

# 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.)

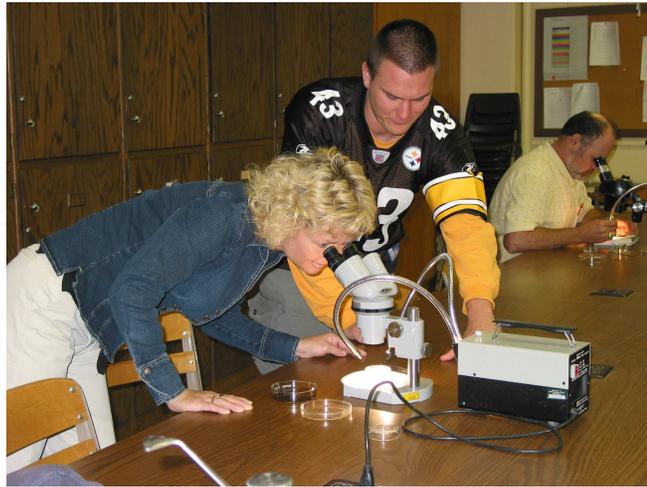
### Project Coordinator:

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



*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.

## 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

## 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