

**Improving student learning and student retention at the undergraduate level
Application Cover Sheet**

Maximum funding for any single grant: \$50,000.

Proposal must be limited to two pages plus a budget page, in addition to the cover sheet.

DIRECTIONS:

1. Complete cover sheet
2. Attach 2 page proposal summary
3. Attach 1 page budget
4. Submit your proposal electronically to your college office for approval. College offices will submit recommended college proposals to the Provost office **no later than June 23, 2006 for FY'07 funding.**

Name Timothy E. La Tour Date 6-21-2006

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Collaborators (other departments, if any):

Title of Your Proposal: Improving Retention and Timely Graduation Rates for Geosciences Majors (Geography & Geology).

Theme of Your Proposal (Support for students; Fostering connections; Enhancing advisement; Other innovations): Creation of a Geosciences Learning Community (GLC) in the Department of Geosciences, integrating students interested in majoring in Geography and Geology, and focusing on development of research groups which will carry out several problem-based projects.

College rating (approved; not approved) APPROVED

Department of Geosciences
Georgia State University

Retention, progression, and Graduation (RPG) proposal

Submitted by

Dr. Pamela Burnley, Associate Professor, Department of Geosciences
Dr. Katherine Hankins, Assistant Professor, Department of Geosciences

Summary of the project

This project will introduce a Geosciences Learning Community (GLC) in the Department of Geosciences. The GLC will integrate students interested in majoring in Geography and Geology, which are the department's two main areas of concentration. Groups of students within the GLC, or "research groups" will focus on several problem-based research projects, which will be carried out over two semesters.

Purpose

The purpose of a GLC and its research groups is to foster connections among students and faculty, to improve student performance, to generate interest in Geosciences, and to give students the opportunity to experience hands-on research. The GLC will serve between 40-50 students, recruited from introductory and intermediate courses in geology and geography. At the core of the GLC experience will be two or more research groups that focus on conducting research, which will be carried through two (or more) academic semesters, beginning in spring 2007. Each research group will be headed by a faculty advisor and a GTA or undergraduate team.¹ Students participating in research groups will receive a one-hour course credit. Students in the research groups will meet with the faculty advisor and/or GTA/undergraduate teams once per week. In addition, all students in the GLC will meet once per month for research updates, guest speakers, field trips, and informal interactions.

Goals

The GLC and its research groups have six goals, which include to

1. foster a sense of "belonging" to a community of students and faculty with a shared interest in the geosciences. By providing a shared space for students to congregate and providing personal locker space to students in the GLC, the Geoscience Department will become the student's "home" on campus.
2. foster connections among students. The GLC will provide students the opportunity to get to know one another in an intimate, research-focused setting.
3. foster connections among students and faculty. The faculty advisor and graduate student/undergraduate teams will coordinate research activities with other faculty members and with graduate students and senior undergraduates, which will foster greater interaction among students and faculty.
4. improve student performance. Students often perform better in small group settings. Having a GLC will give students the opportunity to get to know and work with a familiar group of peers over the course of two or more semesters.
5. generate interest in Geosciences. By taking a series of courses together and by being exposed to Geosciences research, students will gain a greater appreciation for the issues and approaches taken in geography and geology and may choose to major in Geosciences.
6. give students the opportunity to participate in problem-based learning. By having students tackle "real-world" problems, students will gain an appreciation for the research process.

Project activities

The main activities include developing and implementing a research project that will have relevance and applicability for GLC students and for the faculty members leading the research groups. For example, a possible project for a geography research group would be "Atlanta's environmental problems and promise," which would encourage students to research Atlanta's environmental issues from a variety of approaches.

¹ GTAs will be used, depending on the availability of graduate students. If graduate students are not available, teams of two junior or senior undergraduate majors will be chosen to help lead the research groups.

Year 1:

Fall 2006: The faculty advisors and GTA/undergraduate teams will develop the research projects and planned activities. This includes developing background information for the research projects, developing student assignments, lining up guest speakers, scheduling field trips and designing instruments for evaluation of the GLC outcomes. The faculty member and GTA/undergraduate team will design presentations as a recruiting tool to show to students taking introductory courses in geosciences. The presentations will contain information about careers in geology and geography as well as information about the majors and the GLC. GTAs or senior geology/geography majors, working in pairs, will visit GEOL1121; GEOL1122; GEOG1101; and GEOG1112 classes and labs and deliver a presentation to recruit students for the GLC. GTAs or experienced geology/geography majors will be hired to serve as peer mentors. These students will staff regular office hours for students seeking help with GEOL1121; GEOL1122; GEOG1101; and GEOG1112 and also be available for students taking intermediate geology and geography courses. Lockers for GLC participants will be purchased and located in a space close to both the geography and geology faculty offices (back portion of Sparks Hall). Students who wish to join the GLC will be given a locker and invited to participate in student activities in the department. In addition the GLC members will be given a one year subscription to a trade magazine such as "Geotimes" or a membership in a professional organization such as *Association of American Geographers* or the *Geological Society of America*. In the second half of the semester, students in GEOL3002 (the entry point course for the geology major) will be invited to help launch the geology GLC research project.

Spring 2007: The GLC will be centered on a two semester sequence of one-credit-hour courses. Beginning during spring 2007, students participating in the GLC will register for the one-hour credit and will begin weekly meetings with their chosen research groups. Monthly GLC meetings will also take place, which will include topics such as "Conducting Field-based Research" and "Choosing a Career in Geosciences." Peer mentoring and recruiting in GEOL1121; GEOL1122; GEOG1101; and GEOG1112 classes will continue. Students who have taken GEOL1121 will be invited to enroll in "Geology in the Field" a one credit hour course that consists of 5 field trips run by geology faculty during the spring semester. A similar course will be developed for the geography students. Field trips that are relevant to both majors (i.e those with a strong focus on geomorphology or hydrology) will be attended by both groups. At the end of the spring semester the GLC students will present their research projects to Geoscience faculty and students either in the form of posters or oral presentations.

Summer 2007: Faculty advisors and GTAs/undergraduate teams will continue to meet during summer 2007 to assess the effectiveness of the research groups. They will also plan activities for fall 2007 and spring 2008, including investigation of suitable field sites and establishing infrastructural setup for in-house research activities. These are the activities for which faculty are to be paid 10% summer salary.

Year 2: GLC students will again register for the one-hour course credit, will meet weekly, and will continue working on the research project. New students will also be recruited to join the GLC. In addition, students who excelled in their research projects will be hired as peer mentors to help teach the incoming members of the GLC how to do research. As the number of students in the GLC increases with each semester, additional undergraduate peer mentors and research mentors will be hired.

Evaluation

Students will be evaluated for their participation in the research project. To assess the overall effectiveness of the project, as students enter the GLC they will be given a questionnaire about their interests and perceptions of concepts in Geosciences and the two Geoscience majors. At the conclusion of students' GLC experience, they will again be given another questionnaire to assess how their interests and perceptions have changed. In addition early in the fall of 2006, existing geology and geography majors will be asked to fill out an anonymous questionnaire regarding their perceptions of the geology and geography programs, including questions about their sense of belonging to a community, and the ease of obtaining advice from faculty and other students. The same questions will be repeated in a questionnaire given to GLC students at the start of fall of 2007. Conduct of the GLC effort, including organization and evaluation, will be based on the highly successful NSF-funded ACRES program that was conducted under Dr. Burnley's direction for several years.

Budget tied to goals

Implementing two or more research groups in a GLC would require two faculty members and two GTAs/undergraduate teams. Summer support (10% each) for faculty members is requested and four semesters of support for GTAs/undergraduate teams is requested (fall 2006 through spring 2008): \$24,000. Support for undergraduate peer mentors and student recruiters who will staff office hours and visit introductory classes is requested. Magazine subscriptions are included because some of our existing faculty had subscriptions as undergraduates and remember how it gave them a sense of professionalism and belonging. In the second year additional funds are requested for experienced undergraduate GLC members to assist in the program. Lockers for GLC members (\$3,000) would facilitate a sense of belonging for those participating in research groups. Start up supplies for research groups and honoraria for guest speakers is also requested.

	Fall 2006	Spring 2007	Summer 2007	Fall 2007	Spring 2008	Summer 2008
Faculty summer salaries						
Burnley			\$6,000			\$6,000
Hankins			\$5,000			\$5,000
geography in the field coordinator			\$5,000			\$5,000
geology in the field coordinator			\$5,500			\$5,500
GTA						
geography GTA	\$3,000	\$3,000		\$3,000	\$3,000	
geology GTA	\$3,000	\$3,000		\$3,000	\$3,000	
Undergraduate mentors						
4 recruiters/peer advisors (5 hrs./week @ \$9.00/hour for 15 weeks)	\$2,400	\$2,400		\$2,400	\$2,400	
3 geography undergraduate research helpers (5 hrs./week @ \$9.00/hour for 15 weeks)					\$1,800	
3 geology undergraduate research helpers (5 hrs./week @ \$9.00/hour for 15 weeks)						\$1,800
Supplies						
lockers	\$3,000					
magazine subscriptions	\$2,000			\$2,000		
honoraria		\$1,000		\$1,000	\$1,000	
research supplies	\$1,000			\$1,000		
Total	\$14,400	\$9,400	\$21,500	\$12,400	\$13,000	\$21,500
Year 1 Total			\$45,300			
Year 2 Total						\$46,900