PROJECT NExT

NEW EXPERIENCES IN TEACHING

2013-2014 FELLOWS

Workshop held in Portland, OR August 2014

A program of

THE MATHEMATICAL ASSOCIATION OF AMERICA

Major funding is provided by

THE MARY P. DOLCIANI HALLORAN FOUNDATION

and additional support by

THE EDUCATIONAL ADVANCEMENT FOUNDATION
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The ExxonMobil Foundation was a founding sponsor (from 1994 to 2011).

We gratefully acknowledge their support.

Project NExT (New Experiences in Teaching) is a professional development program of the Mathematical Association of America for new or recent Ph.D.s in the mathematical sciences who are interested in improving the teaching and learning of undergraduate mathematics. It addresses the full range of faculty responsibilities in teaching, research, and service.

Project NExT: New Jobs, New Responsibilities, New Ideas Program for the Workshop in Hartford, CT July - August 2013

The Project NExT registration area will be in the Ballroom Foyer on the Ballroom Level of the Hilton Portland hotel.

All events are in the Hilton Portland hotel.

TUESDAY, AUGUST 5

8:00 - 10:00 pm Social Event for 2013-2014 and 2014-2015 Project NExT Fellows and

Presenters - Grand Ballroom I

10:00 pm - ? (optional) INFORMAL SOCIALIZING

WEDNESDAY, AUGUST 6

8:15 - 9:30 am TWO concurrent sessions

A. 8:15 am - 9:30 am Where is the Money? Grants Accessible to Junior Faculty

Forum Suite, 3rd floor

Panelists: Charles Toll, National Security Agency, MD

Chad Topaz, Macalester College, MN

Judy Walker, University of Nebraska-Lincoln, NE Lee Z. Zia, National Science Foundation, VA

Applying for grants is a complicated and sometimes unsuccessful endeavor, even for experienced faculty. As junior faculty, we are often not well-informed about opportunities and are keen to learn from senior faculty who have had success in receiving grants. In this panel, programs and grant opportunities that are accessible to junior faculty will be discussed. In addition, key components of, as well as common trends in, successful grant applications will be examined.

Organizers:

Alicia Prieto Langarica, Youngstown State University Shirley Law, Washington College Marco V. Martinez, North Central College Lori Ziegelmeier, Macalester College

B. 8:15 am – 9:30 am Independent Study Courses

Galleria II, Ballroom Level

Panelists: Sloan Despeaux, Western Carolina University, NC

Michael Dorff, Brigham Young University, UT

Gizem Karaali, Pomona College, CA

Kendall Williams, United States Military Academy, NY

Independent study courses provide students with the opportunity to extend their mathematical knowledge in topics that fall outside the scope of formal courses while working individually with faculty. The purpose of this panel is to provide ideas for choosing topics which are suitable for this kind of course, and to discuss the details involved with running them. The panel will discuss defining course structure, assessing student progress, designing a syllabus, and preparing other course materials.

Organizers: William Abram, Hillsdale College

Malena Espanol, University of Akron Daniel Moseley, Jacksonville University Carmen Wright, Jackson State University

9:35 – 10:05 am BREAK – Grand Ballroom I

10:10 - 11:25 am TWO concurrent sessions

A. 10:10 – 11:25 am Strategies for Improving Recruitment and Retention of

Mathematics Majors

Forum Suite, 3rd floor

Panelists: Tina Garrett, St. Olaf College, MN

Jennifer McLoud Mann, University of Washington Bothell, WA

Ron Taylor, Berry College, GA Robert Vallin, Lamar University, TX

Strategies for improving recruitment and retention of mathematics majors is an important part of keeping our departments active and vibrant; administration also appreciates both these activities. While we hope to recruit and retain students by revealing the beauty of mathematics, this is not an easy task nor does it work for all students. We focus on a variety of methods from activities to build a community to strategies for sharing the many potential career paths outside of academia and the advantages of mathematics to engineers, chemists, business majors, etc. Our goal is to equip faculty with ideas for encouraging students to become mathematics majors or minors and giving tips on ways to organize and fund these events.

Organizers: Cesar Aguilar, California State University Bakersfield

Ashley Johnson, University of North Alabama

Ashley Rand, Bethany Lutheran College

Elizabeth Ribble, Metropolitan State University of Denver

B. 10:10 am - 11:25 pm Transitioning to Research in Mathematics Education, Teaching, and Learning

Galleria II, Ballroom Level

Panelists: Stuart Boersma, Central Washington University, WA

Paul Coe, Dominican University, IL

Angie Hodge, University of Nebraska at Omaha, NE Mary Shepherd, Northwest Missouri State, MO

Four panelists from varying research backgrounds will present insights and reflection into their transitions to, and subsequent work, in Mathematics Education Research or Scholarship of Teaching and Learning (SoTL). Transitioning research can be difficult, especially when changing to a new field. Participants can expect to gain a better idea of what math education research and SoTL are, as well as guiding resources to help become acquainted with the fields. The goal of this panel is to provide attendees information about starting research in math education, working in SoTL, or taking their current pedagogical research in a new direction. Participants should leave with ideas of where to look for information on current topics and resources to begin their own research.

Organizers: Susan Crook, Loras College

Kathleen Grace Kennedy, Wentworth Institute of Technology

Melissa Tolley, Wingate University

11:30 am - 12:15 pm Small Group Discussions with other Project NExT Fellows

(This session is organized by area of research. Please attend the group that best fits your research interests.)

Group A: Algebra, group theory, topological groups, linear algebra –

Directors Suite, 3rd floor

Group B: Commutative rings and algebras, algebraic geometry –

Council Suite, 3rd Floor

Group C: Geometry, topology, manifolds – Forum Suite, 3rd floor

Group D: Mathematics education, probability, statistics –

Studio Suite, 3rd floor

Group E: Combinatorics - Galleria I, Ballroom Level

Group F: Analysis, dynamical systems, ergodic theory, numerical analysis

- Galleria II, Ballroom Level

Group G: Applied mathematics, operations research –

Galleria III. Ballroom Level

Group H: Number theory, logic – Parlor A, Ballroom Level

Group I: Differential equations - Parlor B, Ballroom Level

Group J: Mathematical Biology – Parlor C, Ballroom Level

12:15 - 1:30 pm LUNCH – Grand Ballroom I

1:35 - 2:50 pm TWO concurrent sessions

A. 1:35 pm - 2:50 pm Incorporating Real-World Applications into Calculus and

Statistics Courses

Forum Suite, 3rd floor

Panelists: Brian Gill, Seattle Pacific University, WA

Jessica Libertini, Virginia Military Institute, VA Leigh Lunsford, Longwood University, VA Aaron Wootten, University of Portland, OR

Using real-world applications in calculus and statistics stimulates student interest by demonstrating the relevancy of the subject matter. However, finding appropriate applications to use as part of a lecture or a learning activity can be a daunting task. Real-world applications for use during lectures can be too lengthy and may require background knowledge that students do not possess. Assigning application-based projects may not take up class time, but such projects require at least as much planning and structure. This panel discussion aims to provide Fellows with methods for successfully incorporating real-world applications into calculus and statistics courses without the applications taking up too much class or prep time. Panelists will provide ideas and resources for applications, methods of incorporation, and other tips and tricks they have learned along the way.

Organizers: Yanping Ma, Loyola Marymount University

Kristin McCullough, Grand View University

Jen Miller, Trinity College

Matthew Moynihan, The College of Wooster

B. 1:35 pm - 2:50 pm Methods for Teaching an Introduction to Proofs Class

Galleria II, Ballroom Level

Panelists: Susanna Epp, DePaul University, IL

Martin Flashman, Humboldt State University, CA

Carolyn Yackel, Mercer University, GA

An introduction to proofs course can be a critical time in a student's mathematical career. Well-run courses show students how fun and creative mathematics can be while also making them aware of and developing their skills in the rigor, precision, and clarity mathematical writing requires. Panelists will discuss methods they have used for fostering deep understanding and mathematical creativity in introduction to proofs classes, including problem-based approaches, inquiry-based learning, and other active learning approaches. They will also discuss their strategies for avoiding common problems, such as either feeding students too much information or making them so frustrated that they cannot move forward. The panel will provide faculty, especially those who are teaching introduction to proofs courses for the first time, with ideas for how to support their students' mathematical development.

Organizers: Taylor Martin, Sam Houston State University

Matt Davis, Muskingum University Evelvn Lamb, University of Utah

Emma Wright, Plymouth State University

3:25 - 3:55 pm BREAK – Grand Ballroom I

3:55 - 5:25 pm Closing Session – Grand Ballroom II

Recognition of 2013-14 Fellows

Presentation: Finding Your Niche in the Profession Joseph Gallian, University of Minnesota Duluth

6:00 - 8:00 pm Mathfest Grand Opening Reception, Portland Hilton, Exhibit Hall

Attendance by both cohorts of Project NExT is expected at this event, which will have complimentary hors d'oeuvres and a cash bar. Please be there before 6:30 pm, when Project NExT Fellows will be recognized.

8:00 pm - ? (optional) INFORMAL SOCIALIZING

THURSDAY AND FRIDAY, AUGUST 7 AND 8

Project NExT Courses During Mathfest: Four-hour courses meeting in the Portland Hilton on Thursday and Friday, August 7 and 8.

- A. Visualizing Mathematics through GeoGebra and Other Software Barbara D'Ambrosia, John Carroll University, 1 3 pm, **Skyline 3, 23rd floor**
- B. *Undergraduate Research How to Make It Work* Aparna Higgins, University of Dayton, 1 3 pm, **Skyline 1, 23rd floor**
- C. Teaching Mathematics Courses for Future Teachers Dale Oliver, Humboldt State University, 1 - 3 pm, Skyline 4, 23rd floor
- D. *Teaching Introductory Statistics* Carolyn Cuff, Westminster College, PA, 3:15 5:15 pm, **Skyline 4, 23rd floor**
- E. (THU) Getting your Research off to a Good Start Joe Gallian, University of Minnesota Duluth; (FRI) Applying for Grants from the National Science Foundation Karen Marrongelle, Portland State University, both days 3:15 5:15 pm, **Skyline 1, 23rd floor**
- F. Why, What, & How! Everything you Need to Know about Incorporating Sustainability into Mathematics Courses Thomas J. Pfaff, Ithaca College, 3:15 5:15 pm, **Skyline 3**, 23rd floor

We thank brown13 Fellows (2013-14 Project NExT Fellows) Susan Durst, University of Arizona, and Nathan Reff, State University of New York, Brockport, for coordinating the sessions organized by the brown13 Fellows.
