

*“For the things of the world cannot be made known without a knowledge of mathematics.”*

Roger Bacon, 13<sup>th</sup> century philosopher

Issue 1, February 2015

*“Ohio’s ability to compete and to win in the 21<sup>st</sup> century’s global economy depends on its citizens’ capacity to succeed in jobs that require advanced knowledge and skills – the kinds of jobs that are available only to those who have earned a bachelor’s degree, associate degree, or a postsecondary certificate with value in the marketplace. The Ohio Mathematics Initiative recognizes that the mathematical sciences give students the quantitative tools, logical reasoning, and analytic and problem-solving skills that define a highly qualified and competitive workforce.”*

**John Carey**  
Chancellor  
Ohio Board of Regents

## Mathematics Chairs/Leads Network begins implementation of math education reforms

1. *What’s a “college-level” mathematics course?*
2. *Should prescribed pre-requisite Ohio Transfer Module (OTM) requirements be removed for acceptance into the OTM Mathematics, Statistics and Logic?*
3. *Should credit hour requirements be removed from OTM courses with learning outcomes?*
4. *Should OTM Guideline 4 be revised to focus on learning outcomes instead of variable topics?*

These are the issues that members of the Mathematics Chairs/Leads Network grappled with as they began the task of implementing the recommendations of the Ohio Mathematics Steering Committee. Their search for consensus involved lots of discussion. But it also was guided by **listening** to campus administrators, faculty members and the Ohio Articulation and Transfer Oversight Board and Advisory Council.

Part of the Network’s listening was facilitated by a survey of all 36 University System of Ohio (USO) institutions conducted last year by the Ohio Articulation and Transfer Network. The survey results confirmed a widespread perception of the need for change. For example, more than 90% of all USO institutions agreed that the prescribed pre-requisite requirement should be removed from OTM gateway courses as a condition for acceptance into the

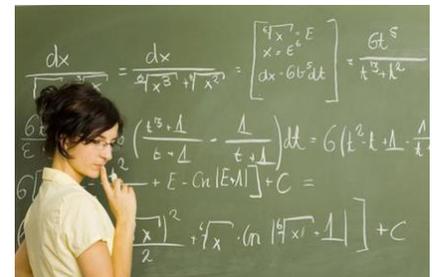
OTM. Similarly, the survey revealed strong consensus – more than 80% - on what constitutes a college-level math course.

At its January 23, 2015 meeting, the Chairs/Leads Network endorsed the changes identified in questions two through four above. In addition, the Network endorsed the following definition of a college-level course:

*“A credit-bearing, college-level course in mathematics must use the standards required for high school graduation by the State of Ohio as a basis and must do at least one of the following: (1) broaden, (2) deepen or (3) extend the student’s learning.”*

Network members were told they could begin submitting non-OTM approved courses immediately. The next submission deadline is March 13, 2015. The Fall submission deadline is the first week of October.

These are important first steps in turning the Steering Committee’s recommendations into action that benefits students, the mathematics community and the state of Ohio.



# From deliberation to action: important steps taken to create stronger pathways through college-level mathematics

Early in 2013, Ohio education policy leaders began a series of conversations about postsecondary mathematics education. Their sessions were shaped, in part, by four issues facing higher education in Ohio and across the nation: college and university students are taking too long to graduate; students accumulate more credits than required for their degrees; too many students are required to take remedial classes; and too few students complete their degree or certificate programs.

These conversations culminated in the Ohio Mathematics Summit, a statewide meeting of USO mathematics faculty, where 150 participants from all 36 USO institutions examined student persistence issues, concerns with the Ohio Transfer Module (OTM) Mathematics, Statistics and Logic guidelines, and the likely consequences of the state's adoption of new secondary mathematics standards.

After the Summit, the Ohio Board of Regents convened the Ohio Mathematics Steering Committee, comprised of 12 mathematics faculty from USO institutions, five ex-officio members and Regents staff. After nine months of work, the Committee issued its final report and recommendations – a comprehensive roadmap for mathematics education reform.\*

\*To read the Committee's report, see <https://ohiohighered.org/sites/ohiohighered.org/files/uploads/math/Math-FINAL.pdf>



Too much time



Too many credits



Diverted into Remediation



Not graduating

Most of the responsibility for implementing the Committee's recommendations lies with the mathematics department chairpersons and their colleagues in the state's public colleges and universities. Yet, they will have the support of the Chairpersons/Leads Network, an emerging statewide mathematics community and the Ohio Board of Regents.

## Ohio's mathematics reform agenda

1. Develop high-quality entry-level courses and pathways
2. Promote the effective transfer of course credits
3. Build an Ohio mathematics community with the capacity to identify and scale up best and promising practices
4. Collect, analyze and share data relating to the effectiveness of postsecondary mathematics programs and practices
5. Align secondary and postsecondary mathematics content and instruction

## Ohio Mathematics Community

Change demands leadership, particularly when that change requires concerted action by individuals, organizations and systems that lack a strong history of collective endeavor. So work has begun on building an Ohio mathematics community capable of overcoming the difficulties associated with transformational reform – and of helping all stakeholders understand and accept the state's change strategy.

The mathematics community is a statewide effort. It includes the USO chairs/leads and faculty, but also campus administrators, postsecondary faculty whose students need mathematics for success, secondary faculty, and business and industry leaders who are seeking employees with mathematical and analytical reasoning skills.

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as **COMMUNITY**

# Ohio is leading the nation in college-level mathematics reform

Ohio's leadership in the transformation of postsecondary mathematics education was confirmed with its selection as one of six states to participate in a two-year ***Building Pathways into Programs of Study initiative*** directed by Complete College America (CCA) and the Charles A. Dana Center at the University of Texas-Austin. Funded by the Lumina Foundation, the initiative is designed to dramatically increase the percentage of students who pass gateway mathematics courses and enter programs of study in one academic year by building multiple pathways into and through college-level mathematics. The other states in the project are Colorado, Indiana, Missouri, Montana and Nevada.

In announcing Ohio's selection, CCA's Bruce Vandal said, "Complete College America recognizes the outstanding work in Ohio to create stronger pathways through college-level mathematics into programs of study at all of their postsecondary institutions. We applaud the work of the Ohio Board of Regents and the dedicated faculty and other postsecondary leaders at Ohio's institutions that are dedicating many hours to this work to ensure that more Ohio students can successfully complete the gateway math courses that are most appropriately aligned to their desired program of study." Vandal continued:

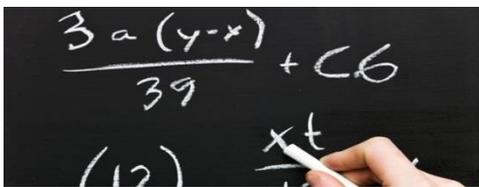
***"The work done to date in Ohio is leading the nation. Many other states aspire to the goals of the Ohio initiative and the accomplishments achieved by Ohio leaders will provide a blueprint for other states and postsecondary institutions. "***

According to Dr. Stephanie Davidson, Vice Chancellor of the Ohio Board of Regents, the project is built on educators' realization that neither STEM nor non-STEM students are well served by traditional mathematics gateway courses. Through this multi-state initiative, she said Ohio's education policy leaders will work closely with postsecondary institutions to develop or revise college-level math courses so that they are aligned with the skills and knowledge students need to be successful in their chosen programs of study.

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as **COMMUNITY**

## Ohio Mathematics Initiative (OMI) Subgroups

Day by day, five OMI subgroups are working to turn the words in the Steering Committee's report into a concrete action.



**SAVE THE DATE**

## OHIO STUDENT SUCCESS SUMMIT

*Defining Mathematics Pathways*

April 24, 2015  
Columbus, Ohio

**Details to come.**

### **Subgroup 1: New and alternative pathways**

**CHARGE:** Explore new and alternative college-level mathematics pathways for students with diverse programs of study, and provide co-requisite strategies to students for whom a full sequence of remedial courses would be counter-productive.

This panel has launched a survey to identify pathways and co-requisite strategies already being used by USO institutions. The spring months will be spent reviewing survey results and developing a pathways structure with clear statewide guidelines so everyone knows which class a student should take for his/her course of study. In addition, it will work with Subgroup 2 to create a set of learning outcomes for a college-level quantitative literacy/quantitative reasoning (QL/QR) course.

### **Subgroup 2: Revision of the Ohio Transfer Module (OTM) criteria**

**CHARGE:** Redesign OTM course criteria and processes to focus on student learning outcomes; increase departmental flexibility in determining pre-requisite courses and credit hour requirements for OTM courses; and define what distinguishes a course as "college-level."

The OTM panel has developed proposals for four changes to the OTM Mathematics, Statistics, Logic criteria, all of which have been endorsed by the USO Chairs/Leads Network. (see page 1 of this newsletter)

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## **Mathematics Chairpersons/ Leads Network**

### **New & Alternative Pathways**

Jeff Zeager  
Lorain County Community College

Patrick Dowling  
Miami University

Leah Dickinson  
Ohio Board of Regents

Paula Compton  
Ohio Board of Regents

### **Redesigning OTM Criteria & Defining “College-Level” Course**

Ricardo Moena  
University of Cincinnati

Hideo Tsuchida  
Ohio Board of Regents

### **Communication & Outreach**

Michelle Younker  
Terra State Community College

Paul Hewitt  
University of Toledo

Michelle Blaney  
Ohio Board of Regents

### **Data Collection/Analysis/Sharing**

Richard Uchida  
Sinclair Community College

Krista Maxson  
Shawnee State University

Stephanie McCann  
Ohio Board of Regents

### **Alignment between Secondary & Postsecondary Content & Instruction**

Serita McGunia  
Cuyahoga Community College

Andrew Tonge  
Kent State University

Rebecca Watts  
Ohio Board of Regents

Brian Roget  
Ohio Department of Education

### **Representative on the Ohio Articulation and Transfer Network Oversight Board**

David Meel  
Bowling Green State University

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Based on the endorsed definition of a college-level course by the Chairs/Leads Network, Subgroup 2 will turn its attention to the remaining OTM guidelines and discuss the next steps for its Phase II work, as well as understand further about the high school graduation standards in the coming months.

#### **Subgroup 3: Communication, outreach and engagement**

**CHARGE:** Improve communication among mathematics faculty and stakeholders across institutions; encourage and promote faculty participation in professional group meetings; and engage the larger mathematics community by disseminating information from the various OMI subgroups.

Subgroup 3 is building a network of individuals to make presentations about the OMI on campuses and at events across the state. To request an OMI presentation, fill out the form at [www.ohiohighered.org/content/ohio\\_mathematics\\_initiative\\_resources](http://www.ohiohighered.org/content/ohio_mathematics_initiative_resources). In addition, voiceover presentations about the initiative and the national/state data driving the changes are being prepared. And materials that communicate the work of the various subgroups – and the issues being addressed by the OMI – are being developed.

#### **Subgroup 4: Data collection, analysis and sharing**

**CHARGE:** Develop quality measures for improving student success in mathematics; then collect, analyze and share relevant data.

Subgroup 4 and the Ohio Board of Regents are looking at data pertaining to the transfer module courses to examine student performance. The subgroup is exploring opportunities to recruit graduate students to help with data mining and analysis, and subgroup members plan to review restricted Ohio Higher Education Information (HEI) system queries to familiarize themselves with available state-level data.

#### **Subgroup 5: Alignment between secondary and postsecondary content and instruction**

**CHARGE:** Conduct national scan of best and promising practices designed to align secondary and postsecondary content and instruction; plan and host an Ohio Student Success Summit; study the effects of Ohio’s Remediation-Free Standards and the impact of institutional strategies to address these standards; and conduct regional meetings and workshops to generate ongoing conversations among secondary and postsecondary faculty, as well as state education policy leaders, about aligning K-12 and higher education curricula and policies, preparing and equipping new and existing math teachers, and building infrastructure to accomplish this work.

Subgroup 5 broadened its perspective by expanding its membership to include high school mathematics faculty. Subgroup members have completed a review of current Ohio high school graduation requirements and secondary to postsecondary alignment work under way in Ohio. The group discussed challenges and common issues in high school and college mathematics settings, including the following: the use of technology in classes and homework; design of fourth-year high school courses; expectations for student learning; and strategies for addressing the ways students learn mathematics.