**NDSU GraSUS**

**Student Impact:**
Overall: Enhanced cognitive and affective learning

- Exposition to cutting-edge and latest sci/math material/concepts
- Opportunity to visit and work at NDSU labs and other facilities
- Seeing fellows as role models
- Getting tutorial help from fellows
- Developing interest in science and math

*How does it work:* Graduate students and faculty from NDSU work with science and mathematics teachers in grades 6-12 in schools in Fargo-Moorhead and Cass County to enhance student achievement in science and mathematics. The project focuses on inquiry-based learning to promote students' learning, problem-solving skills, creative thinking, and teamwork.

**Fellow Impact:**

- Improved ability to communicate their math/sci. knowledge to others (outside their scientific community)
- Understanding and appreciation of secondary school system
- Collaboration with teachers and faculty in developing new materials
- Experience in unifying their discipline content knowledge with pedagogy
- Receiving mentorship from project leadership
- Better preparation for their intended career
- Reflection on their teaching and learning

*How Does it Work:* SMET graduate students collaborate with area secondary school teachers and NDSU faculty in developing classroom units; spend 8-10 hours/week in grades 6-12 science/mathematics classes and interact with students; attend project professional development activities aimed to enhance content and pedagogy.

**Brief History**

- **First phase** was funded by NSF in March 2001 (Total amount: $1,009,057); second phase (GraSUS-II) was by NSF in January 2004 (amount: $2,017,059; predicted to reach $2,057,059 by the expiration of the project)
- **Launched in the schools:** Fall 2001
- **NSF funding will expire** by May 2009

**Project Goals**

- **Enriched learning** by science and mathematics students in Grades 6-12.
- **Improved communication and teaching skills** of GraSUS fellows
- **Professional development opportunities** for middle and high school teachers
- **Strengthen partnerships** between NDSU and school districts
- **Document project outcomes,** informing others of the potential impact of GraSUS activities
- **Incorporate GraSUS-II activities** as an integral part of NDSU’s STEM graduate programs

**Personnel**

**Principal Investigator:** Doğan Çömez (Mathematics)
**Co-P I’s:**
Canan Bilen-Green (Industrial & Management Eng.)
Edward Deckard (Plant Sci.), Bill Martin (School of Ed. Chair)
Lisa Montplaisir (Biological Sci.)
Don Schwert (Geology, CSME Director)
Gary Ketterling (School of Ed.)

**Project Coordinator:** Kim McVicar

**External Evaluator:** Deb Tomanek (University of Ari-
Teacher Impact: Professional development

- Unit/project development for classroom use
- Exposure to enhanced content knowledge
- Opportunity to work with NDSU STEM and Ed. Faculty, STEM graduate and advanced undergraduate students
- Opportunity to use NDSU labs and other facilities
- Receive equipment support
- Networking opportunity with other sci/math teachers in the area
- Joint research opportunity with NDSU faculty and area teachers
- Opportunity to reflect on teaching and learning
- Development of leadership skills to influence school faculty and administrators

Community Impact:

- Collaboration opportunity among university faculty and secondary school educators
- Educating well informed and involved future citizenry
- Increased understanding of K-12 system (students, teachers, and curricula) by all involved parties; opportunity to reflect and collaboration on issues in teaching and learning
- Better understanding of the interaction amongst STEM faculty and area business and industry leaders in addressing enhancing education in area schools and retention of graduates in F-M community
- Opportunity for outreach and community service by all involved parties

Faculty Impact:

- Collaboration opportunity with secondary school educators
- Increased understanding of K-12 system: students, teachers, and curricula
- Professional development
- Opportunity to reflect and collaboration on issues on teaching and learning
- Better understanding of the interaction amongst STEM and Ed. Disciplines
- Opportunity for outreach and community service
- Opportunity to inform local schools about NDSU programs

How does it Work: The project provides a professional development program for teachers, and designs instructional strategies appropriate for the grades 6-12 linked to the standards.