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SED 610  
Dr Berry

**Information Technology Experiences for Students and Teachers**  
**(ITEST)**

**Funding Agency:** National Science Foundation

**Funding Request:** \$510,700 per year for 2 years

**Principal Investigator:** Brenda Sill

**Co-Investigators:** California State University Northridge

**Project Name:** Geographic Information System Preparedness Academy

**Investigator Credentials:** (see resume)

Project Description

California State University Northridge and Granada Hills Charter High School propose to offer a Geographic Information System Preparedness program at Granada Hills Charter High School. The proposal is requesting computers, ArcView 3x software site license, teacher professional development and student summer enrichment academy.

Partners

**California State University Northridge** is located in the San Fernando Valley. CSUN's student demographics are as follows: 39.6% Men, 60.4% Women, 38.2% White 21.7% Latino, 16.5% Other 12.4% Asian American 5.1% African American 5.4%, International, 0.6% American Indian and the average age of all students is 26.1 years. In CSUN's Geography department, which is, part of the College of Social and Behavioral Sciences is underrepresented in both women and Latino and African American. Currently there are 148 undergraduates and 50 graduate students and over 80% the geography students are white male.

CSUN's geography departments is experiencing a decline in the enrollment of students wanting to pursue an advanced degree in Geography fields and a decline in skills and knowledge of the incoming students. CSUN geography department is seeking to pilot a partnership with Granada Hills Highs to develop through Information Technology to stimulate student interest to pursue an advanced degree, career in the Geospatial Technology field and strengthen CSUN's potential incoming students computer skills and ability to research and analyze temporal and spatial information. CSUN's Geography departments mission statement is, "The center's mission is to promote and foster the use of GIS technology in education and research at California State University, Northridge and the larger southern California community. We seek to encourage interdisciplinary collaboration among faculty, students, and groups in the local community who can benefit from using geographical information and spatial analysis."

**Granada Hills Charter High School (GHCHS)** is located one mile north of California State University Northridge in the north San Fernando Valley portion of Los Angeles. It is geographically a only mile away with similar student demographics yet it seems to light years away when the student is trying to make the transition from high school to college,

**GHCHS** is a conversion direct-funded charter approved by the Los Angeles Unified School District and is the largest charter school in the nation. Granada Hills Charter High school has been the leader in providing its suburban population with additional resources which include 9th Grade Transition academy, and the flexibility to integrate technology in its curriculum which includes a laptop academy, digital imaging, web design and a variety of other

technology courses. Being charter has enabled Granada to continue to be high performance school with API scores constantly improving from 739 in 2001 to 816 in 2007 and have a statewide rank of Granada HS is a multicultural and multilingual school with a variable social-economic population (26% low-income and 5 different languages).

Granada Hills Charter High School has proven its commitment for student excellence and is committed to take the next step to prepare GHCHS student for the global economy of the 21<sup>st</sup> century as presented in the mission statement, expected school-wide learning results (ESLRs) and the education technology plan.

### *GHCHS Mission Statements*

GRANADA HILLS CHARTER HIGH SCHOOL will provide a positive student-centered environment in which all students will develop academic skills, practical skills, and attitudes to enable them to be successful lifelong learners and productive, responsible citizens in a diverse society. We pledge our resources to create a school where all students are actively engaged in the process of learning in a multicultural, multilingual setting.

### *Expected School-wide Learning Results*

EVERY STUDENT WHO GRADUATES FROM GHCHS WILL BE:

- AN EFFECTIVE COMMUNICATOR  
Able to read, write, speak and listen for a variety of reasons.
- AN INFORMATION MANAGER- Able to locate, access, organize, evaluate, and Supply information for a complex and technological world.
- A PROBLEM SOLVER- Able to apply a variety of thinking, creative and computing skills to produce solutions to practical and theoretical problems.
- A PRODUCTIVE MEMBER OF SOCIETY- Able to demonstrate healthy, responsible behavior and work collaboratively and respectfully in a linguistically and culturally diverse community.
- LIFELONG LEARNER- Able to set educational and career goals, develop a realistic strategy to achieve those goals and apply content knowledge and critical thinking skills to adapt to a rapidly changing environment.

Granada's Technology goals for staff and students and specifically for the department of Mathematics and Science:

**Goal 1:** Our schools will use technology to support the school curricular goal of ALL students attaining proficiency or better with ELA content standards by the 2013-14 school year.

**Goal 2:** Our schools will use technology to support the school curricular goal of ALL students attaining proficiency or better with Math content standards by the 2013-14 school year.

**Goal 3:** All school students will acquire the National Education Technology grade level standards for students to support achievement of the academic standards in the classroom, school curricular **goals**, and ESLRs.

**Goal 4:** All school students will have equal access to **technology** to support achievement of the academic standards in the classroom, school curricular **goals**, and ultimately for lifelong learning and success in our digital society.

**Goal 5:** Our school will support school and site use of **technology** to improve student achievement data collection, analysis, reporting, and research/ data driven decision-making.

**Mathematics** Express, interpret and use mathematical concepts to construct valid arguments and solve real-world problems; demonstrate conceptual understanding through appropriate application of mathematical skills and problem-solving techniques.

**Science** Understand and demonstrate through application the use of the scientific process in problem solving; develop the habit of critical thinking, and learn to construct a body of concepts through experiential activities and communications; use technology for information retrieval, data acquisition and analysis, and communications; demonstrate mastery of research skills and scientific writing standards

### Educational Issue

United States public high schools need to offer more courses to prepare students to pursue college majors, such as science and technology. Graduates in these majors are in high demand to meet the need of a global economy. US students are losing their position as the world leaders in innovation in technology rich society. There is also a decline in the number of women and minorities pursuing careers in science and technology, which will lead to a

bigger gap in the digital divide. The disparity between the opportunity to utilize technology of the lower socioeconomic groups such as minorities, women and the poor denied access creates the digital divide.

Student apathy is increasing because the lack of real world applications to their learning. If students see no relevancy than they are not inspired to use the higher thinking skills. In addition to the lack of current employable skills being taught traditional teaching ignores the students hunger for advanced technical skills.

Students of the 21<sup>st</sup> century have shorter attention span therefore they need to attain information quickly and without extraneous effort. They have lost faith in traditional education and they need to go beyond just paper and color pencils. Even the entry-level positions in the work force require technologic skills.

CSUN's Geography department has dwindled to less than 200 students pursuing geography major of the 26,000 students attending Northridge. Yet, need for geographers have increased. You could for local, state, and federal government agencies, these skilled individuals can be found employed in the private and non-profit sectors in a wide-range of related scientific and technical fields, such as agriculture and soils; archeology; biology; cartography; ecology; environmental sciences; forestry and range; geodesy; geography; geology; hydrology and water resources; land appraisal and real estate; medicine; transportation; urban planning and development, and more.

## Goals

1. Geographic Information System Preparedness program at Granada Hills Charter High School goal is to build skills and knowledge to advance their study and to

function and to contribute in technologically rich society. Allow GHCHS students in their 11<sup>th</sup> and 12<sup>th</sup> grade year the opportunity to earn a GIS Certificate from CSUN, which are 15 semester units. GHCHS students' will be able to immediately and smoothly transition into vocational tech work force.

2. Real-world application projects that have a field component experience, which will the motivate learning and inspire to be a lifelong learner and the confidence to effectively communicate their knowledge.
3. Provide equal opportunity for lower socioeconomic groups such as minorities, women and the poor access to attain technical skills, field mapping GIS projects, and seeking a higher education.
4. Geographic Information System Preparedness program will meet the Mathematic and the Science will be able to demonstrate the scientific process and develop the habit of critical thinking, and learn to construct a body of concepts through experiential activities and communications. Especially because projects are designed for information retrieval, data acquisition and analysis. As well, CSUN Geography's goal is to expose students to real world problems and solutions while providing the local community with an opportunity to utilize our expertise.

**Projects:**

Wetlands Mapping, Historic Ecology, and Other GIS Projects Multimedia Research

**Wetlands Mapping:**

Ventura County Wetlands Mapping, Southern California Coastal Wetlands Mapping, and San

Gabriel River Watershed Wetlands Mapping,

**Historical Ecology:**

Historical Wetlands Mapping of the San Gabriel River, An Examination of the Historical, and Wetlands and Land Use on the Santa Clara River,

**Other Projects:**

Habitat Suitability Model for the Western Snowy Plover and Habitat Suitability Model for Invasive Fennel in the Santa Monica Mountains

Timeline

**Year 1**

July -Teacher team and GHCHS Tech team meeting for program planning and installation coordination

Late July- computer installation

August- Teacher Professional development and curriculum planning meeting

September to June three class periods of GIS instruction for a total of 32 weeks.

December is the deadline for student to have project ideas approved.

Monthly- Teacher will collaborate project progress and assess grant goals on the 3<sup>rd</sup> Tuesday after school for 2hrs

Late June –The summer enrichment academy will be for students and teachers to attend.

Students will present their projects and/or project progress at end of the academy.

**Year 2**

July -Teacher team and GHCHS Tech team meeting for program planning and maintenance coordination

Late July- computer maintenance

August- Teacher Professional development and curriculum planning meeting

September to June three class periods of GIS instruction for a total of 32 weeks.

December is the deadline for student to have project ideas approved.

Monthly- Teacher will collaborate project progress and assess grant goals on the 3<sup>rd</sup> Tuesday after school for 2hrs

Late June –The summer enrichment academy will be for students and teachers to attend.

Students will present their projects at end of the academy. Student Award ceremony for CSUN GIS certificate.

Late June teachers will evaluate 2-year program.

#### Budget

<u>Budget Item</u>	<u>Cost</u>	<u>Subtotal</u>	<u>Total</u>
36 Del PC	\$2500.	\$90,000.	
HP Printer	\$1500.	\$1500.	\$91,500
Misc. computer supplies	\$900.	\$2700.	\$94,200
Site license ArcView 3.x Edition	\$5,000.	\$5,000.	\$99,200
IT labor install 2 technicians for 2 weeks	\$900 a week per technician	\$3,600.	\$102,800
Teacher training for 3 teachers	\$1250 (per teacher per week)	\$3750.	\$106,550
On site tech training from ArcView	\$3,000.	\$3,000.	\$109,550
Textbook “Mapping Our World”	\$40.	\$14,400	\$123,950
Student summer internship 36 students for a week	\$2500.	\$90,000.	\$213,950
Teacher summer internship salary and travel expenses.	\$3750	\$7500.	\$221,450
Teacher salary 1 year 3 class periods for 3 teachers	\$27,000	\$81,000	\$302,450