APPENDIX A

Graduate STEM Fellows in K-12 Education Program (G-K12)

The National Science Foundation (NSF) recognizes that graduate students in science, technology, engineering and mathematics (STEM) must be prepared with the necessary skills to face the career challenges of the 21st century. In addition to research competencies, STEM graduate students must be able to communicate their research findings not only to other STEM professionals but also to the general public. NSF also recognizes that STEM graduate students can contribute to the national effort to advance STEM knowledge in K-12 learning settings through partnerships between institutions of higher education and K-12 schools. These partnerships offer graduate students an opportunity to bring leading-edge research practices and findings to K-12 learning settings. Graduate students are role models to K-12 students and help stimulate their interest in STEM disciplines. To support these opportunities, NSF offers the Graduate STEM Fellows in K-12 Education (GK-12) program.

Through the GK-12 program, institutions of higher education have an opportunity to make a permanent change in STEM graduate education programs by developing and sustaining strong partnerships with K-12 schools.

The objectives of the GK-12 program are:
1) to support highly qualified U.S. graduate students in NSF-supported STEM disciplines through fellowships to provide them with an opportunity to gain a deeper understanding of their own research, its societal and global contexts, and acquire value-added skills (such as communicating STEM subjects to technical and non-technical audiences, leadership, team building, and teaching) that normally are not emphasized in a more traditional STEM graduate program, and to broaden their options for STEM careers in a competitive global marketplace;
2) to enrich STEM learning and instruction in K-12 settings through strong partnerships with institutions of higher education to bring the excitement and the results of leading STEM research practice and findings to K-12 settings;
3) to provide institutions of higher education with an opportunity to make a permanent change in their graduate programs by incorporating GK-12 like activities in the training of their STEM graduate students.

Expected outcomes include:

For graduate fellows:
Enhanced understanding of their own research subject area, and its societal and global contexts; improved communication skills of STEM subjects with technical and non-technical audiences, leadership, team building, and teaching capabilities.

For K-12 education
Professional development opportunities for teachers in both STEM content and pedagogy; and enhanced learning and STEM career interest for students.

For institutions of higher education
Transformation of graduate programs; strengthened and sustained partnerships with local school districts, industry, and non-profit sector, etc.; enhanced institutional impact of graduate education to society.

In essence, fellows will bring their STEM research practice and findings to K-12 learning settings so that teachers and K-12 students are more directly exposed to what science and engineering is all about, how it is done, how discoveries happen and what STEM professionals do.

For example, GK-12 fellows from STEM disciplines, selected by awardee institutions, may work directly with K-12 teachers to integrate current scientific research practice and findings in the teaching and learning of STEM disciplines; act as role models to K-12 students and help stimulate their interest in future STEM careers; enhance K-12 teachers’ STEM content knowledge and pedagogy; and jointly design and deliver K-12 STEM instruction.