

## GK-12 Professional Development Ideas

Compiled by PEER Program, Texas A&M University

### New York

The Graduate Fellows are assisting 20 new or novice AP teachers of science and mathematics and both are receiving **intensive summer and academic-year training and support including College Board Summer Institutes**, and workshops on such topics as science and mathematics content, inquiry-based instruction, science and math standards, educational technology as applied to formatting, AP course instruction, and post-secondary programs and career opportunities in STEM. In addition, of intellectual merit, AP teachers and university faculty who teach parallel courses are working together toward improving AP course delivery and articulation with post-secondary settings.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0231800>

**A studio class** will create new educational technologies that translate the grad fellows STEM research (e.g. microchips for chemical analysis) into learning labs for the middle school students.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0947980>

Graduate fellows will work with a teacher and faculty advisor during a **six-week summer program** on the development of innovative, inquiry-driven science education activities related to the fellows research, which will then be implemented in underserved rural and urban schools during the following year.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0841291>

Additional activities include: 1) **seminars and a three-credit course** to prepare the fellows;

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=9979509>

Graduate Fellows and grade 6-12 teachers will **work together for four to eight weeks prior to the school year** in a program of field science internships, professional development, and curriculum planning and creation.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0742450>

### Virginia

Each GK-12 graduate fellow will team with an in-service teacher throughout the year. This **buddy team** format allows the fellow and the teacher to mentor and learn from each other. Teachers will gain valuable hands-on research experience by participating in fellows' research projects. In return, teachers

will guide fellows to develop appropriate teaching materials and conduct classroom teaching. Special courses and workshops will be offered to further enhance fellows' and teachers' content understanding and communication skills.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0840804>

## Connecticut

Training and on-site supervision of the Graduate Fellows is provided by the PIs, by the staff of the program, and by the Yale Teacher Preparation Program. (Doesn't say how) **In addition, Master Peabody Teachers serve as mentors for pedagogical and classroom management techniques.**

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0231832>

## Colorado

**Conduct Teaching and Research Strategy Workshops** - to familiarize teachers, researchers and fellows with each others' culture.

**Conduct Grant Writing Workshops** - for the teachers and fellows for professional development and sustainability.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0086443>

During the summer, the teachers, fellows, and students **work together on research.**

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0440605>

Graduate fellows will work with a teacher and faculty advisor during a six-week summer program on the development of innovative, inquiry-driven science education activities related to the fellows' research, which will then be implemented in underserved rural and urban schools during the following year.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0649876>

Twenty graduate and 8 undergraduate GK-12 Fellows, **comprehensively trained as "Engineering Ambassadors," are delivering the pedagogy and engineering content pioneered in the ITL Program** over the past seven years.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=9979567>

## Texas

GK-12 Fellows will **take advantage of the existing professional development opportunities offered at UT.** To augment the formal course taught by Duke, Fellows will work personally with the GK-12 Program Coordinators and Principal Investigators to **customize** an assemblage of these existing opportunities:

Advancing Students' Professional Excellence with Certificates in Teaching Series (Sponsored by the Division of Instructional Innovation and Assessment) - ASPECTS encourages ongoing pedagogical, personal, and professional development through workshop sessions that may be taken individually, or as a set in order to earn a certificate.

Discovery Learning Project (Sponsored by UTeach) - DLP promotes development and use of discovery/inquiry-based methods of teaching and learning. Monthly catered-lunch seminars by visiting experts provide a relaxed setting for Fellows to interact with the UT science education community.

Graduate Student Instructor (Sponsored by the Division of Instructional Innovation and Assessment) - GSI is a series of workshops that takes two different approaches (depending on the Fellow's interest) to build interactive teaching skills and to use those skills to develop learning communities.

Intellectual Entrepreneurship Program (Sponsored by the Department of Communication Studies) - IEP is premised on the belief that intellect is not limited to academia and entrepreneurship is not restricted to the business sector. IEP is committed to developing innovative, collaborative, and sustainable ways for universities to work with their communities to solve complex problems, and to develop 'citizen-scholars'.

Professional Development and Community Engagement (Sponsored by the Office of Graduate Studies) - PDCE enables graduate students to make meaningful impacts in their professions, with a focus on working directly with the local community to solve complex problems, via community engagement projects, internships, formal courses, and workshops.

Program Professional Development Website: <http://www.esi.utexas.edu/gk12/development.html#pdce>  
GK 12 website: <http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0139347>

The cohorts will form during **a series of summer institutes**, where the research knowledge of the Fellows will be disseminated to the teachers, training in pedagogy and learning theory will occur for the Fellows, and integrated STEM curriculum modules will be developed.  
<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0742402>

**Fellows participate in a weekly seminar on precollege science and mathematics educational reform.**  
<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=9979634>

The MAVS project develops innovative program components, **such as research and teaching seminars, mentoring triads**, and teaching quads. The mentoring triads consist of a fellow, his/her research advisor, and a faculty mentor.  
<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0841400>

Texas State graduate fellows will obtain teaching skills necessary to transmit knowledge and expertise to broader audiences. From website: **Complete the course BIO 5100/7100 Professional Development-Inquiry Science Teaching** during first summer session.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0742306>

**Fellows and teachers work together in the summer** to explore teacher-research techniques, the State Standards in their subject matter area, and curriculum design.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0338357>

## California

The program starts with a short **Summer Institute** for Teachers, Graduate Fellows, and their Advisors.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0538678>

Through **technology education courses and workshops**, California State University, Los Angeles (CSULA) faculty train fellows to improve their communication, collaboration, and teaching skills.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0742426>

The project's components include orientation sessions for fellows and teachers to learn about the project, a **course for fellows on "Methods of Teaching Science in Secondary Schools" offered by the UCI Department of Education...**

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0638751>

LEAPS will create a **new course, "Science for the Public: Communication and Mentoring"**, which will engage the greater UCSB community in seminars on public perceptions of science and scientists, and in mentoring field-work in K-12 schools.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0440576>

The project includes a summer program for joint Fellow-Teacher research and curriculum development, a summer program to motivate student involvement in environmental sciences, mentoring year-long senior capstone projects, and community forums to highlight student science activities and STEM-based careers.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0947923>

These GRTP will be graduate students in the COSE who are working toward their Master's degree in a science content discipline (Biology, Chemistry, Physics, Geosciences, Mathematics), but have a new requirement added to their thesis, a Science Education component. **The GRTP will take a series of pedagogy courses** and, as a culminating experience, will participate in a 10 hour per week on-site partnership with a middle or high school teacher.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0337949>

TEAM Science combines excellence in teaching, an emphasis on inquiry and experimentation, and the important benefits of **retired scientist and university faculty mentoring. Team meetings and training sessions during the summer and throughout the year** target the building of a community of learners to enhance science content expertise and pedagogy for teachers and achievement for students with the assistance of graduate students, master teachers, retired scientists and faculty mentors.

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0231796>

They will also participate in intensive summer workshops for developing inquiry-based science lessons. The program will improve the communication skills of UCLA graduate students in STEM programs by **requiring a non-technical description of their PhD research to be included in their dissertation.**

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0742410>

## Nebraska

A **summer preparation program uses case study and team-building exercises to establish and strengthen partnerships.** University of Nebraska-Lincoln **institutionalization of professional development seminars for graduate students.**

<http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0338202>