

Dana Center
Mathematics
PATHWAYS

Michigan Advisor Workshop for Mathematics Pathways

Vanessa Harris and Heather Ortiz

April 13, 2018 MORNING

Jackson, MI



Introducing the Dana Center

The **Charles A. Dana Center** at The University of Texas at Austin seeks to increase equity and access for all students, working primarily in the fields of mathematics and science.

Workshop Materials

All workshop materials are available electronically through May 31, 2018 at:

<https://utexas.box.com/v/MI-Advising-Workshop>



Workshop Outcomes

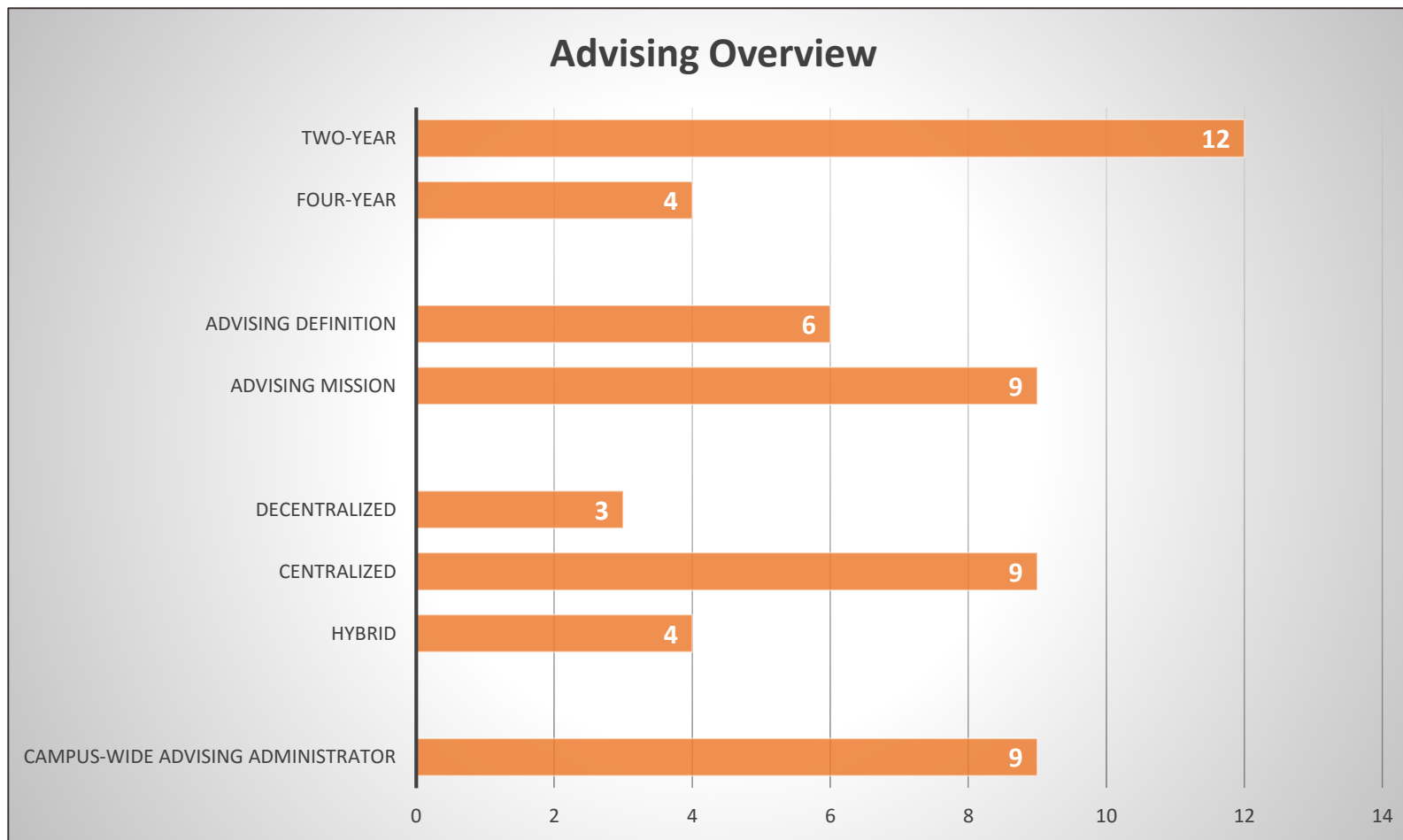
Participants will . . .

- Understand mathematics pathways.
- Understand how academic advising fits into mathematics pathways.
- Identify strategies for effective collaboration.
- Learn about various advising theories.
- Develop a basic action plan.

Overview of Advising Practices of Participants

What does advising look like across Michigan institutions?

Michigan Advising Overview



Who advise: Everyone!!

Opening Discussion

What are the strengths and challenges of your current advising structure?

Definition of *Math Pathway*

. . . a mathematics course or sequence of courses that students take to meet the requirements of their programs of study.

The concept of math pathways applies to college-ready and underprepared students.

Dana Center Principles for Pathways

Institutions implement structural and policy changes quickly and at scale.

Institutions and departments engage in continuous improvement to ensure high-quality, effective instruction.

Dana Center Principles for Pathways

Institutions implement structural and policy changes quickly and at scale.

Mathematics pathways are structured so that:

- 1) All students, regardless of college readiness, enter directly into mathematics pathways aligned to their programs of study.
- 2) Students complete their first college-level math requirement in their first year of college.

Dana Center Principles for Pathways

Institutions and departments engage continuous improvement to ensure high-quality, effective instruction.

Students engage in a high-quality learning experience in math pathways designed so that:

- 3) Strategies to support students as learners are integrated into courses and are aligned across the institution.
- 4) Instruction incorporates evidence-based curriculum and pedagogy.

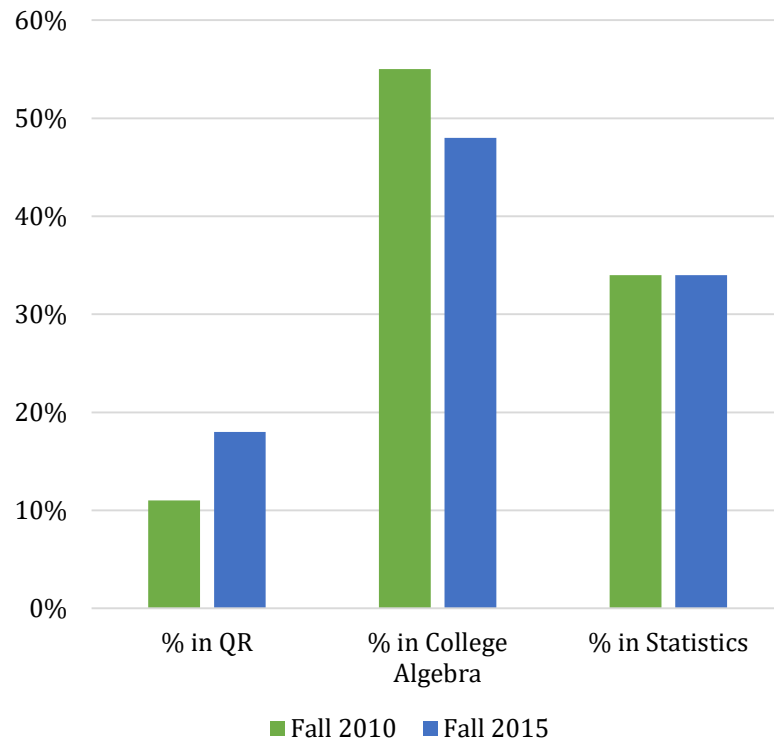
Mathematics Pathways in Michigan

Jackson College
April 13, 2018

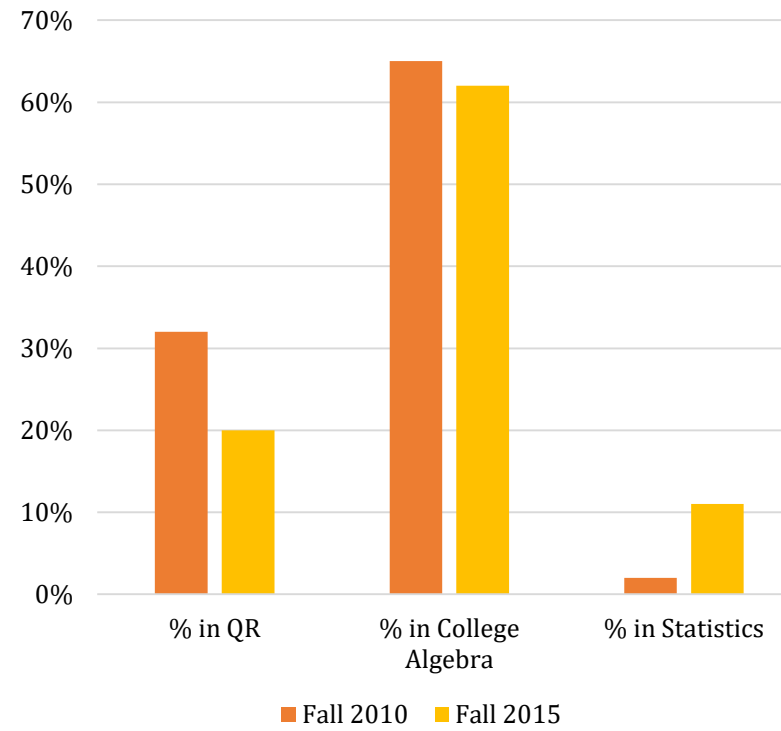


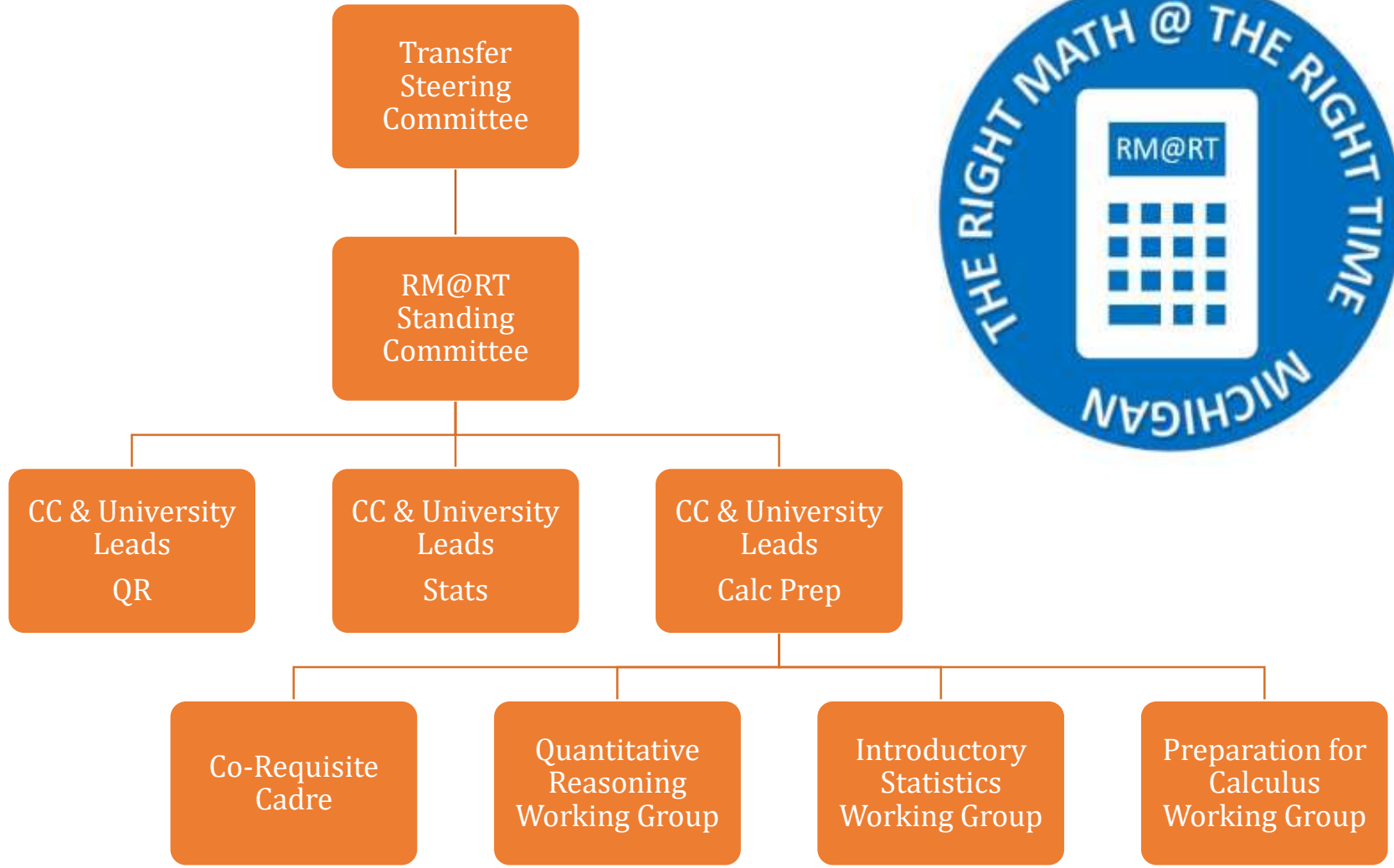
Pathways Enrollment Change 2010-2015

Community College Mathematics Enrollments



University Mathematics Enrollments





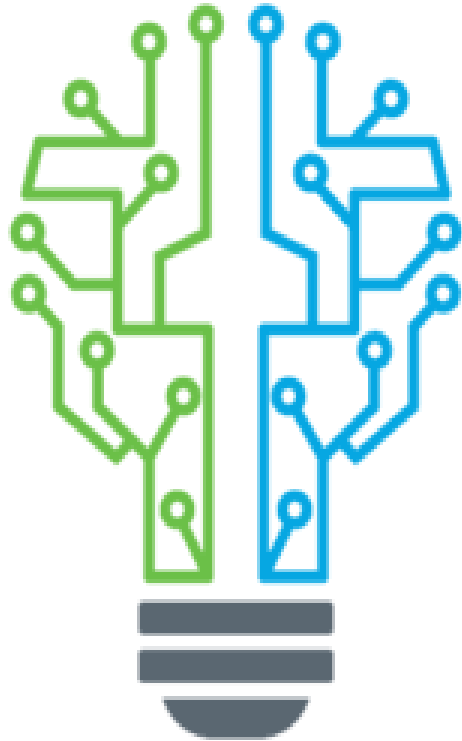


5 Recommendations

- **Strategy 1:** Establish a process to align learning outcomes for a set of introductory college level mathematics pathway courses across institutions and sectors.
- **Strategy 2:** Support program faculty and administrators within community colleges and universities in adopting appropriate mathematics pathway courses aligned with students' educational goals and programs of study.
- **Strategy 3:** Promote the widespread implementation of evidence-based approaches to increase the number of underprepared students who are successful in mathematics pathway courses.



Strategy 1: Align learning outcomes



- Leverage 2014 MTA Math Task force
- Working Groups for Quantitative Reasoning, Introductory Statistics and preparation for Calculus
 - 100+ Math Faculty from 17 community colleges and 9 universities
- [Recommended learning outcomes](#)
- *Adopt, Accept, Apply* framework



Quantitative Reasoning	University	Central Michigan University	Eastern Michigan University	Ferris State University	Grand Valley State University	Lake Superior State University	Michigan State University	Michigan State University	Michigan Technological University	Northern Michigan University	Oakland University	Saginaw Valley State University	University of Michigan-Ann Arbor	University of Michigan-Dearborn	University of Michigan-Flint	Wayne State University	Western Michigan University
		MTH 103QR	MATH 110	MATH 117	N/A	MATH 110	MTH 101	MTH 102	MA 1020	MA 101	MTH 1118	MATH 125	MATH 131	MTH 112	MATH 1000	MATH 1140	
Community College		MTH 103QR	MATH 110	MATH 117	N/A	MATH 110	MTH 101	MTH 102	MA 1020	MA 101	MTH 1118	MATH 125	MATH 131	MTH 112	MATH 1000	MATH 1140	
Alpena Community College	N/A																
Bay College	MATH 107	GEN CR	MATH 110	MATH 117		MATH 110			MA 1020	MA 103	MTH 1118			MTH 112		MATH 1140	
Delta College	MATH 118W	GEN CR	MATH 110	MATH 117		PER EVAL				MA 103	MATH 118			MTH 112		MATH 118	
Glen Oaks Community College	N/A																
Gogebic Community College	MTH 108		MATH 110		GEN CR	PER EVAL			MA 1020	GEN CR				MTH 112		MATH 1140	
Grand Rapids Community College	MA 124	GEN CR	MATH 110	MATH 117	GEN CR	MATH 102	MATH 103		MA 1020	GEN CR	MTH 1118	GEN CR		MATH 131	MTH 112	MATH 1140	
Henry Ford College	MATH 131	GEN CR	MATH 110	MATH 117	GEN CR	PER EVAL				GEN CR	GEN CR			MATH 131	MTH 112	MATH 1000	
Jackson College	MAT 130	GEN CR	MATH 110	MATH 117	MTH 131					MA 1001							
Kalamazoo Valley Community College	MATH 115	GEN CR	MATH 110	MATH 117							MATH 114			MATH 105S		MATH 1140	
Kellogg Community College	MATH 115	GEN CR	MATH 110	MATH 117	MTH 131					GEN CR				MTH 112		MATH 1140	
Kirtland Community College	MTH 12500		MATH 110	MATH 117	GEN CR					MA 101		GEN CR		MTH 112			
Lake Michigan College	MATH 123	GEN CR	MATH 110	MATH 117	GEN CR	PER EVAL	GEN CR			MA 101	GEN CR			MTH 112	GEN CR	MATH 1140	
Lansing Community College	MATH 119	MTH 103QR	MATH 110	MATH 117	GEN CR	PER EVAL	MTH 101			QUAR 1009N		GEN CR		MTH 112		MATH 1140	
Macomb Community College	MATH 1100	GEN CR	MATH 110		MTH 131	PER EVAL	GEN CR			QUAR 1009N	MTH 1118	GEN CR		MATH 131	MTH 112	MATH 1140	
Mid Michigan Community College	MAT 114	GEN CR	MATH 110	MATH 117	MTH 131		GEN CR		MA 1020	MA 101				MTH 112		MATH 1140	
Monroe County Community College	MATH 154	GEN CR	MATH 110	MATH 117	GEN CR					GEN CR	MTH 1118			MATH 131	GEN CR	MATH 1140	
Montcalm Community College	MATH 102	GEN CR	MATH 110	GEN CR	MTH 131	PER EVAL	GEN CR			MA 101	MTH 1118	GEN CR				MATH 1140	
Mott Community College	MATH 115	GEN CR	MATH 110	MATH 117			GEN CR			GEN CR	MTH 0662	GEN CR		MATH 165	MTH 111	MATH 1100	
Muskegon Community College	MATH 107A	GEN CR	MATH 110	MATH 117	MTH 131	GEN CR			MA 1020	QUAR 1009N	MATH 107			MTH 112	GEN CR	MATH 1140	
North Central Michigan College	MATH 128	GEN CR	MATH 110	MATH 117	GEN CR	PER EVAL				QUAR 1009N	GEN CR	GEN CR		MTH 112	GEN CR		
Northwestern Michigan College	MTH 120	GEN CR	MATH 110	MATH 117	GEN CR	PER EVAL		MTH 102				GEN CR	GEN CR	MTH 112	GEN CR	MATH 1140	
Oakland Community College	MAT 1525	GEN CR	MATH 110	MATH 117	MTH 131		MTH 101			QUAR 1009N	GEN CR	GEN CR		MATH 131	MTH 112	GEN CR	
Schoolcraft College	MATH 111	GEN CR	MATH 110	GEN CR		PER EVAL				GEN CR	GEN CR	GEN CR		MATH 131	MTH 112	GEN CR	
Southwestern Michigan College	MATH 128	GEN CR	GEN CR	MATH 117	GEN CR	GEN CR				GEN CR	GEN CR			GEN CR		MATH 1140	
St. Clair County Community College	MTH 104		GEN CR	MATH 117						QUAR 1009N	MTH 1118	GEN CR		GEN CR	GEN CR	MATH 1140	
Washtenaw Community College	MTH 125	GEN CR	MATH 110	MATH 117	MTH 131	PER EVAL				GEN CR	GEN CR	GEN CR		MTH 111	GEN CR		
Wayne County Community College District	MAT 135	MTH 103QR	MATH 110								GEN CR	GEN CR					
West Shore Community College	MTH 125	GEN CR	MATH 110	MATH 117	MTH 131									GEN CR		MATH 1140	

College Algebra		University	Central Michigan University	Eastern Michigan University	Ferris State University	Grand Valley State University	Lake Superior State University	Michigan State University	Michigan Technological University	Northern Michigan University	Oakland University	Saginaw Valley State University	University of Michigan-Ann Arbor	University of Michigan-Dearborn	University of Michigan-Flint	Wayne State University	Western Michigan University
	COURSE	MTH 107	MATH 105	MATH 116	MTH 122	MATH 111	MTH 103	MA 1030	MA 111	N/A	MATH 120A	MATH 104	MTH 111	MAT 1050	MATH 1110		
Community College	MTH 121	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 103		MATH 120A	MATH 104	MTH 111	GEN CR	MATH 1160		
Alpena Community College	MATH 110	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111				MTH 111	GEN CR	GEN CR		
Bay College	MTH 122W	MTH 107	MATH 105				MTH 103						MTH 111	GEN CR			
Delta College	MATH 151	MTH 107	MATH 105		MTH 122	MATH 111	MTH 103		MA 111			MATH 104	MTH 111	GEN CR	GEN CR		
Glen Oaks Community College	MTH 110	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A		MTH 111	GEN CR	MATH 1180		
Gogebic Community College	MA 110	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A	MATH 104	MTH 111	GEN CR	GEN CR		
Grand Rapids Community College	MATH 115	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A	MATH 104	MTH 111	GEN CR	GEN CR		
Henry Ford College	MAT 139	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111			MATH 104	MTH 111	GEN CR	MATH 1110		
Jackson College	MATH 150	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A	MATH 104	MTH 111	GEN CR	MATH 1110		
Kalamazoo Valley Community College	MATH 125	MTH 107	MATH 104	MATH 115	MTH 122	MATH 111	MTH 103	GEN CR	MA 111		MATH 120A	MATH 104	MTH 111	GEN CR	MATH 1110		
Kellogg Community College	MTH 13000	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103		MA 111		MATH 120A		MTH 111		MATH 1180		
Kirtland Community College	MATH 128	MATH 130	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 132A	MATH 104	GEN CR	GEN CR	MATH 1180		
Lake Michigan College	MATH 120	GEN CR	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030			MATH 120A	MATH 104	MTH 111	MAT 1500	GEN CR		
Lansing Community College	MATH 1415	MTH 107	MATH 105		MTH 122	GEN CR	MTH 103	MA 1030			MATH 120A	MATH 104	MTH 111	GEN CR	GEN CR		
Macomb Community College	MAT 107	MTH 107	MATH 105	MATH 115	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A		MTH 111		GEN CR		
Mid Michigan Community College	MATH 157	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A	MATH 104	MTH 111	MAT 1500	GEN CR		
Monroe County Community College	MATH 159	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A		MTH 111	GEN CR	MATH 1180		
Montcalm Community College	MATH 130	MTH 107	MATH 105	GEN CR		MATH 111	MTH 103	MA 1030	MA 111		MATH 120A	MATH 104	MTH 111	GEN CR	GEN CR		
Mott Community College	MATH 109	MTH 107	MATH 118	GEN CR	GEN CR	MATH 111	MTH 110	GEN CR	MA 103	MTH 1221	MATH 120B	MATH 104	MTH 111		MATH 1160		
Muskegon Community College	MATH 130	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A	MATH 105	MTH 111	GEN CR	GEN CR		
North Central Michigan College	MTH 121	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A	MATH 104	MTH 111	GEN CR	GEN CR		
Northwestern Michigan College	MAT 1540	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A	MATH 104	MTH 111	GEN CR	GEN CR		
Oakland Community College	MATH 126	MTH 107	MATH 105	GEN CR	MTH 110	MATH 111	MTH 103		MA 111		MATH 140	MATH 104	MTH 111	MAT 1500	GEN CR		
Schoolcraft College	MATH 127	MTH 107	MATH 105	MATH 115	MTH 122		MTH 103						MTH 111		MATH 1110		
Southwestern Michigan College	N/A																
St. Clair County Community College	MTH 176	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A	MATH 104	MTH 111	GEN CR	GEN CR		
Washtenaw Community College	MAT 155	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111	MTH 103	MA 1030	MA 111		MATH 120A	MATH 104	MTH 111	MAT 1500	GEN CR		
Wayne County Community College District	MTH 151	MTH 107	MATH 105	GEN CR	MTH 122	MATH 111		MA 1030	MA 111		MATH 120A		MTH 111	MAT 1800	MATH 1180		
West Shore Community College																	



Introductory Statistics	University	Central Michigan University	Eastern Michigan University	Ferris State University	Ferris State University	Grand Valley State University	Lake Superior State University	Michigan State University	Michigan Technological University	Northern Michigan University	Oakland University	Saginaw Valley State University	Saginaw Valley State University	University of Michigan-Ann Arbor	University of Michigan-Dearborn	University of Michigan-Flint	Wayne State University	Western Michigan University
	Course	STA 282QR	STAT 170	STQM 260	MATH 251	STA 215	MATH 207	STT 200	MA 2710	MA 171	STA 2220	MATH 132	MATH 132A	STAT 250	STAT 263	MTH 272	STA 1020	STAT 1600
Alpena Community College	MTH 233	STA 282QR	STAT 170		MATH 251	STA 215	MATH 207	STT 201	MA 2720	MA 171	STA 2220		MATH 132A		GEN CR	SCM 211	STA 1020	STAT 3660
Bay College	MATH 210	STA 282QR	STAT 170	STQM 260		STA 215	PER EVAL		MA 2710	MA 171	STA 2220					SOC 215	STA 1020	STAT 3660
Delta College	MTH 208W	STA 282QR	STAT 170		MATH 251			GEN CR	MA 2720	MA 171	STA 2220					SOC 215	STA 1020	
Glen Oaks Community College	MATH 201	STA 282QR	STAT 170		MATH 251	GEN CR									STAT 263	SOC 215	STA 1020	STAT 1600
Gogebic Community College	MTH 211	STA 282QR	STAT 170	STQM 260		STA 215	MATH 207	STT 200	MA 2710	MA 171	STA 2220	GEN CR				MTH 272	STA 1020	STAT 2160
Grand Rapids Community College	MA 215	STA 282QR	STAT 170	GEN CR		STA 215	PER EVAL	GEN CR	MA 2720	MA 171	STA 2220		MATH 132A		STAT 263	SCM 211	STA 1020	STAT 3660
Henry Ford College	MATH 141	STA 282QR	STAT 170		MATH 251	STA 215	MATH 207			MA 171	STA 2220		MATH 132A		STAT 263	SOC 215	STA 1020	STAT 3660
Jackson College	MAT 133	STA 282QR	STAT 170	GEN CR		STA 215	PER EVAL	GEN CR	MA 2720	MA 171	STA 2220	ECON 235			STAT 263	SOC 215	STA 1020	STAT 3660
Kalamazoo Valley Community College	MATH 220	STA 282QR	STAT 170	STQM 260		STA 215	PER EVAL	STT 200	MA 2710	MA 171	STA 2220		MATH 132A		STAT 263	SOC 215	STA 1020	STAT 3660
Kallogg Community College	MATH 130	STA 282QR	STAT 170		MATH 251	STA 215	PER EVAL	GEN CR	MA 2710	MA 171	STA 2220		MATH 132A		STAT 263	SOC 215	STA 1020	STAT 3660
Kirtland Community College	MTH 20600	STA 282QR	STAT 170		GEN CR	STA 215	PER EVAL	GEN CR		MA 171	STA 2220		MATH 132A			SCM 211	STA 1020	STAT 3660
Lake Michigan College	MATH 216	STA 282QR	STAT 170	STQM 260		STA 215	PER EVAL		MA 2710	MA 171	STA 2220		MATH 132A		STAT 263	SOC 215	STA 1020	STAT 3660
Lansing Community College	STAT 170	STA 282QR	SOCL 250*		GEN CR	STA 215	PER EVAL	GEN CR	MA 2720	MA 171	STA 2220		MATH 132A		GEN CR	SOC 215	STA 1020	STAT 3660
Macomb Community College	MATH 1340	STA 282QR	STAT 170			STA 215	PER EVAL	GEN CR	MA 2720		STA 2220		MATH 132A		STAT 263	SCM 211	STA 1020	STAT 3660
Mid Michigan Community College	MAT 212	STA 282QR	STAT 170		MATH 251	STA 215	PER EVAL		MA 2720	MA 171	STA 2220		MATH 132A		GEN CR	SOC 215	STA 1020	STAT 3660
Monroe County Community College	MATH 162	STA 282QR	STAT 170	STQM 260		STA 215	PER EVAL		MA 2720	MA 171	STA 2220	ECON 235			GEN CR	SCM 211	STA 1020	STAT 3660
Montcalm Community College	MATH 190	STA 282QR	STAT 170	STQM 260		STA 215	PER EVAL		MA 2710	MA 171	STA 2220		MATH 132A			SOC 215	STA 1020	GEN CR
Mott Community College	MATH 150	STA 282QR	STAT 170		GEN CR		PER EVAL	STT 200	MA 2720	MA 171	STA 2220		MATH 132A		STAT 263	SCM 211	STA 1020	STAT 3660
Muskegon Community College	MATH 115	STA 282QR	STAT 170		GEN CR	STA 215	PER EVAL	GEN CR	MA 2720	MA 171	STA 2220	GEN CR			GEN CR	SCM 211	STA 1020	STAT 3660
North Central Michigan College	STAT 200	STA 282QR	STAT 170	STQM 260		STA 215	PER EVAL	STT 200	MA 2710	MA 171	STA 2220	ECON 235			GEN CR	SOC 215	STA 1020	STAT 3660
Northwestern Michigan College	MTH 131	STA 282QR	STAT 170	STQM 260		STA 215	PER EVAL	GEN CR	MA 2720	MA 171	STA 2220	ECON 235			GEN CR	MTH 272	STA 1020	STAT 3660
Oakland Community College	MAT 1580	STA 282QR	STAT 170	STQM 260		STA 215	PER EVAL		MA 2720	MA 171	STA 2220		MATH 132A		STAT 263	SCM 211	STA 1020	STAT 3660
Schoolcraft College	MATH 122	STA 282QR	STAT 170	GEN CR		STA 215	PER EVAL	GEN CR	MA 2710	MA 171	STA 2220		MATH 132A		STAT 263	SOC 215	STA 1020	STAT 3660
Southwestern Michigan College	MATH 150	STA 282QR	STAT 170	STQM 260		STA 215	PER EVAL		MA 2720	MA 171	STA 2220		MATH 132A			SCM 211	STA 1020	STAT 3660
St. Clair County Community College	MTH 120	STA 282QR	STAT 170		MATH 251	STA 215	PER EVAL	GEN CR	MA 2720	MA 171	STA 2220		MATH 132A		STAT 263	SCM 211	STA 1020	STAT 3660
Washtenaw Community College	MTH 160	STA 282QR	STAT 170		MATH 251	STA 215	PER EVAL		MA 2720	MA 171	STA 2220		MATH 132A		STAT 263	SOC 215	MAT 2210	STAT 3660
Wayne County Community College District	MAT 131	STA 282QR	STAT 170	STQM 260		STA 215	PER EVAL	GEN CR	MA 2720	GEN CR	STA 2220	GEN CR			GEN CR	SOC 215	STA 1020	STAT 3660
West Shore Community College	MTH 123	STA 282QR	STAT 170	STQM 260		STA 215	PER EVAL	GEN CR	MA 2710	MA 171	STA 2220		MATH 132A			SCM 211	STA 1020	STAT 3660



Strategy 2: Adopt math pathways in programs



- Work closely with MiTransfer Pathways Project ([Video link](#))
 - CC and University Math Leads for each pathway
- Faculty Transfer Summit May 18
 - 28 community colleges and 15 public universities participating
- Pathway Briefs and other resources in development



Strategy 3: Evidence-based approaches for underprepared students

- Create a learning community willing to pilot co-requisite support for math pathway courses
 - Webinars
 - Online Resources
 - Professional Development Grants



Follow our Progress

mirightmath.org



mitransfer.net



Key Advising Practices*

- Every new student is helped to explore career/college options, choose a program of study, and develop a full-program plan as soon as possible.
- Special supports are provided to help academically unprepared students to succeed in the “gateway” courses for the college’s major program areas—not just in college-level math and English.
- Students enroll in math courses that are appropriately aligned with the student’s field of study.
- Intensive support is provided to help very poorly prepared students to succeed in college-level courses as soon as possible.

*CCRC Scale of Adoption for Guided Pathways Practices, 2017



Discussion Questions

1. What are your key concerns related to Michigan's RM@RT strategies?
2. How are students currently supported in choosing math courses at your institution?
3. What changes would be needed to adopt some of the key practices described in this presentation?



NACADA



<https://www.nacada.ksu.edu/Resources/Pillars/CoreCompetencies.aspx>

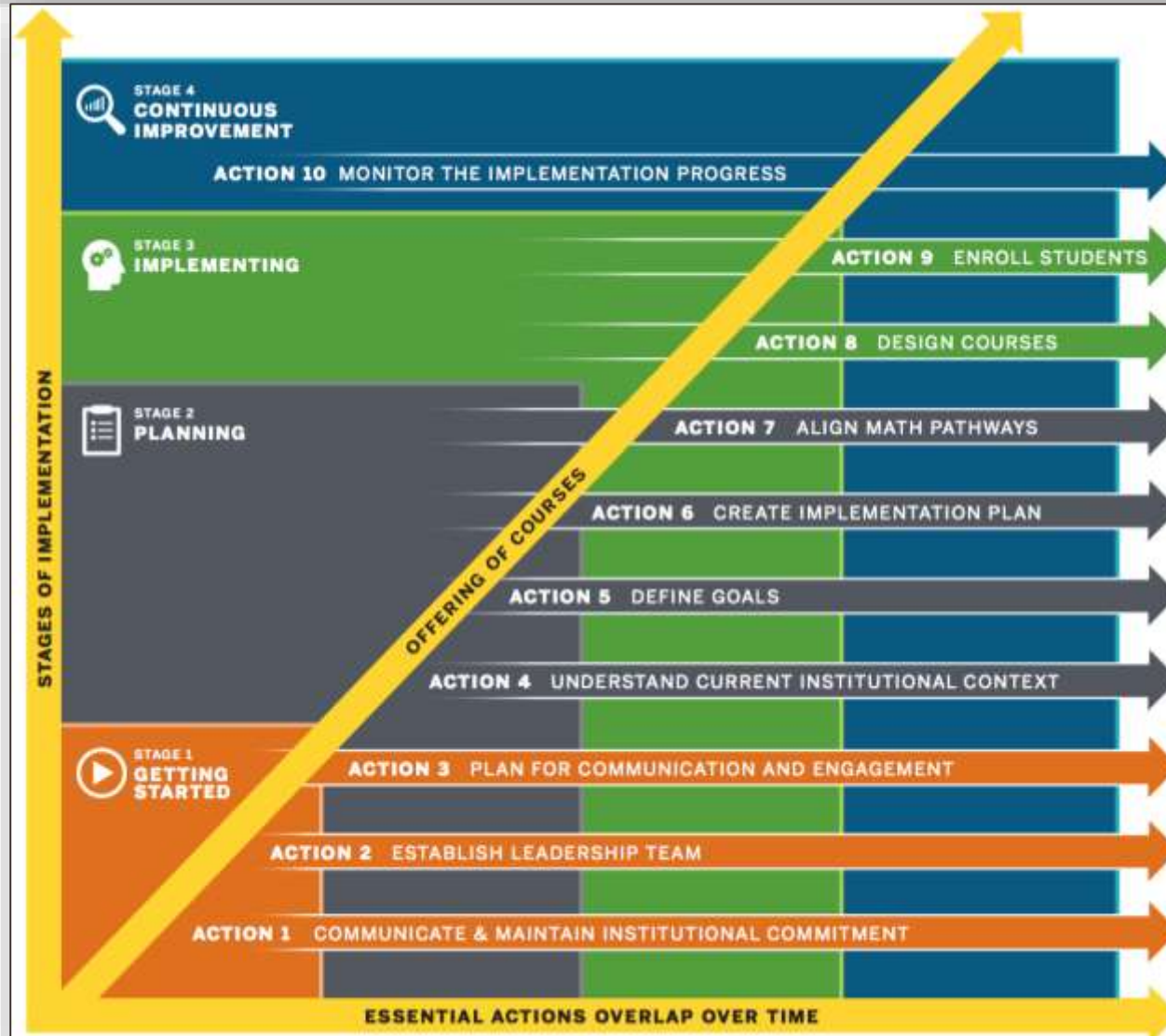
Implementation: A Broad Framework

<u>Stage of Implementation</u>	<u>Description</u>
Getting Started	Commitment and leadership.
Planning	Collect and review data to define problem, establish goals, and create a plan.
Implementing	Carry out the plan.
Continuous Improvement	Evaluate and improve.

Implementation: Getting to Details

- **Essential Actions** – the “must-dos”
- Institutions determine what else is needed or important to their situation or students.

Institutional Implementation Process



Institutional Implementation Process

Stage 1: Getting Started

- Identify key administrative leaders.
- Clarify resources.
- Establish structures for consistent communication and engagement to and from institutional leadership.



Institutional Implementation Process

Stage 2: Planning

- Establish your own advising group to establish a communication plan.
- Establish how information will be presented to the advising community.
- Discuss benefits for students.
- Plan how to present information to students.



Institutional Implementation Process

Stage 3: Implementation

- Work with faculty on alignment of math pathways to majors.
- Establish how students select a pathway and how advisors assist.

Stage 4: Continuous Improvement

- Identify, examine, and discuss data improve student enrollment.



Institutional Implementation Process

Where is your institution in the process?

Team discussion (10 min):

1. Review the Essential Actions.
2. Has your institution started any of these actions?
3. How has advising been engaged in that work?



Advising Inventory Tool

Dana Center
Mathematics
PATHWAYS

Advising Inventory Tool*

* This tool was adapted with permission from the *Achieving the Dream, Student Experience Discovery Inventory*.

Instructions: With your institutional team, complete the following inventory to:

- Enable your team to understand the current state of awareness of and communication about mathematics pathways;
- Identify ways to improve mechanisms that ensure all stakeholders are aware of mathematics pathways; and
- Ensure timely and effective implementation and communication about mathematics pathways to students.

Advisor Knowledge of Mathematics Pathways					
Elements of Implementation	Yes	No	What is the ideal design? What additional information do you need to answer this?	What institutional-level challenges or obstacles need to be addressed?	What are the next steps needed to move towards the ideal advising mathematics pathways design?
Do advisors at your institution know about mathematics pathways?					
If advisors know about mathematics pathways, have they been trained on the curriculum and why the change was implemented?					
Communication Plan					
Elements of Implementation	Yes	No	What is the ideal design? What additional information do you need to answer this?	What institutional-level challenges or obstacles need to be addressed?	What are the next steps needed to move towards the ideal advising mathematics pathways design?
Do you have a communication plan for advisors and stakeholders regarding mathematics pathways?					
Do you have a communication					

Collaborations Between 2- and 4-year Institutions

- Two-Year and Four-Year Advising
 - Shared responsibility
 - Understanding each other's process
 - Cultural change
 - Sharing information across institutions and with K-12
 - Curricular change on prospective campus