacts of Florida's education policy.

Local college access networks (LCANs): FCAN provides financial supports and technical assistance to local coalitions made up of community leaders who come together to create solutions and partnerships to support local talent development.



Statewide Initiatives: FCAN coordinates 4 College Ready Florida initiatives that provides schools and community organizations resources to help students continue their education after high school.

Convenings for Collaboration: FCAN hosts and facilitates data-driven, solutions-oriented conversations with student success leaders at the community-based, institutional, and statewide levels.

7 Conditions for Success

Opportunity for everyone: To build a talent-strong economy, all Floridians need access to a postsecondary education and the supports to complete it.

Clear information and guidance: Students and families need exposure and counseling early and often to make informed decisions about their futures.

Affordability: Postsecondary education needs to be within everyone's financial reach, regardless of household income or life circumstances.

Multiple pathways to success: Floridians benefit from multiple learning opportunities for academic achievement and career advancement.

Lifelong learning: No degree or credential is "one and done;" Floridians need to prepare for career changes through continuous learning.

Effective use of data: Transparent access to data on education and economic outcomes, especially for Florida's diverse populations, helps achieve our goals.

Community collaboration: When community partners work together toward a shared vision, they remove barriers, build a robust workforce, and improve the quality of life for their regions.

Keynote and Panelists



Keynote: Kiaira D. McCoy

Director, Florida Student Success
Center, Florida College System

- **Dr. Tommy Minton**
 - Dean of Mathematics, Seminole State College of Florida
- **Dr. Megan Cavanah**
 - Professor of Mathematics, Polk State College
- **Michal Paul**
 - Assistant Professor of Mathematics, Tallahassee Community College
- **Andrew Kennon**
 - Professor of Mathematics, Florida State College at Jacksonville

FCAN WEBINAR

November 30, 2023

3:30 p.m. - 4:30 p.m. EST

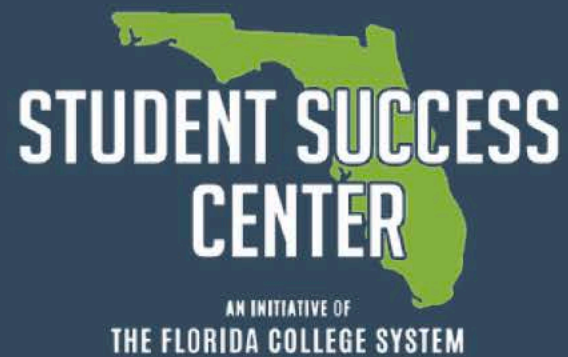
COLLABORATIVE DATA SHARING

Featuring the Central Florida Education Ecosystem Database (CFEED)



Learn how our expert panel initiated a data-sharing program to enhance student success and create new opportunities for all.

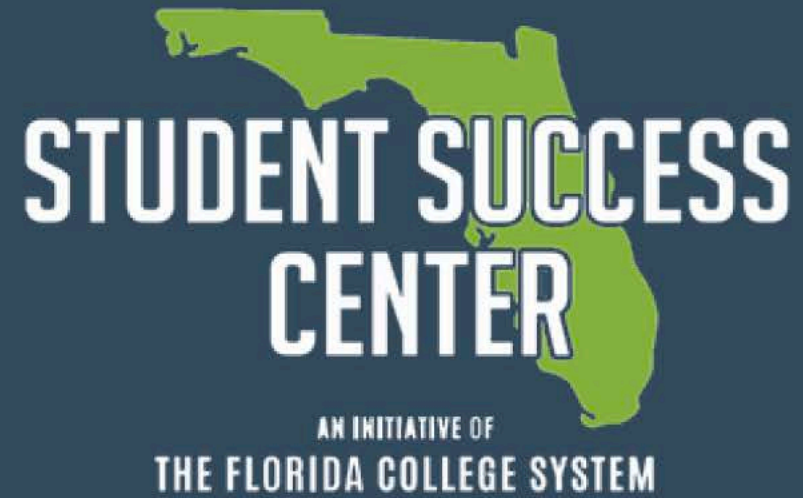




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#FLStudentSuccess



Florida Mathematics Re-Design

The Work Begins

- The Florida Student Success Center launched in 2018 in partnership with Jobs for the Future, Helios Education Foundation, and the Florida College System Foundation
- Mathematics pathways re-design and content alignment were the primary initiatives in the center's first year

Why Focus on Mathematics?

- Nationally, hundreds of thousands of students **fail** gateway postsecondary math courses each year
- Math is the most **significant academic barrier** to postsecondary attainment
- To that end, Florida high school, college and university faculty collaborated on a statewide initiative to improve **student success in mathematics**

Charge, Values & Deliverables

Charge

Explore complex issues surrounding mathematics pathways to prepare: high school students for transition into postsecondary; Florida College System students for success in gateway courses aligned to their programs; and Florida College System students for transition into four-year universities.

Guiding Values

Transparency, collaboration, respect, diversity, evidence-based inquiry

Deliverables

- 1) Cataloging evidence-based practices designed for scale
- 2) Developing recommendations for state policy and institutional policy and practice around mathematics re-design

Mathematics Workgroups

High School to Postsecondary Alignment

Explore how high school curriculum in mathematics aligns with postsecondary expectations

- Clarify college entrance-requirements alignment with high school assessments and courses
- Examine longitudinal student data on mathematics sequencing and student success rates
- Engage high school and college mathematics faculty in dialogue about postsecondary expectations
- Identify strategies that promote greater alignment

FCS Mathematics Sequences

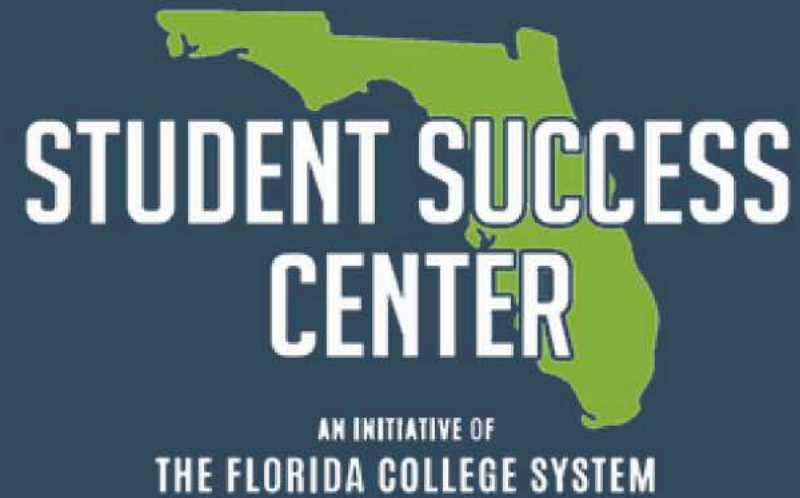
Examine multiple pathways for students to enter based on programs of study as well as the re-design of course structures to maximize support for students

- Identify course and institutional structures that promote and deter success
- Encourage the modernization of mathematics content
- Review data on student success across algebra and non-algebra pathways
- Identify a sequence of courses in the context of a student's intended transfer major/meta-major

FCS to University Alignment

Examine how FCS curriculum in mathematics aligns with university expectations, particularly for students in transfer programs

- Clarify university mathematics requirements
- Examine the longitudinal student data on mathematics sequencing and student success rates
- Engage FCS and SUS mathematics faculty in dialogue about postsecondary expectations
- Identify strategies that promote greater alignment



Math Pathways Recommendations

Florida Mathematics Re-Design Recommendations

- Culmination of the year-long Florida Mathematics Re-Design Initiative
- Includes 11 recommendations for state policy, institutional policy and evidence-based practices designed for scale
- One of the recommendations was to “create common mathematics pathways by aligning mathematics courses to programs, meta-majors and careers in Florida”



Mathematics Pathways Legislation

- The pathways recommendation is reflected in SB 366 from the 2021 legislative session
- The bill states:

To facilitate seamless transfer of credits, reduce excess credit hours, and ensure students take the courses needed for their future career, the articulation agreement must establish three mathematics pathways for students by aligning mathematics courses to programs, meta-majors, and careers. A representative committee consisting of State University System faculty, faculty of career centers established under s. 1001.44, and Florida College System institution faculty shall collaborate to identify the three mathematics pathways and the mathematics course sequence within each pathway which align to the mathematics skills needed for success in the corresponding academic programs and careers.

Committee's Approach: Skills vs. Courses

- To address the ambiguity about mathematical knowledge, the committee adopted a program-level assessment to determine exactly which mathematical **skills** – opposed to **courses** – students need to be exposed to and master, to be successful in the degree.
- The survey was disseminated to discipline experts at Florida College System and State University System institutions.
- Survey responses informed the foundation of the proposed mathematics pathways.

The Pathways

Algebra through Calculus

MAC X105 College Algebra, MAC X311 Calculus

Statistical Reasoning

STA X023 Statistical Methods I

Mathematical Thinking in Context

MGF X130 Mathematical Thinking (General Education Core), MGF X131 Mathematics in Context

Algebra through Calculus

- **Pathway Description:** This pathway is intended for students whose academic program requires a foundation of algebra, followed by a sequence of courses that may lead to calculus.
- **Learning Outcomes:**
 - Demonstrate the knowledge of various algebraic relationships and their application.
 - Employ computational techniques to mathematical problem solving.
 - Execute appropriate mathematical modeling techniques for solving application problems and interpret results of solutions.
 - Develop graphical models using algebraic and problem-solving techniques.
 - Articulate a working knowledge of various functions and their application, as appropriate.
- **General Education Core Course:** MAC X105 College Algebra

Statistical Reasoning

- **Pathway Description:** Statistics is inherently a data-based discipline that requires students to recognize variability in data and to take it into account to make decisions in a way that acknowledges and quantifies uncertainty. Students in the statistical reasoning pathway will gain a statistical knowledge foundation in areas such as descriptive statistics, probability, and inferential statistics that will allow them to use and interpret data.
- **Learning Outcomes:**
 - Students will analyze data using graphical and numerical methods to study patterns and departures from patterns, using appropriate technology as needed.
 - Students will critically evaluate a data-collection plan to answer a given research question.
 - Students will use probability concepts and simulation.
 - Students will use statistical models to draw conclusions from data.
 - Students will perform correlation and regression analyses.
 - Students will apply statistical reasoning and data analysis to real-world or major-specific examples.
- **General Education Core Course:** STA X023 Statistical Methods I

Mathematical Thinking in Context

- **Pathway Description:** This pathway recognizes mathematics as a characteristically human endeavor and is intended for students in the broadest range of programs of study. In this pathway, students will explore a variety of mathematical concepts utilizing multiple ways of thinking to formulate and solve problems in context.
- **Learning Outcomes:**
 - Determine efficient means of solving a problem through investigation of multiple mathematical models.
 - Apply logic in contextual situations to formulate and determine the validity of logical statements using a variety of methods.
 - Apply mathematical concepts visually and contextually to represent, interpret and reason about geometric figures.
 - Apply mathematical models to civically contextual situations (e.g., stocks, finance, voting, population dynamics, etc.).
 - Recognize the characteristics of numbers and utilize numbers along with their operations appropriately in context.
 - Organize, visualize and model data in a meaningful way.
 - Analyze and interpret representations of data to draw reasonable conclusions.
 - Engage in ways of thinking that may involve sample size, counting strategies, chance, ratios and proportions.
- **General Education Core Course:** MGF X130 Mathematical Thinking (new course)

Scope of Statewide Pathways

Associate in Science/Applied Science

General Education (Gen Ed) Core Course in Pathway

(1 course from pre-defined course numbers in Gen Ed Core rule)

Associate in Arts

Gen Ed Core Course in Pathway

(1 course from pre-defined course numbers in Gen Ed rule)

Institutional Course

(Meets common learning outcomes and is aligned with CPM; Course numbers are recommended, but institutions have flexibility in deviating if SLOs are met)

Bachelor's

Gen Ed Core Course in Pathway

(1 course from pre-defined course numbers in Gen Ed rule)

Institutional Course

(Meets common learning outcomes and is aligned with CPM; Course numbers are recommended, but institutions have flexibility in deviating if SLOs are met)

Mathematics Pathways Implementation: Next Steps

- FSSC course shell development for the new Mathematical Thinking in Context courses and other General Education Core mathematics courses
- Alignment of the Mathematical Thinking in Context courses with B.E.S.T. standards

Contact Information

Florida Student Success Center

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