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# Learning Outcomes as a North Star: Why it Matters

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# Statewide 2+2 Articulation Agreement

13 SUS and 28 FCS Institutions

**SCNS-  
Guaranteed  
Course  
Transfer**

**Local Partnerships**

**Large Transfer Student Population**

# Mathematics as a Bottleneck

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High DFWs in gateway courses in mathematics which hinders

- Student matriculation in desired major
- Progression towards degree
- Timely graduation
- Stop out in extreme cases

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# Our Charge: Course Content Alignment

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“Progression within the curriculum is the foundation of student success. If students are hindered in making progress in their curricular pathways they may be delayed in graduation and the risk for stopping out increases” (Heilman, Abdallah, Slim, & Hackman, 2018, p.2)

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# Factors Contributing to this Challenge

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1. Differences in course content within and between institutions
2. Differences in required objectives for meta-majors/programs of study
3. Lack of communication between FCS and SUS Institutions

# Proposed Recommendations

State Level Curriculum Alignment

Develop three Math Pathways

Innovative and Evidence Based Pedagogical Strategies such as Active Learning

Mathematics Institute

# Recommendation 1: State Level Curriculum Alignment

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Why:

Differences in learning outcomes covered

Differences in depth of coverage

**Common SLOs that are readily available will foster seamless “academic” transition to upper level courses.**



# Process

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## State Level

Identify Representative Faculty from SUS and FCS to build and map specific SLOs for gateway math courses.

## Local Level

Encourage each state university to meet with faculty from feeder institutions to engage in alignment discussions in mathematics.

## Institutional Level

Require coordinator course for each gateway course to ensure internal alignment and stem course drift

# Resources Needed

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BOG and Legislature support in creating state level SLOs for gateway courses to ensure consistency across institutions.

Support faculty meetings/workshops aimed at developing SLOs.

# Recommendation 2: Math Pathways

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1. STEM pathway;
2. Pathways emphasizing Statistics for Business and Social Science majors; and
3. Quantitative reasoning pathway

# Why Pathways

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Dana Center and Carnegie Math Pathways are established models for replication

Students who take courses that are aligned with their needs and interests are more motivated and more successful  
(Chronicle of Higher Education, Feb. 2019)

# Resources

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- State policy to enable establishment of the pathways
- Creating new or redesigning existing courses to align with the pathways
- Faculty development/communication on the new pathways
- Continuous assessment on the pathways to determine impact on student progression and success

# Recommendation 3: Mathematics Institute

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## Create a Mathematics Institute:

- Lead and champion efforts to transform teaching and learning in mathematics education within the state.
- Foster and support innovative and context appropriate pedagogical practices
- Establish professional development program needs and design programs to address this needs on an ongoing basis.
- Assess impact
- Award and recognize faculty who complete trainings/workshops/seminars organized by the institute

# Recommendation 4: Implement Active Learning



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Q&A

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# Discussion

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1. How will course curriculum alignment help students and how will it make the transition easier for students?
2. How can Math Institute also support this initiative?
3. Why implement Math Pathways? What are the possible challenges in implementing the pathways?
4. What were the academic factors we considered when we determined the proposed pathways?
5. How will active learning pedagogies help student learning? What are the potential challenges of implementing active learning?
6. What are some challenges that we might face while adopting active learning pedagogies and how can Math Institute help?
7. How will educators adopt and students react to new teaching pedagogies?

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# Sources

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