What is the NSF- GK-12 Project ChemBOND?

The GK-12 Project ChemBOND at FAU, in collaboration with the Palm Beach County School District, is a National Science Foundation (NSF) sponsored project which provides NSF fellowships for doctoral and masters science graduate students to acquire additional skills that will broadly prepare them for professional and scientific careers in the 21st century. As the graduate students bring their cutting-edge research and practice into the K-12 classroom, they gain these skills which enable them to explain science to people of all ages, ranging from students to teachers, thus improving their presentation and communication skills. Graduate students work in collaboration with and have the opportunity to act as a resource to K-12 teachers. They act as role models to students with the intention of increasing interest and understanding of the scientific method.

How Does the GK-12 Project ChemBOND Work at FAU?

Over the past several years, FAU faculty in the Department of Chemistry and Biochemistry has been revising the undergraduate chemistry curriculum through the Project ChemBOND initiative. Project ChemBOND involves increasing understanding of chemistry through conceptually-based lectures, labs, and group activities. The GK-12 program at FAU is now extending Project ChemBOND into high school chemistry, environmental science and biotechnology classes. In this project, graduate students in science disciplines at FAU are paired with high school science teachers to introduce research based instructional activities into the high school curriculum while integrating their research as often as possible. Graduate students and teachers will collaborate to introduce these types of activities together in to improve high school students’ learning and interest in science.

How are the Graduate Fellows Chosen?

Graduate fellows must be full-time doctoral or masters students at FAU in chemistry or a related science (Ms.T. students are not eligible). Graduate students can apply to the GK-12 Program, and the GK-12 selection committee then chooses fellows based on their potential and interest in teaching and research. Since graduate fellows are expected to share their research expertise with high school teachers and students, graduate fellows must have research experience and so will normally be second, third or fourth year graduate students. Graduate fellows must be US citizens or permanent residents, and must have the recommendation of their department to participate in the GK-12 Program.

What Do the Graduate Fellows Do?

Graduate fellows can potentially participate in the GK-12 Program for one year. They will attend a 1-2 week instructional and organizational workshop in the summer and take a graduate course in conceptual learning of chemistry, to be scheduled in the fall at FAU. In addition, graduate fellows will work with teachers and PI’s to develop and implement instructional materials based on the high school science curriculum. The graduate fellow’s research knowledge is also incorporated into the instructional materials. Graduate fellows devote 15-20 hours a week to the GK-12 Program, 10 hours of which are spent in the classroom with a teacher working with 3-4 different chemistry, environmental science or biotechnology classes. Graduate fellows may have the opportunity to attend local and national science education conferences to present the results of their work in the GK-12 Program. For their participation, graduate fellows receive a stipend of $30,000 a year plus tuition and benefits.

What are the Benefits of the GK-12 Project ChemBOND?

The GK-12 Project ChemBOND will benefit all participants. Graduate fellows will enhance their communication skills, thereby increasing their competence as scientists. High school teachers will have opportunity for professional development by enhancing their science knowledge and engaging in scientific inquiry. High school students will experience new approaches to learning science, thereby improving their knowledge and attitudes towards science. This long-term partnership between FAU and the high schools will therefore result in better teachers, better students, and better science at all levels.

Further Information: For further information, please contact the Principal Investigator for this grant, Dr. Donna Chamely-Wiik at 561-297-0046 or dchamely@fau.edu.