

» COLLEGE OF SCIENCES
**STRATEGIC PLAN
IMPLEMENTATION**
2021-2030

RECOMMENDED TASKS
& METRICS OF SUCCESS



GOAL 1: WORKPLACE EXCELLENCE

» Strategy 1: Foster a Greater Sense of Community Within the College

Recommended Tasks

1. Provide and facilitate opportunities for the staff, academic faculty, research faculty, and student councils to build local communities of support and communicate regularly with their constituencies. Establish student, staff, research faculty, and academic faculty advisory councils that are representative of all schools and units within the College. Designate a point of contact in the Dean's Office to liaise with each of these councils. Conduct annual self-assessments for each council. Respond to forthcoming recommendations of the College Task Force on Racial Equity initiated by Dean Lozier in summer 2020. Adopt shared responsibility for creating an equitable, inclusive, and diverse community.
2. Continue to strengthen communication and partnership with the College of Sciences Advisory Board – and examine means by which the Board can aid the goals articulated in this plan.
3. Develop an annual online College workplace engagement survey for faculty, staff, and graduate students. The survey should be developed in collaboration with the Georgia Tech Office of Academic Effectiveness and/or the Georgia Tech Office of Strategic Consulting, and it should focus on assessing the effectiveness of strategies outlined in this plan.
4. Develop College welcome packages for graduate students, postdoctoral and research scientists to provide a consistent and centralized onboarding process. Provide clear guidance for international students and researchers on where and how to address concerns and questions regarding visa application, status, and renewal.
5. Further develop the College and school websites as gathering places for information and news relevant to all College members.

Metrics of Success

One measure of success would be increased satisfaction among College personnel, quantified, for example, through annual improvements in the survey responses over the first three years or by having 85% positive responses to the most relevant questions. Ideally, such increased satisfaction would also be accompanied by improved retention of personnel and students across the College. Continued engagement of faculty, staff, and students in the newly established councils will also be a metric of success, as will favorable ratings in their respective self-assessments.

» Strategy 2: Support Staff Through Salary Equity, Career Development, and Training

Recommended Tasks

1. Maintain staff salary equity as a College-level goal until equity is achieved. Advocate for increased funding to the College to achieve this goal.
2. Increase opportunities for staff training, including the support of participation in professional development conferences and workshops. Allow at least one training opportunity per year for staff members to be approved through the schools. Work with the College Staff Advisory Council to communicate training opportunities.
3. Create clear guidance for faculty on the roles and responsibilities of staff members in each school and unit. Ensure all schools have plans in place to cover both planned and unexpected staff absences. Provide specific and efficient communication within the College for specific tasks by providing a “Who to Contact” list for schools. Work with the faculty and staff councils to adopt mutual expectations of respectful faculty-staff interactions.
4. Assess the need for additional staff support within the schools and provide flexible support by establishing a cohort of cross-trained staff who can support each other across the schools.



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Metrics of Success (continued: Goal 1, Strategy 2)

One quantifiable goal is an increase in staff retention. Another benchmark could be staff efficiency and effectiveness, as assessed in supervisor reports within each school; as well as overall perception of administrative support in schools, as assessed by an annual survey with faculty. Self-reported improvements in well-being and professional development by staff could also be assessed by an annual survey within this cohort. Another benchmark for success in this area will be if a majority of staff members attend at least one professional development event each year.

» **Strategy 3: Enhance Faculty Diversity, Mentorship, and Support**

Recommended Tasks

1. Invest in initiatives that focus on the successful recruitment and retention of underrepresented minority faculty across all schools. Thoroughly examine current hiring practices for impediments to a diverse faculty. Adopt forthcoming recommendations of the College of Sciences Task Force on Racial Equity.
2. Retain outstanding early- and mid-career faculty by providing consistent, preemptive recognition and support. Establish a mentoring program to support all faculty.
3. Support and encourage the inclusion of early- and mid-career faculty in leadership positions for school- and center-level activities, with the goal of training the next generation of leaders. Consider implementing ladder-based mentoring efforts that partner successful senior team leaders with junior team leaders. Establish a leadership skills development program for early- and mid-career faculty, possibly in collaboration with the Georgia Tech Division of Student Life's Office of Leadership Education and Development (LEAD).
4. Advertise more widely the College of Sciences Faculty Development Grant program for academic faculty, including non-tenure-track faculty, so that faculty can immerse themselves in new approaches for scientific and pedagogical research. Work to award professional development funds to non-tenure-track faculty in order to support their efforts to improve teaching and to research effective pedagogy in STEM fields.

Metrics of Success

For this goal, we will look for an increase in the total number of underrepresented minority faculty in the College. We will measure success both in terms of recruitment and retention. Success in supporting the research creativity and productivity of mid-career, tenured faculty will be measured by continued faculty research output beyond promotion and tenure, measured by publications, grants, trainees; increased number of faculty as scientific leaders in their research fields; successful retention of productive faculty despite interest from other universities; increased research activity and tenured faculty members, as well as a decrease in proportions of trainees who do not have research resources and are required to teach each semester to earn their stipends. We will also look for an increase in the number of early- and mid-career tenure-track faculty in school leadership positions and center-level activities. In the longer run, we will expect an increase in the number of faculty in permanent leadership positions and as principal investigators (PIs) on large, center-level grants. For non-tenure-track academic faculty, success will include increased conference travel, an increased publication rate among faculty engaged in pedagogical research, and an increase in measurable outcomes from professional development projects.

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GOAL 2: EDUCATION AND TRAINING EXCELLENCE

» Strategy 1: Provide Access to Rigorous and Innovative Academic Programs

Recommended Tasks

1. Working in partnership with the Georgia Tech Office of Undergraduate Admissions, build on our effort to recruit and retain students into our current degree programs in order to increase the number of majors to 20% of the Institute's undergraduate population over the next five years, and to increase the number of College of Sciences bachelor's degree recipients to 20% of the Institute's total. Revise policies and practices as needed and seek additional investments in order to accelerate the recruitment of students who have been historically underrepresented in STEM fields. Continue supporting our Living Learning Communities, which effectively retain our College of Sciences majors.
2. Evaluate – within each school, across the College, and in partnership with other colleges – the merit and feasibility of new undergraduate and graduate programs, including, for example, new majors, minors, and certificate programs. Explore opportunities to engage other learners – including high school students, international visiting scholars, and adult learners – in various academic programs.
3. Adopt the recommendations of the College of Sciences Faculty Task Force on Teaching Effectiveness (2018) to emphasize formative activities along with summative assessments that better inform reappointment, promotion and tenure decisions, and periodic peer reviews. As recommended by the task force, mentor faculty in their instructional roles to promote the exploration and adoption of evidence-based pedagogies.
4. In partnership with the Office of Academic Effectiveness, coordinate and support systematic program-level assessment of instruction.
5. Create separate College-wide undergraduate student and graduate student advisory councils with representation from each school to provide input to College leadership regarding student-related issues.
6. Explore the design of core general education courses across the College, share best practices, and explore the potential for collaborative design of these courses.
7. Review student advising practices in the schools of the College – including academic, research, pre-health and career advising – and share best practices.

Metrics of Success

Success will be measured by the College's share of undergraduate majors and bachelor's degree recipients, and by the extent to which the College's graduate programs better reflect the diversity of the U.S. population. We will also measure success by an elimination of the gap in academic achievement, by an increased acceptance rate of the most highly qualified graduate students, and by a larger number of external fellowships held by graduate students. We will use surveys to evaluate student satisfaction with the curriculum and faculty satisfaction with instructional support and resources. Finally, we will measure our success through the improved reputational rankings of College of Sciences-led graduate programs.



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» Strategy 2: Promote the Interface Between the Research and Educational Missions

Recommended Tasks

1. Promote undergraduate research participation and celebrate the accomplishments of undergraduate researchers, their mentors, and their advisors. Increase support for undergraduate research fellowships. Accelerate efforts to increase enrollment and retention of underrepresented minority students in our graduate programs across the College.
2. Increase graduate student stipends to levels that are competitive with peer institutions, and continue to advocate for a reduction in graduate student fees. Explore creation of College of Sciences graduate fellowships to recruit top doctoral candidates, with a particular emphasis on recruiting to unique strengths in interdisciplinary fields.

Metrics of Success

We expect to have a greater number of undergraduates participating in research, making conference presentations, and appearing as co-authors on peer-reviewed papers. Likewise, we expect graduate students to have a greater output of scholarly products and increased satisfaction with research facilities and advising. We will look for increased participation of College of Sciences students in interdisciplinary and campus-wide research programs, such as the Undergraduate Research Ambassadors program, Undergraduate Research Symposium, and three-minute thesis competitions. Finally, we expect greater participation in paid research opportunities by undergraduate students from a wider range of socioeconomic backgrounds, as well as students from groups that have been historically underrepresented in STEM.

» Strategy 3: Equip Students to Embark on Productive and Satisfying Careers, and to Innovate in the Service of Society

Recommended Tasks

1. Work with the Georgia Tech Career Center (formerly the Center for Career Discovery and Development, or C2D2), and engage alumni directly and with the Georgia Tech Alumni Association, to create resources that specifically address the career needs of undergraduates and graduate students. Engage the College of Sciences Advisory Board in the creation of an internship program that exposes our students to careers in industry, non-profit organizations, government agencies, startups, and self-owned businesses.
2. Review and assess current professional development activities for students in our schools. Gather input from the College of Sciences Advisory Board and other alumni in the development of a framework for career mentoring, entrepreneurship, fellowship applications, and public engagement. Further promote curricular, co-curricular, and extra-curricular components that allow students to explore various career pathways through participation in, for example: Georgia Tech certificates, minors, dual degrees, capstone courses, Vertically Integrated Projects (VIP) Program tracks, the Petit Entrepreneurship Academy, Advanced Technology Development Center (ATDC) programs, CREATE-X, and The Steven A. Denning Technology & Management (T&M) Program.
3. Partner with the Georgia Tech Alumni Association to better coordinate, track, and maintain engagement with both undergraduate and graduate alumni.

Metrics of Success

We expect undergraduates to engage at a greater rate in curricular, co-curricular, and extra-curricular activities related to career discovery and development. We expect increased placement of our students in highly rated graduate programs and professional schools, as well as in top companies, and in academic and government positions. Finally, we will look for an improvement in student satisfaction in exit surveys regarding career preparation and placement.

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GOAL 3: RESEARCH EXCELLENCE

» Strategy 1: Foster Interdisciplinary Research Synergies with Targeted Hiring and Enhancements to the Research Environment

Recommended Tasks

1. Prioritize the creation of new faculty endowed chairs and professorships to reward success, enable retention, and incentivize recruitment, especially at the mid-career level. Prioritize endowed chairs and professorships associated with interdisciplinary research neighborhoods to provide local, cross-disciplinary leadership.
2. Develop new tenure-track lines for joint hires (cross-school and/or cross-college) with a focus on collaborative, technologically innovative, interdisciplinary research that has entrepreneurial promise. Promising areas from school strategic planning efforts include neuroscience, microbiology, data science, quantum systems, planetary science missions, and climate solutions. Opportunities to make use of existing core facilities will be prioritized.
3. Create common spaces for faculty-trainee interactions through new and expanded interdisciplinary research neighborhoods. Establish and provide resources for co-located research labs and facilities to promote dialog and to allow self-identification of research synergies. Use the success of the renovations of the interaction zones in Cherry Emerson and Howey as frameworks.
4. Develop a rapid response faculty committee in the College to respond to immediate challenges such as Covid-19 in real-time. Assemble a diverse scientific team with environmental, health, and societal expertise and develop an expertise framework and points of contact within the College.

Metrics of Success

We will measure our efforts by an increase in the number of endowed chairs in the College, an increased number of joint hires, and an increase in the number of common spaces in campus buildings with College of Sciences occupancy. We expect greater success in obtaining external funding from rapid-response solicitations and in addressing unplanned and immediate scientific and societal needs. Among other metrics of research impact, we will measure increased visibility and recognition by rankings. We aim to have all schools rank among the top 25 public national programs within their respective disciplines within 10 years.

» Strategy 2: Support Faculty-led Research and the Career Development of Researchers

Recommended Tasks

1. Provide mechanisms to help highly successful mid-career faculty pursue new directions and fully develop their research potential. At the same time, develop a 'bridge program' for faculty members experiencing a temporary reduction in or loss of funding. Ask the College of Sciences Academic Faculty Council to help develop this program and once implemented, review applications and make recommendations.
2. Prioritize the establishment of endowed graduate fellowships so as to raise the visibility of graduate training, enhance the faculty's research portfolio, and increase the diversity of our trainees.
3. In collaboration with other colleges, create a postdoctoral fellows program — modeled after the UC Berkeley Miller Institute for Basic Research in Science's Miller Fellowship and The Rowland Institute at Harvard's Rowland Fellows Program — that promotes cross-school and cross-college research.
4. Support the career pathways for graduate students, postdoctoral and research scientists by hosting professional development activities for academic and non-academic positions, providing networking opportunities, and collating and communicating job opportunities.
5. Sponsor and promote College of Sciences faculty for local, national, and international awards and recognition by ensuring that awards committees are active in each school. Use the newly formed College of Sciences Academic Faculty Council to develop and disseminate best methods for these award committees. Widely communicate all awards to our faculty.



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Metrics of Success (continued: Goal 3, Strategy 2)

Success in supporting the research creativity and productivity of mid-career, tenured faculty will be measured by continued faculty research output beyond promotion and tenure, measured by publications, grants, trainees; increased number of faculty as scientific leaders in their research fields; successful retention of productive faculty despite interest from other universities; increased research activity and tenured faculty members, as well as a decrease in the number of trainees who do not have research resources and are required to teach each semester to earn their stipends. In support of graduate student, postdoctoral scientist, and research faculty career development and success in research, we expect to see: increased recruitment, retention, and graduation of most qualified graduate students; increase in the number of graduate students, postdoctoral scientists, and faculty who are members of underrepresented groups in science; increase in the number of fellowships and faculty transition awards acquired by postdoctoral and research scientists and higher quality applicants; increase in the number of College of Sciences-trained postdoctoral and research scientists being placed at top research careers outside of Georgia Tech; increase in students and postdoctoral scientists utilizing current training opportunities including workshops and one-on-one advising; increased communication between postdoctoral and research scientists and College administration; increase in research faculty seeking and achieving promotion in a timely manner with view to long-term career at Georgia Tech; and more research faculty participating in faculty governance. Finally, we expect to see an increase in the number of local, national, and international awards allocated to our faculty.

» **Strategy 3: Develop Scientific Leaders at Georgia Tech and Beyond**

Recommended Tasks

1. Support faculty in diversifying their research funding portfolios, expanding into additional center-level proposals, training grants, multi-institution projects, and research sponsored by industry and private foundations. Provide faculty with strategies for breaking into new funding sources. This may include regularly scheduled, College-supported mock review panels. This will also serve to immerse students and postdoctoral scientists in the kinds of research they are likely to encounter after they leave Georgia Tech.
2. Reward efforts to lead and direct team science at national and international levels. Synergize with Georgia Tech Interdisciplinary Research Institutes (IRIs) and the Georgia Tech Executive Vice President for Research (EVPR) “grants hatchery” office to provide administrative support to assist faculty in developing and submitting large team grants. Maximize opportunities for faculty teaching buyouts while developing and administering large team science grants.
3. Become more involved in order to drive research priorities in Georgia Tech’s eleven IRIs, none of which are currently led by our faculty. Much of Georgia Tech’s internal funding of research is directed through IRIs. By playing a role in IRIs commensurate with our research strengths, we will make the most of collaborative opportunities and increase our chance to shape the Institute’s agenda on research.
4. Enhance visibility of College of Sciences research achievements through our communication efforts, particularly highlighting collaboration among faculty, students, and postdoctoral and research scientists; along with alumni, staff, and intercollegiate and industry partners.

Metrics of Success

If successful, we expect to see an increased research funding to our faculty from diverse sources including federal agencies, private foundations, and industry; increase in the number of outside collaborations; increase in number of training grants and large team grants submitted and awarded; increase in the number of cross-campus proposals submitted and funded (and increase in the dollars available to support this research); increase in the number of interdisciplinary publications and trainees from cross-campus research efforts; and expansion of average research group size with increased graduate student population. We also expect to see increased College of Sciences membership and leadership in research centers and IRIs and in science led IRI ideas and products. This amplified impact of our research will be visible through enhanced national and international perception of the College’s research, more College of Sciences-led research in Georgia Tech and external news, and through greater participation of our students, postdoctoral and research scientists, and faculty in cross-campus colloquia.

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