



**The Ohio Articulation and Transfer Network (OATN)
Ohio Mathematics Initiative (OMI) Chairs/Leads Network Meeting**

Friday, October 30, 2020

WebEx Virtual Meeting

10:00 am to 1:00 p.m.

Present: Lee Wayand, Brad Findell, Luis Casian, Anna Cannelongo, Ricardo Moena, Karl Hess, Cosmin Roman, Michelle Younker, Jim Fowler, Andrew Tonge, Steven MacEachern, Monica Delgado, Sandy Siegrist, Brian Murphy, Ivan Soprunov, Stephanie Stafford, Greg Goodhart, Robert Raupach, Blerta Ereditario, Tyler Maley, Paddy Dowling, Sara Rollo, Arunasalam Rahunanthan, Martin Mohlenkamp, Andrea Faber, Elizabeth Bonawitz, Phil Blau, Aaron McClure, David Redett, Jean Lafont, Kevin Kreider, Geoffrey Martin, Marianna Doolittle, Kelly Stady, Joni Mavis, Ayse Sahin, Tom Wakefield, and Brian Roget

ODHE/OATN Staff: Stephanie Davidson, Krista Maxson, Paula Compton, Zoe Woodbury, Candice Grant, Jessi Spencer, Jared Shank, Michelle Blaney, and Mitch Wilson

I. Welcome and Introductions

Dr. Luis Casian, Dean of Natural and Mathematical Sciences at The Ohio State University (OSU), welcomed the Chairs/Leads Network to the fall statewide meeting.

II. Updates from Faculty Subgroup One

Mr. Karl Hess, Chair of Mathematics at Sinclair Community College and Dr. Cosmin Roman, Associate Professor of Mathematics at The Ohio State University, provided updates that the subgroup has been discussing the possibility of creating a co-requisite version of Pre-Calculus. They have also discussed the possibility of a two-course sequence that blends the topics of Pre-Calculus and Calculus I into a built-in co-requisite format. Dr. Casian added that The Ohio State University has been piloting a similar format recently that has been quite successful. The subgroup will continue working on a Pre-Calculus co-requisite and invite those across the state working with Pre-Calculus pilots to provide additional information to assist with progression.

III. Updates from Faculty Subgroup Three

Ms. Michelle Younker, Chair of Mathematics at Owens Community College and Dr. Jim Fowler, Associate Professor of Mathematics at The Ohio State University provided Ms. Younker discussed a collaboration with OATN and the subgroup that presented OMI updates on a statewide Transfer Talk Tuesday webinar. The subgroup also sponsored a discussion of online formats for teaching Mathematics in response to remote delivery of courses and meeting the needs of students in the remote environment. The subgroup also held a statewide webinar open to all in the Mathematics community that focused on Quantitative Reasoning (QR) in the virtual environment. Subgroup 2 QR members led

the presentation. Ms. Younker went on to describe that the co-leads of Subgroup 3 were invited by the Ohio Department of Education (ODE) to participate in an Algebra 2 Equivalent Advisory Council Meeting. The crux of this discussion focused on providing more clarity on postsecondary learning outcomes and course expectations to secondary instructors to assist with bridging gaps between high school and college. The subgroup concluded by announcing they are currently collecting ideas for additional webinars and a form is available for institutions to request Subgroup 3 to speak about progress of the OMI.

IV. Update from Faculty Subgroup Five

Dr. Lee Wayand, Associate Professor of Mathematics at Columbus State Community College and Dr. Brad Findell, Associate Director of Mathematics Programs for Teachers at The Ohio State University provided an update on alignment between secondary and post-secondary mathematics. Dr. Wayand discussed that now there are multiple pathways within postsecondary education and multiple pathways within secondary, it is more complex to know where the bridges between the two are located. Given the increased complexity, the subgroup has decided to reorganize and re-envision itself. The reorganized subgroup consists of 2-year faculty, 4-year faculty, and high school instructors. A meeting was held with the subgroup where discussion focused on increasing communication and information from both secondary and postsecondary members, including but not limited to courses and expectations with plans to host additional webinars and meetings in the future. Dr. Findell added with postsecondary institutions and high schools working on similar projects, each side can learn from the other ultimately involving and bettering all across the state.

V. Updates from Faculty Subgroup Two

Dr. Ricardo Moena, Assistant Department Head and Professor of Mathematical Sciences at the University of Cincinnati provided an update on several new courses in the Ohio Transfer 36 (formerly the Ohio Transfer Module). There have been course learning outcomes announced for Technical Mathematics I and II, and for Mathematics for Elementary Education I and II. There is a new set of mathematics learning outcomes out for statewide endorsement for a course in Discrete Mathematics. Coming soon, the subgroup is planning to send Calculus for Life Science I and II out for statewide endorsement. This subgroup is also developing learning outcomes for Data Science. The subgroup is being very careful with developing these outcomes and is gathering input from faculty in a broad variety of disciplines. There may be a need for faculty development to teach the Data Science course.

Dr. Steve MacEachern, Department Chair of Statistics at The Ohio State University provided an update to the Chairs/Leads Network about the Data Science course that is under development. A working group has been tasked with putting together a general education style course. The group has been debating between prerequisite vs

corequisite with the consensus being that a corequisite is a more effective model. The group has a draft of learning outcomes that will be put before the larger subgroup sometime soon to obtain feedback and find out whether the outcomes are realistic in the different environments people have across the state. Members of the group have different backgrounds, including Statistics, Mathematics, Computer Science, and Political Science. The group is very conscious of the fact that a Data Science course could look very different depending on the background of who puts the course together. The goal is to find outcomes that work broadly across multiple areas within institutions. They are looking at computing, understanding background of data, prediction, and ethics. There are two implementation issues with the Data Science course. First, there is debate over the appropriate computing platform, mainly R and Python. Next, the subgroup has not found a suitable textbook that closely aligns with the course. The course may need to be piloted in different regions around the state to obtain feedback on the draft learning outcomes.

VI. Update on Algebra 2 Course Equivalencies

Dr. Krista Maxson Associate Vice Chancellor of P- 16 Initiatives at the Ohio Department of Higher Education and Ms. Anna Cannelongo, Education Program Specialist - Education at the Ohio Department of Education (ODE) provided updates on the Strengthening Ohio's High School Math Pathways Initiative, which centers around Algebra 2 course equivalencies. The initiative has an advisory council with representation from the Ohio Mathematics Initiative. There is also an architect's group with participation from Subgroup 5 and others from the Chair's/Leads Network. The advisory council is creating a position statement of support for the pathways, continuing to discuss equity, and mapping out communication plans. A major key to success is communication about what is happening at the high schools and the post-secondary institutions. Information sharing needs to occur between mathematics faculty, postsecondary advisors, secondary school counselors, and administrators. The architect's group, which deals with the systems and structures of the mathematics, is working to create a concise definition of "rigor." Their carefully crafted definition states, "Students use mathematical language to effectively communicate their strategies with clarity and precision. Students explain how, when and why their reasoning is appropriate, thereby answering the question, 'How do we know?'" The group has also developed an accompanying chart that shows what rigor looks like in the classroom.

Ms. Cannelongo discussed an additional update from the Data Science group. This group recommends for the Data Science Foundations course to be part of Algebra 2 Equivalency as a third-year course. The pilot is planned for fall 2021. There are various Algebra 2 Equivalency pathways. ODE does not expect schools to offer all the pathways. The expectation is that schools will choose a pathway or two that makes the most sense for their students. If the courses are equally rigorous, then the pathways will be

considered equitable across schools. ODE still wants all schools to offer a re-designed Algebra 2 as the calculus-based pathway. There are individual work groups for each one of the Algebra 2 equivalent courses. The Mathematics, Modeling, and Reasoning course, which is the high school level Quantitative Reasoning course, was originally developed to be a fourth-year transition course. It is being modified to become the Algebra 2 equivalent course for the quantitative reasoning pathway. The rigor will be increased with additional Algebra 2 equivalent content. The workgroup is looking specifically at including less linear functions and more advanced functions; more advanced statistical concepts; greater ACT/SAT alignment; more financial lessons; and integrating an Excel credential. There is also a discrete mathematics course under development. Lastly, ODE mentioned a call for higher education collaborators. Numerous members of the Chairs/Leads Network have served as higher education collaborators for Quantitative Reasoning. ODE is looking for additional collaborators for the upcoming year.

VII. The Ohio State University Outreach Program Update

Ms. Monica Delgado, Associate Director of Outreach at The Ohio State University and Dr. Claire Merriman, Ross Assistant Professor at the Ohio State University, representatives from the leadership committee of the Ohio Statewide Math Outreach Project provided an update. Numerous institutions nominated representatives for the Outreach Group. The Outreach Group has had a few meetings and a leadership committee has been formed. The leadership committee created a draft document outlining an initial goal and some broad steps needed to accomplish that goal. The intent is to share the draft document with the Outreach Group for feedback. The central goal drafted by the leadership committee is to increase the presence of underrepresented groups in mathematics higher education. In order to achieve that goal, they propose to accomplish the following objectives:

- Create a network of Ohio higher education institutions in mathematics doing outreach
- Create connections between higher education mathematics faculty and K-12 teachers and students
- Engage K-12 students with mathematics and expose them to mathematics they may not see in the classroom, including applications
- Promote mathematics research opportunities for high school and undergraduate mathematics students
- Establish more inclusive environments in mathematics departments
- Increase community awareness of what mathematics is and what mathematicians do.

The leadership committee also intends to explore and measure the extent to which underrepresented groups are absent from research careers in mathematics. They hope

this will help them to better determine where to begin, as well as garner support from institutions and other relevant entities.

VIII. Strong Start to Finish Update

Dr. Thomas Sudkamp, Vice Chancellor of Academic Affairs at the Ohio Department of Higher Education discussed that the Strong Start to Finish (SSTF) initiative consists of 12 universities and 18 community colleges with the goal of increasing completion of gateway Mathematics and English courses and addressing the achievement gap in course completion. There were four priorities or official goals agreed to by participating institutions:

1. Ensuring that clearly structured programs of study exist for all majors;
2. Aligning redesigned gateway mathematics and English courses to all programs of study;
3. Implementing co-requisite remediation at scale in mathematics and English;
4. Building advising structures to ensure all students register for coursework in sequences to meet the goal.

To date, the initiative has had two rounds of Campus-Level Action and Success Supports (CLASS) grants of \$19,000 for institutions that support activities unique to each institution that align with the SSTF goals. The project is supposed to conclude at the end of March 2021; however institutions have been provided an extension until May 31, 2021. SSTF also holds semi-annual convenings to share research and collaborate with colleagues. The fall 2020 convening was held in mid-October.

Dr. Sudkamp went on to state that the SSTF has a few working groups referred to as Implementation Forums. The Forums consist of practitioners from around the state who are reviewing available research and making recommendations. There was also a supplemental grant that allowed 120 faculty (50 in mathematics) to participate in the Association of College and University Educators (ACUE) Effective Teaching Program, which is a workshop for faculty teaching corequisite/gateway courses.

In addition, Dr. Sudkamp mentioned that there are multiple upcoming activities for the SSTF initiative. Starting in spring 2021 they will be joined by Complete College America who will provide research, workshops, and direct institutional support for development and refinement of co-requisite courses. Starting in the fall 2020 and going into spring 2021 there is the Motivate Lab, which is a series of webinars on incorporating growth mindset, purpose and relevance, and sense of belonging into curriculum. Lastly, there is a collaboration with the ODHE, Ohio Association of Community Colleges, Inter-University Council of Ohio, and colleges and universities from across the state to form an Ohio College Professional Development Consortium to share faculty professional development opportunities across the

state and provide faculty with an endorsement in inclusive teaching. This is a pilot year for the program.

IX. Informing your Campus About Mathematics Changes Discussion

Dr. Wayand concluded meeting updates with an open discussion on informing campuses about mathematics changes statewide. In this section, there was a discussion about the mathematics pathways such as Quantitative Reasoning and potentially a new Data Science pathway. It may be time for a coordinated statewide effort to get students out of College Algebra and into the new pathways that have been created. Advisors and counselors are not going to advise students to take these other courses without assurances that they will transfer and apply to programs at 4-year institutions. Some of this work is being done as part of the Ohio Guaranteed Transfer Pathways (OGTP). The new mathematics pathways are being included for the majors associated with the OGTP. One of the barriers has been the inclusion of prerequisites on the pathway courses at some institutions. A plan needs to be developed to identify problem areas in the implementation of mathematics pathways and ideas for future direction within the STEM-Prep pathway as it pertains to College Algebra.

X. For the Good of the Order

Those in attendance held a brief discussion regarding ACT/SAT versus a placement test for determining mathematics course placement. Dr. Casian recommended that the discussion be tabled for a future statewide OMI Chairs/Leads Network meeting. Dr. Moena added the importance of a future discussion regarding cheating within a virtual format.

XI. Adjournment

Dr. Casian concluded the meeting by thanking attendees for participating followed by meeting adjournment.