2016 National Mathematics Summit Workshop Sessions

Redesign Models

Developmental Math: An Individualized Approach
NADE
Denise Lujan

Winner of the Texas Higher Education Coordinating Board Star Award in 2014, the Developmental Math Department takes a holistic approach to working with students in multiple ways on individualized paths. First, all developmental course work is based upon differentiated placement and individualized instruction. Second, because of the individualized path of students we can create unique programs that provide an opportunity for students to complete their work, including a summer bridge, a two-week extension, and flexibility within the semester to work with students on a one-on-one basis. Third, our traditional fall and spring classes feature policies, practices, and initiatives to increase success.

AMATYC New Life Dev Math Project, Mathematicians, and the New Curriculum in Mathematics
AMATYC
Jack Rotman

The AMATYC New Life Project is in use at over 100 institutions, with an emphasis on faculty effectively teaching good mathematics designed to truly prepare students, in an accelerated model. This work connects to evolving curricula in quantitative reasoning, introductory statistics, and the pre-calculus courses at colleges and universities. Long-term progress in education builds on professional resources, develops continuity, and creates a deep network of connections; the New Life Project is a part of this fabric that is building a new mathematics curriculum in colleges. Come to see the new dev math curriculum, and understand why hundreds of math faculty are enthusiastic.

Data Collection and Assessment of Redesign

Maxima, Minima, and Points of Inflection: My Journey in the World of Mathematics Education
AMATYC and MAA
April Ström

In this presentation, I will focus on sharing my professional journey that has transformed my approach to the teaching and learning of mathematics. I will highlight my research in cognition and I will discuss how focusing on meaningful mathematical practices facilitates students' thinking and understanding. I will also share my experiences as a Principal Investigator for an NSF-funded project focused on professional development and research in middle grade mathematics.

Math Faculty: The Time is Now to Engage in Research
NADE, AMATYC, and MAA
Julie Phelps

Sharing real experiences to improve community college education in mathematics. The focus will be on how research has informed ways to improve student engagement, help students develop a growth mindset, improve students' self-efficacy, and increase students' value of mathematics to facilitate their motivation to learn mathematics.

But did it work? Measuring Outcomes for Redesign
NADE
Rebecca Goosen

How do we measure outcomes for the new redesign? This session will provide information for planning the assessment process including writing measureable outcomes, identifying key markers for success, and

Integrating Math Study Skills into the Classroom, Modular and Emporium Model: Strategies for Success

Paul Nolting and Rochelle Beatty

Institutions have or are now changing their math curriculum as a result of the national math redesign movement which requires students to become independent and effective learners. However, they have not be taught how to study math especially in Emporium/modular environments which can represent 41% of their math grade. This workshop focuses on motivating students and teaching them how to read, take notes, complete homework, take test, reduce procrastination, reduce test anxiety when using online/classroom resources and tests.

Transforming Mathematics Education, Transforming Lives

Carnegie Foundation

Rachel Mudge, Cinnamon Hillyard, Nicole Gray

Institutions around the country have partnered with the Carnegie Foundation as part of the Statway and Quantway initiatives to reshape what and how students learn mathematics. The results have been remarkable, with roughly three times as many students completing their developmental and college level credits in half the time, compared to the traditional sequence. We will explore the facets of the Pathways program including building a faculty network and supporting instruction.

Briefing on Developmental Math: Implications of Designs for Change

AMATYC

Jack Rotman, Paula Wilhite Jane Tanner, and Linda Zientek

This panel discussion will address the latest issues of developmental math reform including consequences of recent state-required mandates. Members of the panel representing AMATYC have all been in prominent roles of leadership advocating for effective and sustainable change in developmental mathematics.

formulas for determining return on investment (ROI) plus an opportunity to begin to create your college's own assessment plan.

Growing What Works: Taking Successful Mathematic Redesign to Scale

NADE

Rebecca Goosen

How do you take a successful pilot to scale? This session will examine the steps necessary to take a successful pilot to scale for an institution. Consideration will be given to financial impact at the institution, program capacity, the comprehensive nature of the redesign in meeting state mandates, and does the pilot provide enough information to take to scale.

Policy Changes Everywhere! What Can Mathematics Faculty Do?

NADE, AMATYC, and MAA

Julie Phelps

Suddenly, the nation is paying attention to the 'need' for developmental education (particularly in mathematics) and we are being asked to make big changes VERY quickly. How are mathematics faculty and departments responding to state mandates while maintaining the quality of mathematical content?

Inviting All Voices Into Redesign Strategies For Positive Change
Success = 3(Data) + 2(Self-Study) + 1(Theory)

NADE

Jane Neuburger

Come for a quick overview of how the ***brand new*** NADE Accreditation cycle provides a blueprint, an on-campus process, and (optional) consultants to assist your administrators, your entire redesign team, your institutional research office, and the faculty and staff responsible for implementing changes in both learning assistance and coursework programs.

Strategies to Improve Success for Online Math Students

Fitzroy Farquharson and Paul Nolting

Institutions are offering more online math courses, however the success rates are usually lower than classroom courses due to readiness and students' learning skills. This interactive presentation discusses how to measure online student readiness and provide learning support. The learning support can be in six areas including math study skills, organization, academic readiness and computer usage.

Implementing Course Redesigns: Curriculum Options and Measuring Effect

AMATYC

Linda Zientek, Kathleen Almy, Jennifer Dorsey, Nancy Stano, and Paula Wilhite

This presentation will focus on the implementation of several course redesigns, with a focus on curriculum redesigns that focus on real-world concepts and collaborative learning. The importance of measuring effects on student performance and non-cognitive factors will be discussed.

Redesigning Math Pathways: Critical Issues to Consider

Dana Center

Amy Getz and Monette McIver

Implementing math pathways requires a shift in perspective away from thinking about discrete courses and towards strategically building a coherent and meaningful learning experience across courses. Through its work with colleges, the Dana Center has identified critical issues and milestones in the process. These findings will be shared with participants for discussion.

Re-envisioning Pathways to and through College Math

NADE

Saundra King

Discussion of three pathways designed to improve alignment of degree program math requirements to program learning outcomes; facilitate student learning and success in the workplace or transfer institution; and to better prepare students who demonstrate remedial math needs for the math requirement of their programs. This session will focus on the development and success of the new pathways.

A Common Vision for the Undergraduate Math Program in 2025: Our Role

AMATYC and MAA

Julie Phelps and April Ström

The Mathematical Association of America (MAA) funded by the NSF has partnered with the American Mathematical Association of Two-Year Colleges (AMATYC), the American Mathematical Society (AMS), the American Statistical Association (ASA), and the Society of Industrial and Applied Mathematics (SIAM) to consider how we might modernize our programs to better prepare students for the demands of the 21st century workplace. The presenters will explain the plans to catalyze widespread adoption of curricula and pedagogies that are (1) geared toward developing a broad base of intellectual skills and competencies to better prepare students for the workforce and (2) simultaneously endorsed by a broad cross-section of the mathematical sciences community.

Exploring the Carnegie Pathways Lessons and Interventions

Carnegie Foundation

Rachel Mudge, Cinnamon Hillyard, Nicole Gray

The Carnegie Foundation has brought together researchers and practitioners to collectively address the challenge of getting more students to successfully complete their college mathematics requirements. Together we have built a comprehensive solution that provides a new structure, engaging curriculum, unique pedagogy and integrated support for the non cognitive factors that impact student success. These Pathways, Quantway™ and Statway™ , have seen unprecedented success. In this workshop, we will explore the different components of these pathways including working through a sample lesson USING INNOVATIVE PEDAGOGY AND discussing the successful routines for promoting student engagement.

Making Developmental Math Rigorous and Relevant

Dana Center

Connie Richardson

The goal of math pathways is to increase student success in math courses AND to improve the learning experience with rigorous and relevant content. In this session, participants will explore how to identify the right content for redesigned developmental courses and design a course that develops deep conceptual understanding, problem solving and reasoning skills.

SREB Math Ready: Preparing High School Students for College Math

NADE and SREB

John Squires

The Southern Regional Education Board has developed Math Ready to address the readiness gap in mathematics. This course is being implemented by over 1000 high schools around the nation to better prepare students for college math before they graduate. In several states, higher education is partnering with high schools to reduce the number of high school graduates needing remediation when they enter college.

How We Got Here and What Should We Do About It?

NCDE

Hunter Boylan and Barbara Illowsky

Session 1: Why did we have a reform movement and what has it done?

Session 2: What do we do now?

The movement to reform developmental math has been under way for at least the past five years. It is now time to look at what that movement has accomplished and consider next steps. Although much of the data are preliminary, it appears that more students are passing remedial math and completing college math courses with various small pilot projects. On the whole, however, the increase is not dramatic and the reform movement has not moved the needle very far. Participants are welcome to attend both or either session.

Lessons From and For Our Partner Disciplines

MAA

Chris Oehrlein

Our developmental mathematics courses need to prepare students for more than just the next math course. Colleagues teaching science and business rely on developmental mathematics to provide the mathematical foundation for their courses as well. What exactly do partner disciplines expect, and what can we learn from courses and colleagues in those disciplines?