PROJECT NExT

NEW EXPERIENCES IN TEACHING

2003-2004 FELLOWS, PROVIDENCE, RI

A program of

THE MATHEMATICAL ASSOCIATION OF AMERICA

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THE EXXONMOBIL FOUNDATION

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THE GREATER MAA FUND

We gratefully acknowledge their support.
2003-2004 Project NExT Fellows
Providence Program, August 2004

The Project NExT registration area is in the lobby of Barus & Holley on the Brown University campus. All sessions, unless otherwise noted, are in Barus & Holley (B&H).

TUESDAY, AUGUST 10

8:00 – 10:00 p.m. Social Event for all Project NExT Fellows and invited guests
Vartan Gregorian Quadrangle

WEDNESDAY, AUGUST 11

7:00 – 8:00 a.m. BREAKFAST
B&H Lobby

8:15 – 9:30 a.m. TWO concurrent sessions

A. Advising students about careers in industry
B&H 158
Panelists: Dan Callon, Franklin College
Kevin Hutson, Denison University
Richard Little, Baldwin-Wallace College
Stephen Shauger, National Security Agency

In this panel session we will discuss nonacademic jobs that use mathematics and the ways that faculty can advise students on such career options. Topics to be addressed include recommending coursework, establishing points of contact, and tips on the job application process.
Organizers: Naomi Cameron, Occidental College
Stephen Shauger, National Security Agency

B. Designing new courses in applied mathematics or modeling
B&H 161
Panelists: Bernard A. Fusaro, Florida State University
Susan C. Geller, Texas A&M University
Mason Porter, Georgia Institute of Technology

The panel will focus on applied mathematics and modeling instruction at the undergraduate level. We will discuss general principles and tactics that help in designing new courses in these areas as well as pitfalls to avoid. The panelists will give suggestions for teaching applied courses and for coaching the Mathematical Contest in Modeling teams.
Organizer: Cristina Bacuta, State University of New York College at Cortland
Elizabeth Stanhope, Willamette University
WEDNESDAY, AUGUST 11 (cont’d)

9:35 – 10:05 a.m.  BREAK
B&H Lobby

10:10 -- 11:40 a.m.  TWO concurrent sessions

A.  *Designing and teaching courses for non-mathematics majors*

   B&H 158

   Panelists:  Ed Burger, Williams College
              Annalisa Crannell, Franklin & Marshall College
              Gordon Williams, Moravian College
              Jonathan Hodge, Grand Valley State University

   The focus of this panel discussion is the design of mathematics courses for
   non-mathematics majors. Panelists will discuss courses for diverse
   audiences from the liberal arts to the visual arts on topics ranging from
   math and art to voting theory. Along with the details of specific courses,
   the panelists will speak on the underlying philosophy of such courses,
   errors to avoid when developing or teaching them, and how to make such
   a course an important and valuable life experience for non-science
   students.

   Organizers:  Jonathan K. Hodge, Grand Valley State University
                Gordon Williams, Moravian College

B.  *Fostering an atmosphere conducive to undergrad research*

   B&H 161

   Panelists:  Ellen Mir, Elon University
              Sandra Paur, North Carolina State University
              Harriet Pollatsek, Mount Holyoke College

   Undergraduate research programs can greatly enrich the undergraduate
   experience. How can we generate enthusiasm among our colleagues about
   such programs? In this session panelists will talk about efforts inside and
   outside of the classroom that encourage and support undergraduate
   research. They will also discuss their departments’ research programs, and
   some challenges they are still struggling to meet.

   Organizers:  Barry Balof, Whitman University
                Katie Mawhinney, Appalachian State University
WEDNESDAY, AUGUST 11 (cont’d)

11:45 – 12:30 p.m.  Small group discussions with other Project NExT Fellows. [Please select the session that best describes your research interests.]
   Analysis – B&H 153
   Combinatorics, graph theory, discrete mathematics – B&H 155
   Applied mathematics, operations research– B&H 157
   Geometry, topology, set theory, logic – B&H 158
   Mathematics education – B&H 159
   Probability/Statistics – B&H 160
   Algebra/Number theory – B&H 161
   Differential equations and dynamical systems – B&H 163

12:30 – 1:45 p.m.  LUNCH
   B&H Lobby

2:00 – 3:15 p.m.  TWO concurrent sessions

A.  Structuring our mathematics research to include undergraduates
   B&H 158
   Presenters:  Annalisa Crannell, Franklin & Marshall College
               Joe Gallian, University of Minnesota Duluth
               Colin Adams, Williams College
               Kurt Bryan, Rose-Hulman Institute of Technology
   This session will be a panel discussion about finding ways to include undergraduates in aspects of our own mathematics research. We plan to address the following questions: How do we break down our work into suitable segments accessible to undergraduates? How do we make the year-to-year transition of working with different students? What sorts of journals are appropriate for publishing undergraduate research? How much guidance does a typical undergraduate need from the faculty supervisor?
   Organizers:  Meredith Greer, Bates College
                Allison Pacelli, Williams College

B.  Ideas for attracting and retaining majors
   B&H 161
   Presenters:  Edward Burger, Williams College
               Olympia Nicodemi, State University of New York, Geneseo
               Lynn Olson, Wartburg College
               Sandra Paur, North Carolina State University
   A mathematics department cannot flourish without a healthy cadre of students. Yet it is often difficult to attract students to our discipline, especially for mathematics departments at smaller colleges. Our panelists will share some successful strategies for attracting and retaining mathematics majors, including the roles played in such efforts by the academic program, partnerships with other disciplines, extracurricular and social activities, advising, and the creation of an attractive "public profile" for the department.
   Organizers:  Andrew Miller, Belmont University
                Catalin Zara, Penn State Altoona
WEDNESDAY, AUGUST 11 (cont’d)

3:15 – 3:50 p.m.  BREAK
MacMillan Lobby

3:55 – 5:45 p.m.  Closing Session
Recognition of 2003-04 Fellows
Presentation: *Finding your Niche in the Profession*
Joseph A. Gallian, University of Minnesota, Duluth
MacMillan 117

7:30 – 9:30 p.m.  Mathfest Opening Banquet
Master of Ceremonies: Annalisa Crannell, Franklin & Marshall College
Presentation: *Captivating Stories for Mathematics Students*
Dan Kalman, American University

THURSDAY, AUGUST 12 and FRIDAY, AUGUST 13

Project NExT Courses during the Mathfest:

Four-hour courses meeting on the afternoons of Thursday and Friday, August 12 and 13, in the Rhode Island Convention Center (RICC). (Courses A, B, and C meet at 1:00 – 3:00 p.m. on both days; Courses D and E meet at 3:15 – 5:15 p.m. on both days.)

A.  *Math Modeling in the Curriculum* – Catherine Roberts, College of the Holy Cross,
    1:00 – 3:00 p.m., RICC 554A.
B.  *Preparing to Teach Mathematics for Prospective Teachers*, Judith Covington, Louisiana State University, Shreveport, 1:00 – 3:00 p.m., RICC 553A.
C.  *Introductory Statistics* – Jeff Witmer, Oberlin College, 1:00 – 3:00 p.m., RICC, 553B.
D.  *Getting Your Research off to a Good Start/Proposal Preparation for Projects in Undergraduate Mathematical Sciences* – Joseph Gallian, University of Minnesota, Duluth, and Calvin Williams, National Science Foundation,
    3:15 – 5:15 p.m., RICC 553A, 553B.
E.  *Undergraduate Research – how to make it work* – Aparna Higgins, University of Dayton,
    3:15 – 5:15 p.m., RICC 554A.

SATURDAY, AUGUST 14, afternoon

Project NExT Fellows are invited to attend two sessions sponsored by Texas Instruments on using hand-held calculators to enhance the teaching of mathematics. One session will deal with teaching mathematics below the level of calculus, and the other will deal with calculus and differential equations. The presenter is Edward Connors of the University of Massachusetts, Amherst. The details about times and location are in a flyer in your Project NExT registration folder.