PROJECT NExT

NEW EXPERIENCES IN TEACHING

2004-2005 FELLOWS, ALBUQUERQUE, NM

A program of

THE MATHEMATICAL ASSOCIATION OF AMERICA

2004-2005 Project NExT Fellows
Albuquerque Program, August 2005

The Project NExT registration area is in Dane Smith Hall on the University of New Mexico campus. All sessions, unless otherwise noted, are in Dane Smith Hall.

TUESDAY, AUGUST 2

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

WEDNESDAY, AUGUST 3

7:00 – 8:00 a.m.   BREAKFAST

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

     A.   *Integrating history with first-year math classes*
     Dane Smith Hall 126
     Panelists: V. Frederick Rickey, United States Military Academy
                Hisaya Tsutsui, Millersville University
     Our speakers will each suggest some reasons for, and methods of, integrating historical lessons into first-year classes such as Calculus and Linear Algebra. There will be a brief question time following the talks, and an "open mike" swap session (time permitting) for audience members to tell their own tales.
     Organizers: Keith Mellinger, University of Mary Washington
                David Perkins, Houghton College

     B.   *Designing new courses in applied mathematics or modeling*
     Dane Smith Hall 127
     Many institutions require writing-intensive courses within the major to fulfill a graduation requirement. For mathematicians, this requirement poses many challenges, some of which are: identifying meaningful topic(s) for the course being taught; creating a grading rubric to facilitate the grading of the papers as well as to communicate the expectations to the students; avoiding/identifying plagiarism; and, at a fundamental level, defining what it *means* to write in mathematics. Any and all are welcome to attend this swap session. In particular, anyone who has experience (good or bad!) with writing intensive courses is invited to share successes, failures, and lessons-learned. We hope that the exchange of ideas will provide a valuable pool of ideas, resources, and a support network for those whose courses involve a writing-intensive component. Participants are encouraged to bring handouts of contact information.
     Organizers: Carol Overdeep, St. Martin's University
                Rehana Patel, St. John's University

9:35 – 10:05 a.m.   BREAK

10:10 -- 11:25 a.m.   **TWO** concurrent sessions

      A.   ***Negotiating the Path to Tenure while Starting a Family***
          Dane Smith Hall 126
          Panelists: Beth Burroughs, Humboldt State University
                       Annalisa Crannell, Franklin & Marshall College
                       Jennifer Quinn, Occidental College
                       Michael Dorff, Brigham Young University

The road from graduate school to a tenured faculty position is arduous and uncertain under the best of circumstances. For many untenured mathematicians, particularly untenured women mathematicians, the commitment to fulfilling one's institution's expectations for teaching, research, and service can seem to conflict with starting and raising a family. This panel provides an opportunity to hear the stories of those who have faced these competing commitments and have dealt with them. Topics to be explored may include experiences with unpaid child-leave policy, part-time work status, line sharing, problems with implementations of family-friendly policies across college campuses, and special challenges that women face in the tenure system. Each panelist will begin by relating her or his observations and experiences on the issue, with a general question-and-answer discussion following.

Organizers: Vera Rayevskaya, University of Northern Iowa
                    Laura Schmidt, University of Wisconsin-Stout
                    Peter Thomas, Oberlin College

      B.   ***Calculus Tricks of the Trade***
          Dane Smith Hall 127

How do you remember the quotient rule? Is there an easy way to know when to use an integrating technique? Is there a fast way of testing a series for convergence? Do you have any visuals or innovative applications for vector calculus? If you have any clever tricks or creative projects that you use in your calculus class, please join us in this swap session. During this time, we will exchange ideas to help students understand concepts, and to remember how and when to use various techniques in calculus. Calculus can be challenging and even overwhelming at times, especially when students are trying to make connections between topics. Therefore, we hope that by sharing our ideas, we will spark each other's imagination and further develop insightful teaching techniques. Participants are encouraged to bring handouts of ideas and contact information.

Organizers: Irma Cruz-White, Chipola College
                    Trisha Moller, DeSales University
                    Melinda Schulteis, Concordia University

11:30 a.m. – 12:15 p.m.   Small group discussions with other Project NExT Fellows. [For these sessions we will be splitting geographically. Please attend the group that includes the state or province where your institution is located.]

> Group A - AB, AK, AZ, CA, HI, ID, MT, NM, NV, OR, UT, WA - **126**
> Group B - CO, IA, MN, ND, NE, SD, WY - **120**
> Group C - AR, KS, LA, MO, MS, OK, TX - 123
> Group D - IL, IN, WI – **128**
> Group E - MI, OH – **129**
> Group F - DE, KY, PA, WV – **136**
> Group G - AL, FL, GA, NC, SC, TN, VI – **127**
> Group H - DC, MD, Metropolitan NYC (ZIP codes 10000-11999 and 12400-12799), NJ,
> VA – **223**
> Group I - CT, MA, ME, NF, NH, NS, NY (ZIP Codes 12000-12399 and 12800-14999),
> ON, QC, RI, VT – **224**

12:15 – 1:30 p.m.   LUNCH

1:35 – 3:05 p.m.   **TWO** concurrent sessions

A.   **Capstone Conundrum!**
      Dane Smith Hall 126
      Presenters: Vadim Ponomarenko, Trinity University
            Bill Stone, New Mexico Institute of Mining and Technology
            Cindy Wyels, California Lutheran University
      Many departments now want their senior majors to experience some type of culminating activity prior to graduation, but creating a meaningful capstone experience that best fits into the curriculum is often difficult! This session will address the benefits and challenges of various possibilities for such an activity, including senior projects, theses, and senior seminar courses. After presentations from our panelists, we will break into groups in which audience members will have the opportunity to discuss specific questions with the panelists.
      Organizers: Alissa S. Crans, Loyola Marymount University
            Susan Hammond Marshall, Monmouth University
            John Starrett, New Mexico Institute of Mining and Technology

B.   **Effective Use of Cooperative or Collaborative Learning in Collegiate**
      Mathematics Classes
      Dane Smith Hall 127
      Panelists: Dora Cardenas Ahmadi, Morehead State University
            William Fenton, Bellarmine University
            Barbara Reynolds, Cardinal Stritch University
      In this session, participants will discuss strategies and issues related to using cooperative or collaborative learning in a collegiate mathematics class, including (possibly) the difference between cooperative and collaborative learning. The invited experts use cooperative learning extensively in their courses and will share their wisdom, experiences, and suggestions. Sr. Reynolds was an editor of *Cooperative Learning in Undergraduate Mathematics*, and Sr. Reynolds and Dr. Fenton were co-authors of several chapters of the same book. Orange dot participants are encouraged to read *Cooperative Learning in Undergraduate Mathematics*; it was in our book package. There should be plenty of time for questions and discussion.
      Organizers: Vesta Coufal, Fort Lewis College
            Mike Dobranski, Morehead State University

WEDNESDAY, AUGUST 3 (cont'd)

3:05 – 3: 55 p.m.   BREAK

3:55 – 5:25 p.m.   *Closing Session*
                                 Dane Smith Hall 125
                                         Recognition of 2004-05 Fellows
                                         Presentation: ***Finding your Niche in the Profession***
                                         Joseph A. Gallian, University of Minnesota, Duluth

7:30 – 9:30 p.m.   *Mathfest Opening Banquet*
                                         Master of Ceremonies: Annalisa Crannell, Franklin & Marshall
                                                                                                 College
                                         Presentation: ***Groups, Graphs, and Escher Designs***
                                         Joseph A. Gallian, University of Minnesota, Duluth

THURSDAY, AUGUST 4 and FRIDAY, AUGUST 5

Project NExT Courses during the Mathfest:
Four-hour courses meeting on the afternoons of Thursday and Friday, August 4 and 5, 2005, in the Albuquerque Convention Center (ACC). (Courses A, B, C and D meet at 1:00 – 3:00 p.m. on both days; Courses E and F meet at 3:15 – 5:15 p.m. on both days.)
A.   *Teaching Statistical Concepts with Activities, Data, and Technology,* Beth Chance and Allan Rossman, California Polytechnic State University, San Luis Obispo, **1:00 – 3:00 p.m., Zuni, ACC.**
B.   *Hand-held Technology in the Mathematics Classroom*, Joseph Fiedler, California State University, Bakersfield, **1:00 – 3:00 p.m., Sandia, ACC.**
C.   *Applications in the Curriculum – Challenges, Pitfalls, and Rewards*, Ben Fusaro, Florida State University, **1:00 - 3:00 p.m., Laguna, ACC.**
D.   *Teaching Math Courses for Teachers,* Dale Oliver, Humboldt State University, **1:00 – 3:00 p.m., Santo Domingo, ACC.**
E.   *Getting Your Research Off to a Good Start/Applying for Research and Education Grants,* Joseph Gallian, University of Minnesota Duluth, and Lloyd Douglas, National Science Foundation, **3:15 – 5:15 p.m., Zuni, ACC, and Laguna, ACC.**
        Undergraduate Research -- How to Make It Work, Aparna Higgins, University of Dayton, **3:15 - 5:15 p.m., Santo Domingo, ACC.**

Melanie Butler and Adrian Gentle served as coordinators for the sessions organized by the 2004-05 Project NExT Fellows.

Project NExT (New Experiences in Teaching) is a professional development program for new or recent Ph.D.s in the mathematical sciences (including pure and applied mathematics, statistics, operations research, and mathematics education). It addresses all aspects of an academic career: improving the teaching and learning of mathematics, engaging in research and scholarship, and participating in professional activities. It also provides the participants with a network of peers and mentors as they assume these responsibilities.