

PROJECT NExT
NEW EXPERIENCES IN TEACHING
2012-2013 FELLOWS

Workshop held in Hartford, CT
July - August, 2013

A program of

THE MATHEMATICAL ASSOCIATION OF AMERICA

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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 third floor foyer of the Hilton Hartford hotel.

All events are in the Hilton Hartford hotel, unless otherwise noted.

TUESDAY, JULY 30

8:00 - 10:00 pm Social Event for 2012-2013 and 2013-2014 Project NExT Fellows and Presenters – **Grand Ballroom Center**

10:00 pm - ? INFORMAL SOCIALIZING

WEDNESDAY, JULY 31

8:15 - 9:30 am TWO concurrent sessions

A. 8:15 am - 9:30 am *Advising Required Senior Projects and Year-Long Thesis Projects*
Connecticut Salons A&B

Panelists: Dan Daly, Southeast Missouri State University, MO
John Cullinan, Bard College, NY
Sonya Stanley, Samford University, AL
Karlolyne Fogel, California Lutheran University, CA

In recent years there has been a growing emphasis placed on requiring students to participate in a senior project. At many institutions, the purpose of such projects is not necessarily for new mathematical results, but rather to culminate the undergraduate academic experience of the individual students. Due to the varying abilities of the participating students, the limited amount of time that a student has to work on the project, and the demands on the advisor's schedule, successfully advising a senior capstone project is a formidable challenge, especially for young faculty. While there are many ways to facilitate such an experience, this session will focus on "capstone" courses and independent student research. In this panel, we address strategies to not only successfully complete a required senior project, but to also make the senior project rewarding for both the student and the advisor. Panelists will discuss a variety of issues including techniques for guiding students, structuring capstone courses, choosing appropriate topics, working with students of varying abilities, adhering to a timeline, and final assessment of the students.

Organizers: Branden Stone, Bard College and BPI
Thomas Wears, Longwood University
Elizabeth Weaver, Indiana University Southeast
Gwyneth Whieldon, Hood College

B. 8:15 am – 9:30 am *Service Writing*

Ethan Allen

Panelists: Amy Cohen, Rutgers University, NJ
Boris Hasselblatt, Tufts University, MA
Deanna Haunsperger, Carleton College, MN
Rick Gillman, Valparaiso University, IN

While mathematicians dedicate a good deal of time to producing scholarly works and grant proposals, we also frequently find ourselves writing recommendations for students, statements for departmental assessment, and in general, writing documents as a service to others. Such service writing is an important part of faculty members' responsibilities to their students, department, institution and the mathematical community. This panel aims to provide early career faculty with helpful tips on service writing. In particular, we address how to best determine which projects to undertake in order to remain efficient as well as effective. Panelists from diverse backgrounds and institutions will discuss their experiences and perspectives on writing course and department objectives, recommendations for students, and reviews for articles, or books.

Organizers: Ellen Goldstein, Northwestern University
Pamela Harris, United States Military Academy
Tiffany Kolba, Valparaiso University
Jun-Koo Park, Houghton College

9:35 – 10:05 am **BREAK – Grand Ballroom Center**

10:10 - 11:25 am **TWO** concurrent sessions

A. 10:10 – 11:25 am *Flipped Classrooms*

Connecticut Salons A&B

Panelists: Rachel Levy, Harvey Mudd College, CA
Jeremy Strayer, Middle Tennessee State University, TN
Elizabeth Stepp, The University of Texas at Austin, TX
Ron Taylor, Berry College, GA

Recently there has been increased interest in “flipping” or inverting mathematics courses by having students preview content before attending class so class time can be spent discussing and solving problems. Questions naturally arise about student preparation for class, the types of problems students work in class and student accountability. This panel will discuss the pedagogical strategies for teaching a flipped course as well as the design, implementation and assessment of flipped courses. In addition, we will discuss the different configurations for flipped courses, the development and refinement of course materials, and strategies for student accountability.

Organizers: Brandy Doleshal, Sam Houston State University
Stacy Hoehn, Franklin College
Nathan Karst, Babson College
Larissa Schroeder, University of Hartford

B. 10:10 am - 11:25 pm *How to Make Peer Learning and Small Groups Work in Class*

Ethan Allen

Panelists: Neil Davidson, University of Maryland, MD
Matt DeLong, Taylor University, IN
Carol Schumacher, Kenyon College, OH

Collaborative learning can be very effective in mathematics courses, but it can also be challenging to implement successfully. The panelists will discuss their experiences using in-class group work, addressing the advantages and disadvantages of various approaches, how to structure courses using these approaches, and day-to-day logistical matters.

Questions to be discussed include: How can in-class group work be incorporated into courses of various levels and sizes? What can be done to increase the likelihood that students buy in to the approach being used? What is the best way to form groups? How can an instructor best manage group work in class and deal with problems that arise? What is the best way to assess students on the basis of in-class group work? What else can be done to maximize the effectiveness of a collaborative approach to student learning?

Organizers: Jodi Black, Bucknell University
Janine Janoski, King's College
Joel Louwsma, University of Oklahoma
Seth Meyer, St. Norbert College

11:30 am - 12:15 pm Small Group Discussions with other Project NExT Fellows (This session is organized by approximate geographical proximity. Please go to the room that lists the MAA Section in which you will be employed in 2013-14. See information sheets for your MAA Section.)

Group A – Connecticut Salon A

Sections: Intermountain, Golden, Southern California/Nevada, and Pacific Northwest (AB, AK, CA, HI, ID, MT (except zips 59715-59717), NV, OR, UT, WA).

Group B – Connecticut Salon B

Sections: Kansas, Nebraska/SE South Dakota, North Central, and Rocky Mountain (CO, KS, MB, MN, MT (zips 59715-59717), ND, NE, SD, WY)

Group C – Connecticut Salon C

Sections: Louisiana/Mississippi, Oklahoma/Arkansas, Southwestern, Texas (AR, AZ, LA, MS, NM, OK, TX)

Group D – Nathan Hale – North

Sections: Illinois, Iowa, Missouri (IL, IA, MO)

Group E – Nathan Hale – South Sections: Indiana, Wisconsin (IN, WI)

Group F – Saratoga A (6th floor)

Sections: Allegheny Mountain, Kentucky, Michigan, Ohio (KY, MI, OH, PA (zips 15000-16899), WV)

Group G – Silas Deane

Sections: Florida, Southeastern (AL, FL, GA, NC, PR, SC, TN, VI)

Group H – Mark Twain

Sections: EPaDel, Maryland/DC/Virginia, New Jersey (DC, DE, MD, NJ, PA (zips 16900-19699), VA)

Group I - Saratoga B (6th floor)

Sections: Metro New York, Seaway (NY, ON, QC)

Group J – Hartford Commons

Sections: Northeastern (CT, MA, ME, NB, NF, NH, NS, PE, RI, VT)

12:15 - 1:30 pm LUNCH – **Grand Ballroom West**

1:35 - 2:50 pm **TWO** concurrent sessions

A. 1:35 pm - 2:50 pm *Facilitating Good Group Projects*
Connecticut Salons A&B

Panelists: Aaron Swain, United States Military Academy, NY
Beth Chance, California Polytechnic State University, CA
Susan Ruff, Massachusetts Institute of Technology, MA
Gavin LaRose, University of Michigan, MI

Group projects can be synergistic opportunities for students to learn mathematics while honing communication and teamwork skills, or they can result in procrastination, unclear expectations, and uneven student responsibility. How can we as faculty members promote students' learning and effective teamwork on projects outside of class? This panel will focus on group projects involving substantial student work outside of class, for courses whose goal is to teach a specific mathematical curriculum. Panelists will discuss how to identify topics for good group projects at various levels of mathematical sophistication, ranging from first-year non-majors to senior math majors; how to scaffold and grade group projects; how to encourage students to work together cohesively throughout the term; and other aspects of facilitating good group projects.

Organizers: Abra Brisbin, University of Wisconsin, Eau Claire
Yuting Hsu, Pennsylvania State University Harrisburg
Johann Thiel, United States Military Academy
Joel Vaughan, Quinnipiac University

B. 1:35 pm - 2:50 pm *Teaching Introductory Courses with Under-Prepared and/or Math-Anxious Students*
Pyle DE335

Panelists: Karen Morgan Ivy, New Jersey City University, NJ
Bernard Madison, University of Arkansas, AR
Andrew Perry, Springfield College, MA
Laura Taalman, James Madison University, VA

Instructors face two common challenges in teaching introductory courses. First, they must ensure that students have sufficient background knowledge to apply old concepts in new contexts. Second, they must manage any math anxiety that often plagues students as a result of this lack of comfort with old material or as a result of some negative past experiences with math. Both of these challenges may require significant time to address, further challenging the instructor to balance these time demands with the content demands of the course. In this session, the panel will discuss strategies for efficiently and effectively identifying and addressing under-preparedness and math anxiety in order to maximize student engagement and success.

Organizers: Caitlin Cunningham, Le Moyne College
Sarah Marsh, Oklahoma Baptist University
Katie Morrison, University of Northern Colorado
Victor Piercey, Ferris State University

- 3:25 - 3:55 pm** **BREAK – Grand Ballroom West**

- 3:55 - 5:25 pm** **Closing Session – Grand Ballroom East and Center**
 Recognition of 2012-13 Fellows
 Presentation: *Finding Your Niche in the Profession*
 Joseph Gallian, University of Minnesota Duluth

- 6:00 - 8:00 pm** **Mathfest Grand Opening Reception (open to all attendees of Mathfest),
 Level 6, Connecticut Convention Center**

- 8:00 pm - ?** **INFORMAL SOCIALIZING**

THURSDAY AND FRIDAY, AUGUST 1 AND 2

Project NExT Courses During Mathfest: Four-hour courses meeting in the **Hartford Marriott Downtown** on Thursday and Friday, August 1 and 2. [See information for assignments.]

- A. *Getting your research off to a good start (Part 1) and Applying for Grants from the National Science Foundation (Part 2)* – Joe Gallian, University of Minnesota Duluth, 1 - 3 pm, **Capital Room 1**
- B. *Undergraduate Research—How to Make It Work* – Aparna Higgins, University of Dayton, 1 - 3 pm, **Capital Room 2**
- C. *What? You want me to teach the introductory statistics course?* – Robin Lock, St. Lawrence University, 1 - 3 pm, **Capital Room 3**
- D. *Teaching Liberal Arts Mathematics Courses* – Dale Buske, St. Cloud State University, 3:15 - 5:15 pm, **Capital Room 1**
- E. *Teaching Math Content Courses for Future K-8 Teachers* – Judith Covington, Louisiana State University Shreveport, 3:15 - 5:15 pm, **Capital Room 2**
- F. *Using Technology for Effective Teaching* – Doug Ensley, Shippensburg University, 3:15 - 5:15 pm, **Capital Room 3**

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We thank silver12 Fellows (2012-13 Project NExT Fellows) David Clark, University of Minnesota – Math CEP, and Courtney Davis, Pepperdine University, for coordinating the sessions organized by the silver12 Fellows.

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