

The University of Texas at Austin
GK-12 Graduate Fellow 2009-2010 Application Form

Purpose of Program: This program supports fellowships and associated training that will enable graduate students in the Sciences, Mathematics, Engineering, and Technology (STEM) to serve as resources to teachers in K-12 schools, particularly at the middle school (5-8th grade) level. It builds on existing programs involving The University of Texas at Austin and local school systems within Texas. The funded GK-12 project is based at the Environmental Science Institute (ESI) in Austin and at the UT Marine Science Institute (UTMSI) in Port Aransas and specifically targets partnerships with local school districts (see list below). Fifth through eighth grade science teachers from all three districts are especially encouraged to apply. Fellows will serve as resources for teachers in science and mathematics instruction. We expect Fellows to split their time between two teachers for lesson planning, classroom exercises, field trips, and regular meetings and workshops that occur throughout the academic year (with some organized activities during summer 2010). Expected outcomes include improved communication and teaching skills for the fellows, enriched learning by K-12 students, professional development opportunities for K-12 teachers, and strengthened partnerships between institutions of higher education and local school districts. Fellowships are awarded for a 12-month period beginning 1 September (\$30,000 stipend). Benefits include full tuition and fees, and comprehensive health and dental insurance. All teachers and Fellows are expected to attend an early summer training and orientation workshop that precedes the start of the K-12 academic school year. This workshop will be held on both the UTMSI Campus from June 3-7 and the U.T. Austin Campus from June 8-11, 2009. Housing and travel costs will be provided. For further details on GK-12 program activities, see: <http://www.esi.utexas.edu/gk12/summer.html> (Austin Fellows and Teachers) and <http://gk12.utmsi.utexas.edu> (Port Aransas, Flour Bluff, Aransas Pass, Ingleside, and Aransas County ISD Fellows and Teachers).

Related K-12 Outreach Programs

Marine Science Institute (Port Aransas)

- *Study of Arctic Change*
http://www.utmsi.utexas.edu/outreach/outreach/public_lectures.htm
- *Schweppe Lecture Series*
http://www.utmsi.utexas.edu/outreach/outreach/public_lectures.htm
- *UTMSI Marine Education Services*
<http://www.utmsi.utexas.edu/outreach/index.htm>

Environmental Science Institute (Austin)

- *Outreach Lecture Series*
<http://www.esi.utexas.edu/outreach/lectures.html>
- *The Edwards Aquifer*
<http://www.esi.utexas.edu/outreach/groundwater/index.php>
<http://www.esi.utexas.edu/outreach/caves/index.php>
- *Climate Change:* <http://www.esi.utexas.edu/research/climate.html>
- *Sustainability:* <http://www.esi.utexas.edu/research/sustainability.html>

GK-12 Project Goals

National Science Foundation: To develop partnerships between schools and universities with Science, Technology, Engineering, and Mathematics (STEM) graduate students and upper-level undergraduates working with teacher colleagues to improve STEM education at the K-12 level.

The University of Texas at Austin: To promote the academic and professional development of K-12 and university level participants by building long-term partnerships between K-12 school districts and University of Texas researchers in Sciences, Technology, Engineering, and Mathematics (STEM).

Thematic Focus:

Watersheds & Sustainability - Tracing a Drop of Water Inland to the Coast

Our GK-12 project will use watersheds that extend from central Texas to the mid-Texas Gulf Coast as organizing units for environmental science in teaching the STEM disciplines. We anticipate broad educational opportunities beyond this focus, and expect graduate fellows will come from disciplines as diverse as marine science, geoscience, biology, geography, chemistry, civil engineering, and community/regional planning.

Overall GK-12 Project Goals

- 1) to help teachers adopt diverse and innovative field and inquiry-based teaching strategies to promote student learning, especially with underrepresented groups, within the framework of state and national curriculum standards,
- 2) to build long-lasting partnerships between K-12 teachers and academic researchers and to enhance professional development through direct contact with UT scientists,
- 3) to deliver new content in the classroom that will improve student understanding of science and, mathematics while encouraging students to consider careers in STEM disciplines, and
- 4) to develop Fellows into scientists with improved communication and pedagogical skills, an awareness of science education standards, and the desire and ability to transmit scientific methods and knowledge to students, teachers, and the public.

Background for Emphasis on Middle School (5th grade) Focus

We believe we can have a greater impact by focusing on grades 5-8 and on 5th grade in particular. There are several reasons that we will emphasize the 5th grade level: 1) it is the first level where Texas students are given the standardized Texas Assessment of Knowledge and Skills (TAKS) exam in science; 2) it is the first level where science is taught as a separate class; and 3) it is the earliest grade where curriculum closely matches (and requires) the expertise of GK-12 Fellows.

The 5th grade TAKS test assesses knowledge that is gained throughout elementary school. A student's mastery of the science curriculum through the 5th grade sets the tone for their learning in later grades and their scores on 8th, 10th, and 11th grade tests. Intervention prior to this initial

test can make a difference in their achievements for years. Our project will focus on 5th grade because lower grades in Texas do not have a dedicated science class where Fellows can have the maximum impact. Additionally, the 5th grade science curriculum units (Mixtures and Solutions, Force, Motion, and Energy, Landforms, Life Cycles and Ecosystems, Climate, and Aquatic Environments) match our integrated emphasis on watersheds and coastal ecosystems.

Some Basic GK-12 Fellow Responsibilities and Expectations

- Understand and appreciate the goals and objectives of this program.
- An *average* of 15 hours/week dedicated to activities with K-12 students and teachers, including those listed below (about two-thirds of this time spent in classrooms).
- Work with K-12 teachers in your classroom to develop activities related to subject areas in your teaching discipline.
- Hold weekly 30-minute conferences with your K-12 teacher to exchange ideas and plan future lesson activities based on your written classroom/subject syllabus.
- Provide written feedback on a weekly basis on jointly prepared and delivered Fellow-teacher lessons for classroom or field trip activities.
- Use constructive verbal and written feedback from teachers, university faculty, and other professionals to improve classroom instruction, management techniques, and teaching effectiveness.
- Attend professional development, and/or GK-12 workshops as directed by the component PI (Dunton or Banner).
- Develop an after school program with other GK-12 teachers and Fellows in your school that features GK-12 classroom activities to parents.
- Participate in short pre-or post evening workshops during the academic school year that are focused on public lectures or presentations delivered by visiting scientists as part of the Schweppe Lecture Series (UTMSI), the Outreach Lecture Series (ESI), or other special activity as directed by the component PI.
- Participate in monthly after-school meetings for planning of activities, communication with PI's, and exchange of ideas and experiences.
- Create or significantly modify for Internet dissemination two learning activities and produce written lesson plans associated with each using 5E learning model designed for this program that is aligned with TEKS and TAKS.
- Participate in a one-day annual GK-12 colloquium in June (Port Aransas or Austin).
- Attend an early summer symposium and orientation workshop that precedes the start of the K-12 academic year (held in Austin and/or Port Aransas).
- Deliver joint presentations with your K-12 teacher at conferences, workshops or symposia on your GK-12 related activities and experiences (travel expenses are provided for such activities).
- Enroll in a formal graduate course, Science and Human Learning (1 hour credit) taught by R. Duke that will focus on the development of instructional skills and the basic principles of human learning.
- Present GK-12 information to at least one group of colleagues and professionals.

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To apply, you should:

- Be a US citizen, US national, or permanent resident
- Submit a completed application form, signed on page 5
- Submit a Statement of Purpose (described below)
- Submit two letters of reference (p. 7)
- Submit Statement of Commitment by your faculty advisor (p. 8)

Statement of Purpose

Please write a one-page statement of interest that summarizes your educational and career objectives and why you should be considered for a GK-12 scholarship. As a guide, please address the questions listed below in your essay.

1. Why do you want to participate in the GK-12 Fellows program?
2. What qualities do you feel you possess that make you a good mentor for K-12 teachers and students?
3. Describe any experiences do you have working in a K-12 setting. Briefly describe those experiences.
4. What do you see as some of the challenges of effective K-12 science education?
5. What specific disciplines (e.g. environmental science, chemistry, geology, physics, marine science, oceanography, etc.) do you feel most qualified to teach and provide expertise to K-12 teachers and students?
6. Review the section of the GK-12 website that includes activities and on-line materials. How might you contribute or facilitate innovative programs, ideas, or lessons?

FOR QUESTIONS CONCERNING ANY ASPECT OF THE GK-12 PROGRAM, CONTACT:

Port Aransas - Dr. Ken Dunton at 361-749-6744 (ken.dunton@mail.utexas.edu)

Austin - Dr. Jay Banner at 512-471-5016 (banner@mail.utexas.edu)

Send completed application and all supporting documentation to:

Port Aransas area:	Austin area:
Dr. Ken Dunton	Dr. Jay Banner
Marine Science Institute	Environmental Science Institute
The University of Texas at Austin	Mail Code C1100
750 Channel View Drive	The University of Texas at Austin
Port Aransas, TX 78373	Austin, TX 78712
FAX: 361-749-6777	FAX: 512-471-9425

DEADLINE FOR APPLICATIONS IS MONDAY, 2 FEBRUARY 2009 (Port Aransas, Flour Bluff, Aransas Pass, Ingleside, Aransas County, and Austin ISDs.)

SELECTED FELLOWS WILL BE NOTIFIED BY 1 APRIL 2009. FELLOWS MUST ATTEND THE GK-12 SUMMER WORKSHOP HELD JUNE 3-7 AND JUNE 8-11, 2009.

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Please Print Clearly or Type

Contact Information:

Name: _____

Social Security # _____

Mailing Address:

Street/PO Box

Office Phone # _____

City

State

Zip

Cell/Home Phone # _____

E-mail Address _____

Residence and Citizenship Information:

Resident of Texas

US Citizen

US National

Permanent Resident

Education:

Current Degree Sought: _____ *Ultimate Degree Sought:* _____

Educational Background

Institution	Major	Degree	Hours (Est.)	Dates

How many hours of graduate work will you have completed at the time of the award? _____

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Additional Recognition and Assistance: Please list all honors, financial assistance, awards, fellowships, scholarships and assistantships received. (If aid received while a University of Texas graduate student, please place an "X" preceding designation of type of aid received.)

Type	Grantor	Date	In Recognition of	Amount
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Type	Grantor	Date	In Recognition of	Amount
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Type	Grantor	Date	In Recognition of	Amount
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Post High School Employment and Professional Background

Employer	Occupation	City, State	Dates

References:

Please list two (2) individuals from whom you have requested a letter of support. Please provide these individuals with the review form and have them submit their letter and/or form to the address listed. It is up to you to ensure that these materials are submitted. If you are currently enrolled at The University of Texas, one of these must be your current research supervisor. Note: Research supervisors or other faculty members are strongly encouraged to join and support Fellows in their K-12 partnership activities as time allows (this commitment should be included in the letter of support).

Name and Position	Address
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Name and Position	Address
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I certify that all general information given on this application is complete and correct. I also agree to the responsibilities of a GK-12 Fellow as described in this application, including participation in required meetings, seminars, and workshops.

Signature of Applicant

Date

No person shall be excluded from participation, denied the benefits of, or be subject to discrimination under any program or activity sponsored or conducted by The University of Texas System or any of its component institutions, on any basis prohibited by applicable laws, including, but not limited to, race, color, national origin, religion, sex or handicap.

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Applicant, please complete this section:

Name of Applicant: _____

Name of Faculty Advisor and Department: _____

Faculty Advisor, please read and complete this section:

Statement of Commitment by Faculty Advisor for NSF GK-12 Fellow Professional Development

Two major objectives of the University of Texas at Austin GK-12 program are to (1) enhance the communication between University faculty and graduate students with K-12 teachers, and (2) provide professional development opportunities for GK-12 Fellows. Both these goals require active participation by faculty advisors who can serve as mentors for Fellows. The graduate student listed above has applied for an NSF Graduate Fellowship as a GK-12 Fellow for the 2009-10 academic year. Fellows are appointed for a 12 month period beginning fall semester (1 September 2009– 31 August 2010) BUT are required to attend a six-day workshop and orientation in June preceding the start of their 12 mo appointment. They are also expected to assist with a GK-12 sponsored summer science camp for one week and work independently with teachers to develop lesson activities in preparation for the fall semester. Fellows are reappointed in January and June for the fall and summer semesters, respectively. The applicant has indicated that you are willing to serve as a faculty mentor through your participation in various activities. These would include the following:

- K-12 classroom observation and written evaluation of the Fellow (four separate learning activities; three in the fall semester and one in the spring semester). Written evaluations are submitted directly to the PI with a copy to the Fellow.
- Active participation with the Fellow in three distinct classroom or field activities with K-12 students (two in the fall semester and one in the spring semester).
- Attendance at one monthly after-school meeting or workshop in the fall semester.

The faculty advisor may choose to participate in other activities in addition to those listed above. However, reappointment of the Fellow is based on the commitment made by the faculty advisor in support of the professional development activities of the Fellow under this NSF graduate fellowship. Your signature is an acknowledgement of this agreement and commitment to the GK-12 Fellow applicant listed above.

Signature of Faculty Advisor

Date