

PROJECT NExT
NEW EXPERIENCES IN TEACHING
2007-2008 FELLOWS, MADISON, WI

A program of

THE MATHEMATICAL ASSOCIATION OF AMERICA

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**2007-2008 Project NExT Fellows
Madison Program, July – August, 2008**

The Project NExT registration area is in the Upper Lounge in Lowell Center on the campus of the University of Wisconsin, Madison.

TUESDAY, JULY 29

8:00 - 10:00 pm Social Event for 2007-08 and 2008-09 Project NExT Fellows and presenters
Ogg Hall

10:00 pm - ? INFORMAL SOCIALIZING

WEDNESDAY, JULY 30

7:00 - 8:30 am BREAKFAST – **Gordon Commons** (for those staying in the dorm)

8:15 - 9:30 am **TWO** concurrent sessions

A. *Recruiting mathematics majors for your institution*
Pyle 235

Panelists: Deanna Haunsperger, Carleton College
Glenn Hurlbert, Arizona State University
Steve Kennedy, Carleton College
Tom Sibley, St. John's University

Identifying, recruiting and retaining interested students is crucial to the vitality of a mathematics department. The panelists will give short presentations on effective techniques for encouraging students to study mathematics. The panelists are mathematicians in departments which have had success both in enrolling self-identified mathematics majors and in cultivating an interest for further study in students already enrolled at their institution. There will be time for questions and discussion following the presentations.

Organizers: Sarah Crown, Denison University
Theron Hitchman, University of Northern Iowa
Brent Strunk, University of Louisiana at Monroe
Phil Yates, Cal Poly Pomona

WEDNESDAY, JULY 30 (cont'd)

8:15 - 9:30 am B. *Introducing innovative teaching methods into established courses*

Pyle 335

Panelists: Martha Allen, Georgia College & State University
Julia Barnes, Western Carolina University
Ron Taylor, Berry College

Discovery learning and other innovative hands-on and cooperative methods are frequently employed in electives and bridge courses, but can also be used effectively in core-curriculum classes. This panel will discuss choosing teaching techniques other than lectures for classes with established curricula, and integrating these approaches with course topics and student expectations. The panelists use many participatory activities in the classroom and will share examples of their successes as well as general principles for bringing immersive learning experiences to general-education classes.

Organizers: Ryan Brown, Georgia College and State University
Jake Wildstrom, University of Louisville

9:35 - 10:05 am BREAK – Lowell Upper Lounge

10:10 - 11:25 am TWO concurrent sessions

A. *Strategies to help students deal with mathematics and test anxiety*

Pyle 235

Panelists: Jean Horn, Northern Virginia Community College
Laura Schmidt, University of Wisconsin-Stout
Rob Sepich, University of Wisconsin-Madison
Dianna Spence, North Georgia College & State University

When students enter a mathematics classroom, they are dealing with many issues that affect their performance in that class: other classes, work, family and social issues, as well as past experiences in mathematics classes. These past experiences shape students' performances in their current mathematics classes and can sometimes result in feelings of anxiety. The panelists will discuss math anxiety and test anxiety, including their causes, symptoms and diagnosis, along with coping strategies for students with anxiety. The panelists' presentations will be followed by questions and comments from the audience.

Organizers: Leah Bridgers, State University of New York - Oneonta
Christine Cumming-Strunk, University of Louisiana at Monroe
Shannon Lockard, Bridgewater State College
Amy Moore, Calvin College

WEDNESDAY, JULY 30 (cont'd)

10:10 - 11:25 am B. *How to Run an Undergraduate Seminar in Mathematics*

Pyle 335

Panelists: Dan Kemp, South Dakota State University
Tamara Lakins, Allegheny College
Chris Swanson, Ashland University

Undergraduate seminars take on many flavors. On some campuses, a seminar is an advanced special topics course; on others it fills a particular niche, such as preparing math education majors for licensing tests. In many places it is a capstone course in which students undertake some research and present their results or findings. Whichever variation is found on your campus, running a seminar presents a different set of challenges than a lecture course. The panelists will share their experiences with undergraduate seminars and discuss how to manage them. Our panelists include: Dan Kemp from South Dakota State University, where the senior seminar is a year-long class first helping students with researching and writing in mathematics, and then having students present papers/results and take an exit exam; Chris Swanson from Ashland University, where the content of the seminar varies with the interests of faculty and students, and involves writing a paper and making a presentation at a local conference on a mathematical topic not commonly encountered in other classes; and Tamara Lakins from Allegheny College, where the seminar involves students conducting preliminary research on potential senior project topics.

Organizers: Laurie Zack, High Point University
Pedro Poitevin, Salem State College
Chris Tweddle, University of Evansville

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

[This session is organized by research area. Please attend the group that best matches your current research interests.]

Group A: Analysis -- **Lowell 118**

Group B: Differential equations, dynamical systems -- **Lowell Lower Lounge**

Group C: Mathematics education, history of mathematics -- **Pyle 111**

Group D: Probability, statistics -- **Pyle 112**

Group E: Mathematical biology -- **Pyle 205**

Group F: Linear algebra, number theory -- **Pyle 227**

Group G: Algebra, group theory, algebraic geometry -- **Pyle 335**

Group H: Combinatorics, graph theory, discrete mathematics -- **Pyle 235**

Group I: Geometry, topology, logic -- **Pyle 327**

Group J: Applied mathematics, operations research -- **Pyle 232**

12:15 - 1:30 pm LUNCH – Pyle Main Dining Room

WEDNESDAY, JULY 30 (cont'd)

1:35 - 3:05 pm **TWO** concurrent sessions

A. *Integrating interdisciplinary applications into courses both new and old*
Pyle 235

Panelists: Carl Cowen, Indiana University - Purdue University Indianapolis
Claudia Neuhauser, University of Minnesota, Twin Cities, and
University of Minnesota, Rochester
Patrick Van Fleet, University of St. Thomas, St. Paul, MN

Using interdisciplinary applications in your teaching can be a rewarding experience for your students. But whether you are developing your own course or trying to incorporate an interdisciplinary approach into an existing course, finding appropriate applications and presenting them well can be difficult. This panel discussion features faculty who have had success teaching courses in calculus, linear algebra and wavelets, using real-world applications. A combination of presentations from the panelists and a question-and-answer session with the audience will cover issues such as fitting interdisciplinary courses into the department curriculum, choosing appropriate applications, and presenting those applications in lecture, homework, or course projects to best enhance student learning without sacrificing other elements of the syllabus.

Organizers: Zdenka Guadarrama, Rockhurst University
Geir Helleloid, University of Texas at Austin
Aaron Lauve, Texas A and M University

B. *Using computer algebra systems in courses such as single and multivariable calculus*
Pyle 335

Panelists: Judy Holdener, Kenyon College
Ron Lipsman, University of Maryland
Jon Rogness, University of Minnesota
Ed Swim, United States Military Academy at West Point

In this session participants will discuss the role of computer algebra systems (CAS) in the curriculum. The panelists will address topics such as: how to make the decision of whether to use a CAS, how a CAS can (and cannot) be used to solve problems, what to expect from students and how to help them beat the learning curve, inclusion of a CAS across a curriculum, and examples of using CAS in teaching and assessment.

Organizers: Jeremy Muskat, Western State College of Colorado
Elisha Peterson, United States Military Academy
Bill Wood, Hendrix College

3:05 - 3:55 pm **BREAK – Lowell Upper Lounge**

WEDNESDAY, JULY 30 (cont'd)

- 3:55 - 5:25 pm** Closing Session
Recognition of 2007-08 Fellows
Presentation: *Finding Your Niche in the Profession*
Joseph Gallian, University of Minnesota Duluth
Lowell B1A&B
- 6:30 - 7:30 pm** Mathfest Opening Reception (cash bar)
Madison Ballroom, Monona Terrace
- 7:30 - 9:30 pm** Mathfest Opening Banquet
Mistress of Ceremonies: Jennifer Quinn, Univ. of Washington at Tacoma
Presentation: *Non-Monotone Math Song Sing-Along*
Larry Lesser, University of Texas El Paso
Capitol AB Ballroom, Monona Terrace
- 9:30 pm - ?** INFORMAL SOCIALIZING

THURSDAY AND FRIDAY, JULY 31 AND AUGUST 1

- Project NExT Courses During the Mathfest:** Four-hour courses meeting in the Hilton Madison Monona Terrace on Thursday and Friday, July 31 and August 1. [See information for assignments.]
- A. *Teaching Statistics* – Carolyn Cuff, Westminster College, PA, 1:00 - 3:00 p.m., **La Follette Room**.
 - B. *Cooperative Learning for Undergraduate Mathematics* – William Fenton, Bellarmine University, 1:00 - 3:00 p.m., **Vilas Room**
 - C. *The Mathematical Education of Teachers* – W. James Lewis, University of Nebraska - Lincoln, 1:00 - 3:00 p.m., **Doty Room**
 - D. *Adding the Words: Using Writing to Teach Mathematics* – John Meier, Lafayette College, 1:00 - 3:00 p.m., **Tenney Room**
 - E. *Undergraduate Research – How to Make It Work* – Aparna Higgins, University of Dayton, 3:15 - 5:15 p.m., **Doty Room**
 - F. *Applying for Research and Education Grants/Starting and Maintaining Your Mathematical Research Program* - 3:15 - 5:15 p.m.,
Lloyd Douglas, University of Nevada, Reno, **La Follette Room**
and Ezra (Bud) Brown, Virginia Polytechnic Institute & State University, **Vilas Room**