

GT Grand Challenge Scholar Program Proposal

Grand Challenge Scholar Vision:

The Georgia Tech Grand Challenge Scholars Program encourages the development and growth of a diverse and dynamic community of students and faculty committed to engaging the most pressing challenges facing the global community. To build the GCS program at Georgia Tech, we will leverage existing curricular and co-curricular resources and opportunities while seeking and incorporating new ones to improve and enhance the leadership skills and social/global awareness of future engineers, scientists and technologists. Most recently, Georgia Tech instituted a new Quality Enhancement Program titled “Serve-Learn-Sustain” designed to create and support community-based service learning and research, offering a natural partnership with the GCS program. Our Scholars will exemplify the GT motto, *progress and service*, by seeking solutions to pressing problems, both locally and globally. Georgia Tech’s GCSP will empower students to be fearless learners and problem solvers, leaders and inventors in their pursuit of novel but sustainable answers to complex challenges.

Georgia Tech will aim to graduate 125 Grand Challenges scholars every year. Program participants will develop a coherent integrated plan with the assistance of a GCS advisor as early as the second semester of freshman year or as late as their junior year. To achieve our goal, we will leverage many existing GT programs. The freshman Grand Challenges Living-Learning community (120 students), the Start-up House and GT1000 classes will be major partners in recruiting freshmen and sophomores to the program. The Office for Undergraduate Research, the Office for International Education (OIE), which offers 35 abroad experiences and the Vertically Integrated Projects (VIP) program are all natural partners. Other partners will include the new minor in Leadership for Global Engineering and the CREATEX initiative that fosters entrepreneurial confidence through classes and *idea-to-prototype* research experiences. Given the many venues and opportunities for students to fulfill GCS requirements, we feel confident that we can build the program to achieve our desired number of graduates.

Building a GCS community of scholars, graduate advisors and faculty will be essential to the expansion and sustainability of the program. Fellows in our Graduate Leadership program who work with freshmen in the Grand Challenges living community will be GCS partners. They will be instrumental in advising and mentoring, as will faculty identified in the different units. We will host both formal and informal gatherings for the GCS community, that is, meet-ups, sponsored talks, outings, lectures, student presentations. We see the scholars themselves taking significant leadership roles in the development and evolution of the program and associated activities.

Selection of GCS participants:

To apply for admission to the GCS program, a student must be in good academic standing

and submit the following documents within the first month of an academic term.

1. A completed application form.
2. A recommendation letter from a faculty member/mentor. This letter should address the strengths, talents and motivation of the student that will sustain him/her in completing the GCS components. Ideally, the mentor will have first hand knowledge of the applicant's work habits, persistence, organizational abilities, and independence, all essential to identifying and completing activities to fulfill GCS requirements. (Attached find directives to recommenders in regards to the content and focus of their letter).
3. Endorsement from the academic advisor in the student's unit who is in a position to gauge whether admission to this program is recommended based on current GPA and courses to come.
4. A personal essay explaining reasons and goals for participating in the GCS program. (This essay should be concrete in describing prior relevant experiences and/or desired personal goals. 1-2 pages.)
5. A proposed GCS curricular and co-curricular plan, which maps out the courses, activities and experiences the scholar plans to pursue in the five required areas. This plan is subject to change as the student works through the components and consults with his/her advisor.

The GC oversight committee will review applications in the fall and spring semesters and make recommendations for admission to the program. Admitted students will be responsible for documenting approved activities and for meeting with their GCS advisor at least once every term to evaluate progress and make changes as necessary.

Five GC curricular components:

GC Scholars will develop individual plans to fulfill the five curricular and co-curricular components:

- a) ***Hands on project or research experience*** related to a grand challenge
This project will have a sustained duration of two or more semesters focused on a challenge of importance to humanity.
- b) ***Interdisciplinary learning experience***: This requirement can be fulfilled through completion of two courses with a GC focus in the social sciences, arts, humanities, public policy or international affairs. It can also be fulfilled by participating on a multi-disciplinary design project at the capstone level or before.
- c) ***Entrepreneurship experience***: This component focuses on translating an invention or innovation into a commercial venture linked to a grand challenge. Many opportunities for fulfilling this requirement can be found at <http://www.undergradresearch.gatech.edu/invention-entrepreneurship>.
- d) ***Global/Cross-cultural experience***: Participating in this activity will deepen a student's consciousness and motivation to bring technical knowledge to bear on global problems. This experience could be overseas

through the Office of International education, Engineers without Borders, Engineering World Health or in an under-served domestic community. It can also be fulfilled through coursework.

- e) **Service and Social action experience:** Develop/deepen social consciousness and motivation to bring technical expertise to bear on societal problems.

Tracking and assessment of the GC Scholars progress

Our GCS website will be designed to facilitate student self-submission of requirement completions, which can then be approved by appointed faculty/staff advisors. This website will run automatically generated reports on the status of enrolled students. Given the large number of students expected to enroll and participate, the website will serve as the primary tool to mitigate the administrative burden on managing the students' grand challenge completion submissions and approval processes. Students will also be encouraged to maintain a Pathbrite (<http://www.pathbrite.com>) portfolio of their work as well as updating their LinkedIn profile as they complete components of the program.

Options for fulfilling component requirements

GCSP Curricular Components	Georgia Tech Fulfillment Options
Research Project	Independent Research should target one of the 14 Challenges outlined by the NAE, must be approved by the GCSP Committee, and must be in the form at least one of the below: <ul style="list-style-type: none"> • Two years of a Grand Challenges Living Learning Community sponsored project • 2 semesters or more conducting research in an approved Georgia Tech, industry, or co-op laboratory • An approved intensive summer research project • Participation in the Petite Undergraduate Research Scholars program • PURA undergraduate research award • Summer Undergraduate Research Fellowship (SURF) program • Summer Undergraduate Research Experience (SURE) • <i>Idea to Prototype</i> semester if the project addresses a grand challenge.
Interdisciplinary Curriculum	Complete at least ONE of the following: <ul style="list-style-type: none"> • Grand Challenges Living Learning Community fall AND spring Introductory courses • 3 approved credit hours from the School of Literature, Media and Communications (LMC) AND 3 approved credit hours from the School of History, Technology, and Society

	<p>(HTS)</p> <ul style="list-style-type: none"> • 2 Honors Program Special Topic courses in the social sciences or humanities. • An approved interdisciplinary certificate program • An approved minor in a non-engineering field such as Business, Economics, Public Policy, International Relations • Participation on an interdisciplinary Capstone Design Team with non-engineering students AND presentation at the Capstone Design Expo
Entrepreneurship	<p>Participate in at least ONE of the following activities:</p> <ul style="list-style-type: none"> • Start-Up Lab course • Start-up Summer course • Start-Up Exchange: Three Day Start-Up • Start-Up Gauntlet • A minor in any of the following: Business Administration, Economics, Computing and Management, Engineering and Management • Scheller College of Business Entrepreneurship Certificate • Participation in the GT Start-Up Competition • Participation in InVenture Prize • Participation in NSF-I-CORP program
Global Dimension	<p>Complete the Global Perspectives Core Curricular requirement</p> <ul style="list-style-type: none"> • 3 credit hours from the Global Themed Overlay Approved Course List <p>AND one of the following activities:</p> <ul style="list-style-type: none"> • A GT approved semester or summer studying abroad • An approved internship or co-op abroad • An approved international service/engineering trip (e.g. Engineers Without Borders) • The Georgia Tech International Plan • A minor in International Relations, Public Policy, or Political Science • An approved global experience suggested by the student
Service Learning	<p>Complete at least ONE of the following activities:</p> <ul style="list-style-type: none"> • The Grand Challenges Living Learning Community service requirement • GT sponsored Alternative Service Breaks • Approved Service Trips (e.g. Engineering for Developing Communities, Engineers Without Borders) • An approved 30 hour community service project that incorporates 1) engineering OR 2) interfacing with a community targeted by the student's chosen Grand Challenge

	<ul style="list-style-type: none">• 30 hours tutoring (elementary, high school, or undergraduate level)• Participation in the Ideas to Serve Competition• Completion of <i>Community Engagement Methods with Applications to Sustainable Communities</i> course
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Directive to Grand Challenge Scholars recommenders

The Grand Challenge Scholars Program gives Georgia Tech undergraduates the opportunity to build a coherent and cohesive set of activities during their tenure at GT that will distinguish them from other students. The program is demanding as it is co and extra-curricular in nature, requiring students to keep a sustained focus on a grand challenge of choice. Scholars will need to complete activities or courses in five focal areas: research, global experience, interdisciplinary engagement, service learning, and entrepreneurship. As an identified recommender, we would appreciate your addressing some of the following areas because we believe these are essential to the successful completion of this demanding program.

To what extent is s/he persistent, organized, reliable, or independent? Can you give an example?

What characteristics have you seen that lead you to believe s/he will seek out and complete the required program components?

To what extent does s/he have a passion for and a desire to solve an aspect of a grand global challenge?