

Program Description

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Introduction

Project NExT (**N**ew **E**xperiences in **T**eaching) is a year-long professional development program of the Mathematical Association of America (MAA) for new and recent PhDs in the mathematical sciences who are interested in improving the teaching and learning of undergraduate mathematics. The program addresses all aspects of an academic career: improving the teaching and learning of mathematics, engaging in research and scholarship, and participating in professional activities. Project NExT helps to integrate its participants (called Project NExT Fellows) quickly into the broader mathematical community. Project NExT also provides the Fellows with a network of peers and mentors as they assume the responsibilities of an academic career. The Fellows commit to attending three consecutive national meetings of the MAA, including two summer meetings (Mathfests) and the Joint Mathematics Meetings (JMM) in the winter. There is no fee for participation in Project NExT. However, the Fellows' institutions bear all meetings-related expenses for the three national meetings. More information about Project NExT can be found at its website: <http://archives.math.utk.edu/projnext/>.



Project NExT Fellows, 2010.

Project NExT is an exciting and established program, now in its 18th year with a total of 1324 participants. Project NExT Fellows have distinguished themselves with national research and teaching awards and awards for service. Three Project NExT Fellows have won CAREER awards (the NSF's most prestigious award for as-yet-untentured teacher/scholars) and three others have won the MAA's most prestigious national teaching award, the Deborah and Tepper Haimo Award (only three are given a year). They have influenced the mathematical profession by involving themselves in governance of professional societies at the regional and national levels, and by organizing sessions at mathematics meetings. One of the serendipitous outcomes of Project NExT has been the sense of community that has been created within each Project NExT cohort, and across cohorts.

This report includes an overview of the Project NExT fellowship year. Details of each aspect follow the overview. The report concludes with a description of recruitment, applications, and selections of Fellows, the structure of the leadership team and funding.

Project NExT fellowship year

Project NExT Fellows meet three times in their fellowship year. Each meeting is held in conjunction with a national meeting of the MAA. The first meeting is held in August, starting with a two-and-a-half day Project NExT Workshop, followed by the three-day Mathfest. The Workshop is organized by the Project NExT Leadership team. At the meetings in January and the subsequent August, the Project NExT Fellows organize six sessions. Each year's cohort is assigned a color. A dot of this color is affixed to the Fellows' meetings badges. The dot is useful at the second and third national meetings to identify those of the same cohort. Project NExT Fellows are subscribed to an electronic listserv hosted by the MAA, starting before the first meeting. The Fellows are encouraged to discuss professional issues or seek advice on this list. In the fall, the Project NExT leadership team matches each Fellow with a consultant. A consultant is an experienced faculty member who serves as a friend in the profession, outside the Fellow's department. All consultants are added to the electronic listserv and provide advice and different viewpoints.

The Project NExT Workshop

The fellowship year begins with a two-and-a-half day workshop held prior to Mathfest (the three-day summer meeting of the MAA) in August. Organized by the Project NExT leadership team, the workshop is designed to introduce the Project NExT Fellows to many different ideas about teaching, so that the Fellows can choose the ones that work for them and their students at their institutions. Project NExT Fellows participate in small group discussions and breakout sessions, attend plenary talks and panel discussions, and take a four-hour-long course (which occurs during Mathfest). The Fellows eat their meals with each other and with the presenters at the workshop. A recent Project NExT Workshop program can be found by clicking the link "sample workshop program" on the Project NExT webpage. Presenters for the Project NExT Workshop are practitioners of various methods that are used to teach undergraduate mathematics. They are asked to provide details of using this technique, including how to put it in practice, its benefits, and its limitations. The program for the Project NExT Workshop has the same basic structure each year. However, the actual topics discussed, and hence some of the presenters, vary from year to year.

Ice-breaker sessions, where Fellows meet in groups of 10 to 15, are held on the afternoon of the first day of the workshop. A presenter facilitates the discussion. The first session gets the Fellows to articulate what they most look forward to and what they are anxious about in the year to come. The second icebreaker session places Fellows in groups based on type of institution, and the Fellows discuss the kinds of teaching techniques they have found helpful to meet their goals.

There is a **plenary talk** on each day of the workshop. The first of these sets the tone for the workshop, is sensitive to the Fellows' transition from graduate students to faculty members, and welcomes the Fellows to our profession. The second plenary talk addresses aspects of an academic career that the speaker chooses to discuss. The third plenary lecture is held during the closing session. It exhorts the Fellows to find different ways of making contributions to their institutions and the mathematical community.

Three **panel discussions** are held on the first two days of the workshop. Panels are structured to have equal representation of gender whenever possible. The first panel discussion, “Joining the Mathematical Community,” is held after dinner on the first day of the workshop. Four Project NExT Fellows from previous years are invited to speak on various forms of service to the mathematical community, such as holding office in the Sections of the MAA or in the national MAA, or serving on editorial boards of mathematics journals, or serving on committees of mathematical professional societies. The other two panel discussions are held on the second day of the workshop. “Choosing a Way to Teach” invites three panelists to describe a particular way of teaching or testing, such as co-operative learning or ways of getting students to read the textbook or one-minute evaluations at the end of class or implementing group exams or student journals. The panelists on “The Faculty Member as Teacher and Scholar” describe the expectations for getting tenure at various kinds of institutions. Four panelists are selected to provide a mix of research universities, branch campuses of state universities, liberal arts schools, and public and private institutions.

Breakout sessions provide Fellows the opportunity of being introduced to a topic in a small group setting. On each of the second and third days of the workshop, five simultaneous breakout sessions are held on topics that are currently important for early-career faculty in mathematics. Fellows have had the opportunity to rank the five topics (different for each day), and each Fellow is assigned to two breakout sessions per day based on those rankings. Topics include methods of teaching such as inquiry-based and cooperative learning, incorporating technology in teaching mathematics, using writing in mathematics courses, using projects to assess student learning, innovative ways of teaching specific mathematics courses such as calculus, linear algebra, abstract algebra, geometry, analysis, and courses for teacher preparation, and academic advising.

Meals at the Project NExT Workshop are communal. Fellows and presenters are guests of Project NExT at these meals and at refreshment breaks. Breaks are long and frequent to encourage informal networking, consultation, and bonding between Fellows and with the presenters. An ice cream social on the evening of the second day begins the intermingling of this year’s Fellows with last year’s cohort. Members of the Board of Governors of the MAA are also invited to the ice cream social.

On the **third day** of the Project NExT Workshop, two groups of Project NExT Fellows are present—the incoming group who are attending their first meeting of the fellowship year and the returning group, who are attending their final meeting of the fellowship year. The two groups have some sessions with their own cohorts. They also participate in a **joint session** on research breakouts every other year, and in alternate years, breakouts based on geography. These sessions are designed to help the Fellows get to know other Fellows in the two cohorts who are proximate in research area or location. The Project NExT leadership team selects a facilitator for each room. Fellows share with each other research questions that they are currently interested in and establish networking connections with each other. In alternate years, Project NExT Fellows meet other Fellows who are in the same geographic region (or MAA Section) to share knowledge of activities for early-career faculty and for students in that region.

Organizing session: The incoming Fellows attend a plenary session in which they begin planning for the sessions that they will organize for their second meeting of their fellowship year. In this organizing session, they propose topics and the Project NExT leadership team notes these. Further planning is done via the electronic listserv.

The **closing session** of the Project NExT Workshop is a joint session. It begins with a “graduation ceremony” for the Project NExT Fellows who have completed their fellowship year. Each returning Fellow is given a certificate, congratulating her/him on being selected as a Project NExT Fellow and completing the program. The certificates are signed by the President of the MAA and by a representative of the sponsors. Joe Gallian, of the University of Minnesota Duluth, who is known in mathematical circles for his contributions to, and prowess in, research, teaching and service, always gives the closing address, “Finding your niche in the profession.” Fellows find the talk extremely inspiring.

The day concludes with the **Opening Banquet** of MAA’s Mathfest, to which each Fellow from the incoming and returning groups of Fellows is given a complimentary ticket. This begins the integration and networking of the incoming Project NExT Fellows with the larger mathematical community.

On two days of Mathfest (immediately following the Project NExT Workshop), both returning and incoming Fellows (and, if space permits, Fellows from previous years and Section NExT Fellows) attend a **Project NExT course**, which has four hours of content split over two days. It allows a deeper exploration of a single topic in a small group setting. Some recent topics include: teaching introductory statistics, grant-writing and getting your research known, directing undergraduate research, mathematical biology, modeling in mathematics courses, applications of linear algebra, and teaching courses for pre-service teachers.

The second and third meetings of the Project NExT fellowship year

The second of the three national meetings that Project NExT Fellows are committed to attending occurs in January, in conjunction with the Joint Mathematics Meetings (JMM), an event sponsored by many of the professional societies in mathematics. The current Project NExT Fellows and their consultants (see description elsewhere in this document) are invited to be guests of Project NExT at a dinner the night before the start of the JMM. The dinner provides an opportunity for the Fellows to re-connect with each other, connect with consultants, and start planning their own sessions for the third meeting of the fellowship year, which occurs in August. The Fellows attend six sessions which they have organized under the guidance of the Project NExT leadership team. At the first and second meetings of the fellowship year, the Fellows propose topics on which they would like to have sessions during the following meeting. Two coordinators (selected by the Project NExT leadership team) organize the Fellows to vote for the topics, six of which are chosen to be presented. Fellows volunteer to form organizing teams. Four organizers per session plan the session, write an abstract, select panelists to represent diverse points of view on the topic, invite the panelists, and moderate the session at the meeting. Recent topics included capstone courses, inquiry-based learning, refereeing and publishing, and writing in mathematics.

At the Joint Mathematics Meetings in January, the current Fellows also organize and staff the [Project NExT booth](#) – the Fellows are, indeed, the best ambassadors of the program.

At the last meeting of the fellowship year, in August, in addition to their own sessions, the Fellows attend some joint sessions with the incoming Fellows, thereby networking with the next group of Fellows (see description of the Project NExT Workshop above).

The application process

Applications to Project NExT are available in February of each year and are due mid-April. The application materials include an application form, a one-page resume, a short research statement, a two-page personal statement, and a letter of support from the chair of the department at which the applicant will be employed in the fall. Support from the institution requires assurances that the applicant will be free to implement techniques from the program and that financial support for the applicant to attend three consecutive national meetings has been procured. Applications are recruited by sending letters to all member departments of the MAA, and additional letters to all mathematics departments at PhD-granting universities and minority-serving institutions; by postings on the Project NExT electronic discussion lists; and by announcements in newsletters and websites of various mathematical professional societies, including the MAA's newsletter FOCUS.

Selection of applicants

Applicants must meet eligibility requirements (the fellowship year being the first or second year of a full-time position teaching mathematics after earning the PhD degree) and must be fully financially supported by their institutions. There is no registration fee for Project NExT. The institutional support is entirely for the Fellow's meetings-related expenses (including registration fees, travel, board, and lodging) and is estimated at \$3500 per Fellow. Each application is read by at least two readers. Readers include all members of the Project NExT leadership team and, by invitation, a few experienced faculty members. Readers seek out applicants who can contribute to the program, yet can grow by learning from the program and from the other Fellows, and who are thoughtful and reflective of teaching experiences. Eventual selections are made based on gender balance; diversity of ethnicity, race, geographical area and type of institution; and sponsor requirements. Each year, about 80 Fellows are selected from 120-140 applications.

Leadership team

The leadership team of Project NExT consists of a Director and four Associate Directors (four-year terms) and a member (two-year term). All five positions offer some compensation in the form of course release or stipend. After 16 years of directing Project NExT, co-founder T. Christine Stevens, of Saint Louis University, stepped aside in 2009, leading to the first change in personnel in Project NExT in over a decade. Members of the leadership team now have fixed-length terms with searches held for replacements. The first search was conducted in 2011-12.

Funding

Funding for Project NExT initially was provided in full by the Exxon Education Foundation (later, the ExxonMobil Foundation). When the ExxonMobil Foundation cut back its funding, Project NExT sought additional donors, giving “naming rights” to individuals or corporations for an amount of \$2500 per Fellow per year. Despite the recent cessation of funding from the ExxonMobil Foundation, Project NExT has been able to continue selecting about the same number of Fellows each year, with funding provided by professional societies (including The American Mathematical Society, The American Statistical Association, The Association for Symbolic Logic, The American Institute of Mathematics, The National Council for Teachers of Mathematics and The Association for Mathematics Teacher Educators), foundations (such as The Mary P. Dolciani Halloran Foundation, The Educational Advancement Foundation), publishing companies (such as The W. H. Freeman Publishing Company, John Wiley & Sons), mathematical computing and software companies (such as Maplesoft and Texas Instruments). Some of the 29 Sections of the MAA provide funds for a Project NExT Fellow each year. A few endowed Fellowships and bequests have provided funding for many Fellows. The aggregation of smaller donations by individuals is used to name Fellows after Project NExT’s other co-founder, the late James R.C. Leitzel. The amount of \$2500 per Fellow per year is used for expenses associated with the Project NExT Workshop and at the JMM (including space rental, audio-visual equipment, catering for meals, refreshment breaks, receptions, travel expenses and honoraria for the presenters), expenses for the Project NExT leadership team (such as travel expenses to two national meetings a year, and compensation), MAA staff time, supplies, duplication, materials for folder inserts for the Project NExT Workshop, postage, telephone.

Key features of Project NExT

- a) Selection of qualified Project NExT Fellows guided by deliberate diversity considerations.
- b) Facilitating the integration of the Fellows into the mathematical community by forming the habit of attending national meetings.
- c) Assigning a consultant to each Fellow.
- d) The electronic discussion lists. These are used during the Fellowship year and beyond. A voluntary list across all years on issues regarding the preparation of teachers is also available.
- e) Section NExTs, which are programs conducted by MAA Sections that use many ideas of the national program. The Section NExTs have their own eligibility requirements.
- f) The sense of community formed serendipitously in the early years of Project NExT, but now touted as one of the features that applicants find appealing, and that Fellows rely on.
- g) **The dot!** Used originally on badges to help Project NExT Fellows identify each other (by cohort) at large national meetings, it has now become a symbol of a group of energetic, thoughtful new faculty who are influencing the learning and teaching of undergraduate mathematics by organizing and contributing to scientific sessions at mathematics meetings and by participating in the governance of professional mathematics organizations.