

A New Vision for Graduate Education at Vanderbilt

“Students today must be ready for a fast-changing, highly fluid, competitive, and demanding professional world, be it in academe, industry, or government.”

The Formation of Scholars, Rethinking Doctoral Education for the Twenty-First Century

We strive to provide the best advanced education to our graduate students in order to optimally prepare them for successful careers in academia, industry, and related fields. In order to achieve this vision, graduate education at Vanderbilt must become as integral a part of the fabric of Vanderbilt as undergraduate education and research. Whereas the latter elements of the Vanderbilt trifecta are performing at or near their maximum capability given the size of our institution, it is our firm belief that elevating graduate education, which has significant room for growth and improvement, will both enhance other parts of the University and the University’s overall reputation, and further advance both undergraduate education and our research mission.

Introduction and Overview

Since awarding its first PhD, in Chemistry, in 1879, Vanderbilt has steadily built a world-class graduate school known for the quality of its graduates and their scholarly contributions. However, as the educational and training landscape has shifted, challenges facing graduate education at Vanderbilt have begun to emerge that must be addressed. There is significant growth potential for Vanderbilt graduate programs both within the disciplines and at the interfaces between disciplines. There is a need to reassess the model of training at the intersection of research, undergraduate, and graduate education. This new vision promotes the engagement of undergraduates more broadly within the research life of the university. It strives to transform the current role of graduate students in the teaching and mentoring of undergraduates in research into a carefully considered, integrated program of rationalized and closely linked elements that both benefit undergraduates and sharpen the teaching experience of graduate students. Graduate students themselves often exist in a siloed environment that does not facilitate their development as future leaders and entrepreneurs working within a larger community of scholars.

There are many elements of the Graduate School at Vanderbilt that work very well, and, although the purpose of this report is to highlight areas in need of enhancement, we would be remiss if we did not touch on these. Perhaps most important of these is the quality and commitment of many of our graduate students, a number of whom go on to be leaders in their chosen field of study. Indeed, we are very pleased at the outcomes of many of our graduates, whose success is a testament to the quality of their graduate education. Most notable is not only the fact that we train many who stay within the academia and who become leaders within their respective disciplines, but also that we are increasing training our graduates for careers that sit outside of the traditional academic path. Although, as outlined elsewhere in the report, we can improve our training environment for preparing our students for these less conventional paths, we must acknowledge the successes of those who have chosen this route. Closely linked to the

success of many of our graduates is the commitment of our graduate faculty. We have a number of exceptional faculty who are deeply passionate about graduate education and about the training of our graduate students, and it is these faculty who form the core of the Graduate School. Through their efforts within individual programs and through their mentoring activities, these faculty are a large reason for the success of our graduate education endeavors.

It must also be acknowledged that facets of our graduate educational training mission are considered to be thought-leaders and practical leaders in certain realms, although these efforts have typically sat outside of the sphere of influence of the Graduate School. One of the best examples of our successes can be found in the Biomedical Research, Education and Training (BRET) office, which has been structured to enhance graduate and postdoctoral training within the biomedical disciplines. This office has created an exceptional environment for the training of the graduate students under its umbrella. Several of the functions subsumed by this office include the administration of training grants, career development counseling and programming, professional development skill building, and responsible conduct in research (RCR) training. These training elements have provided a competitive advantage for many of our trainees (both pre- and post-doctoral), and these types of programs should be expanded to the full Vanderbilt academic community.

A university that aims to be transformative can be a powerful force both within and outside the academy, particularly through the judicious implementation of an academic strategic plan. We must offer our graduate students both a meaningful role in this transformation and a much richer experience at Vanderbilt by creating more opportunities to share research, encouraging interdisciplinarity and collaboration, and using our outstanding faculty to attract and keep high-achieving students, adding value through the education and training we provide. An enhanced emphasis on graduate education does not necessitate shifting funding or personnel from Vanderbilt's longstanding tradition of superb undergraduate education. Rather, we suggest that facilitating the creation of new knowledge through graduate student research and scholarship will further enhance both our research enterprise and the experience for our undergraduates as they engage more deeply and meaningfully with their near-peers.

We propose to enhance our student-centered approach to graduate education, which (1) recognizes the primacy of the relationship between students and the advisors and mentors who act in concert to prepare consummate professionals, and (2) acknowledges that no one person or even one department alone can provide all of the expertise needed to bring about this preparation. We commit to quality and diversity of both faculty and the student body, since with the most highly accomplished faculty we will attract the finest graduate students, and with students who act as catalysts for the next generation of great ideas we will fully optimize Vanderbilt's research capacity and potential to take our place among the best research universities in the world.

What follows is a detailed discussion of the most pressing issues that need to be addressed in order to improve graduate education at Vanderbilt. We note that graduate education spans many schools and disciplines within the university and that not all best practices are appropriate for all programs. In this report we focus on general concepts and needs that transcend disciplines. We

believe that the Graduate School should be the driver that provides the infrastructure and support that empower individual programs and departments to address specific needs and requirements.

The Role of the Graduate School at Vanderbilt

Of Vanderbilt's 10 schools, the Graduate School is the most functionally diverse and unusual because it has no associated faculty lines and serves nearly the entire University. At its core, the Graduate School is responsible for all MS and PhD education programs offered by Vanderbilt. Graduate education is one of the three legs of the triad that support Vanderbilt, along with undergraduate education and research. Strong and thriving graduate programs are essential to both the research mission and the undergraduate educational mission of the University. While Vanderbilt's research and undergraduate programs have received much attention and are thriving, historically graduate education has been underserved, left largely to the departments, which receive minimal, primarily bureaucratic support from the Graduate School. Our survey findings of the graduate faculty indicate a desire for a stronger role for the Graduate School in supporting graduate education. We believe that investing in graduate education will advance Vanderbilt in its standings, with significant return per dollar spent. Furthermore, this investment will elevate both undergraduate education and our research enterprise.

The role of the Graduate School and its Dean will be to oversee the quality of graduate education and research and establish and promote a culture of excellence.¹ We acknowledge that excellence in graduate education stands or falls according to the capacity to recruit and retain world-class faculty engaged in high-impact research and scholarship. The Dean of the Graduate School will need to be the strongest advocate for graduate education and embody a persistent and persuasive voice at the table in conversations on resource allocations at the upper administrative levels of the University. While it is clear that significant resource allocation will be required to move our graduate programs to a higher plane, the investment will have important positive impacts on other facets of Vanderbilt's mission. To a large extent, educating graduate students will continue to be undertaken within our graduate programs and departments, with an enhanced role for the Graduate School. We envision that this will be based on the following 6 general focus areas:

- 1) Administration. This is perhaps the most mundane task of the Graduate School (and one that currently operates satisfactorily). It includes the many administrative tasks associated with admissions, accreditation, degree audits, compliance requirements and registrar functions, etc.
- 2) Career and Professional Development. Current graduate student polls indicated a high level of satisfaction with the education system with regards to subject-specific and technical or research knowledge and experience. Where the students felt more attention is needed is in the area of professional and career development, ranging from business skills, writing, teaching skills, presentation skills, interviewing, and entrepreneurial exposure, for example. With the addition of Dean Schemmer, some of these concerns have begun to be addressed over the past two years. This effort needs to be expanded. We envision the incorporation of the BRET Office into the Graduate School and the expansion of its staffing and role to serve all graduate students. Because existing records reveal that in nearly all disciplines the majority of our Graduate School graduates find employment outside of research universities, our

¹ See, for example, Organization and Administration of Graduate Education, Council of Graduate Schools, 2004

graduate programs should be designed to adequately prepare them for work in instruction-focused colleges as well as a wide variety of so-called "alternative" careers.

- 3) *Graduate Student Support Services*. The Graduate School must play a more active role in supporting our graduate students in all aspects of Graduate Life, including housing, counseling, and graduate fellowships and other financial issues. This office should revamp and maintain an informative and up-to-date Graduate School website.
- 4) *Data Tracking and Program Support*. The Graduate School should be the single clearing house for all data related to recruitment, admissions, student performance, student productivity, and program outcome data, including placement data and alumni connections. A major effort (in collaboration with VIRG) should be initiated to create and update a comprehensive data base that covers at a minimum the last 10 years and links into the graduate program systems. This essential tool could support administrative functions (accreditation, for example) and provide faculty support for training grant applications and other large-center grant efforts.
- 5) *International Affairs*. In conjunction with the International Student and Scholar Services Office, the Graduate School needs to pay particular attention to the specific needs of our international graduate students. This includes enhancing the name recognition of our graduate programs outside the United States, recruiting, providing international ("research abroad") experiences for our graduate students, and identifying fellowship opportunities.
- 6) *Special Programs*. The graduate school should expand programs aimed at increasing the quality, breadth, and diversity of our graduate student population. This includes incentive programs (graduate fellowships) to recruit the best and brightest prospective students to our campus, increasing diversity (ethnic and racial minorities as well as women in certain disciplines), and awarding and recognizing faculty for their roles in graduate education. The Graduate School should play a more integral role in the recognition and reward of the exceptional scholarship that happens on campus, and in encouraging innovation within and across the various disciplines. One tangible way in which such recognition could happen is in the development and administration of a series of awards, administered by the Graduate School, for best papers and posters of our graduate trainees. Such awards could serve as the foundation for a yearly event that would feature the scholarship of our graduate students across all disciplines represented across Vanderbilt, and that would be a means of highlighting the breadth and quality of their work. In addition to the associated recognition and reward, this event would serve as a fabulous community-building exercise for the Graduate School. Ideally, such an event could highlight potential for transinstitutional collaboration that might otherwise go unrecognized. Another enhancement would be the creation of a small grants program for our international students. It must be acknowledged that our domestic students have many more opportunities for applying for grants from federal and other agencies, and that the application process is a vigorous means by which to assess the quality of the proposed endeavor. Without such submission possibilities, our international students are at a competitive disadvantage. The creation of a small grant program administered by the Graduate School would provide a mechanism for our international students to compete for funding, and to thus enhance their grant and proposal writing skills.

Career Development, Outcomes, and Mentoring

The universe of career opportunities for graduate degree recipients is broadening rapidly. No longer are tenure-track positions within research universities the most likely career path as the competition has increased, a contraction in funding has taken hold, and the labor force has vastly outgrown the available positions. To face this reality, Vanderbilt must strengthen its career development services to meet the growing need for more intensive and effective preparation, education, and training.² The Graduate School should also play an expanded role in tracking career paths to best determine where we should focus our attention and assets to maximize employment outcomes. Most students preparing for traditional post-graduate careers in academia receive career-specific skills and guidance from their mentors and advisors. These experiences are highly individualistic and vary in depth and quality. We believe that the Graduate School should play a more formal role in addressing the less heralded but critical aspects of training, including skills such as budget and personnel management, mentoring, networking, entrepreneurship, and conflict resolution.

Courses and seminars that address various aspects of post-graduate professional life will improve graduate education experiences across disciplines. Though striking differences exist in the career opportunities available to students beyond graduate school, there are common concepts and skills—critical thinking, problem solving, effective oral and written communication, leadership, mentorship, management, and responsible conduct—that apply to almost any career option. Discipline- and job-specific skills training such as technical writing or public advocacy can be offered as discrete courses. Providing training in effective communication, conflict resolution, stress management, and professionalism will be immediately useful, even during the graduate school period. The incorporation of these skills within the typical (discipline-specific) framework of graduate education will greatly enhance graduate student outcomes. The Psychological and Counseling Center (PCC) is well-positioned to offer interventions such as skill development workshops, the promotion of social networks, and the fostering of resilience in the graduate student population. In addition, the Graduate School should serve as a resource for these students, providing logistical support as well as funding, when available, to enable them to address their career preparation needs.

Vanderbilt's Biomedical Research Education and Training (BRET) office provides an organic success story in developing strategies for alternative career outcomes. We suggest that this endeavor be expanded to encompass the entire Vanderbilt academic community and be organized through the Graduate School. Examples such as the recent awarding of an NIH BEST grant to Vanderbilt entitled ASPIRE (Augmenting Scholar Preparation and Integration with Research-Related Endeavors) represent the type of innovative programs that should serve as models for training in graduate education at Vanderbilt. The goals of the ASPIRE program are in perfect concordance with the broader institutional goals for career development for our graduate students, which are to: 1) empower and prepare our students to make well-informed career decisions, 2) broaden the skill sets of students to enable them to transition efficiently to careers

² See, for example, *Report of the MLA Task Force on Doctoral Study in modern Language and Literature* (2014) and *Pathways Through Graduate School and Into Careers*, Council of Graduate Schools and Educational Testing service (2012)

in both academic and nonacademic venues; and 3) better integrate career and professional development into PhD and Master's training programs.

Though mentorship skills are frequently associated with academia and related careers, its principles and practices are widely applicable to other employment realms. Increasing the availability and quality of mentorship training should therefore be a higher priority for the Graduate School. A more purposeful integration of our undergraduate and graduate student communities coupled with the new Strategic Plan's focus on the undergraduate "immersion" experience should provide a useful framework upon which to strengthen our focus on building the mentoring skills of our graduate students, and this responsibility should lie within the Graduate School. In short, we envision the graduate student population as an essential partner in providing successful immersion experiences.

Quality, Diversity and Retention

Vanderbilt has work to do in these areas. Much of that work, however, can be done relatively easily—by empowering and providing resources to the Graduate School and, more specifically, to the Dean of the Graduate School to actively reward or redirect units in line with the university's interest in advancing diversity and retention—two inseparable, interwoven parts of the same goal—making Vanderbilt a world leader in excellent graduate education.

Given the power and the resources to reward and redirect will allow the Graduate Dean to relatively easily address the concerns of the faculty members, Directors of Graduate Studies, and students uncovered during research for this report. Among those concerns are 1) departments being left to their own devices to figure out the most effective ways to recruit and retain the best students from all backgrounds, a challenge given how much the ability to do that is affected by university reputation, and 2) a perceived lack of interest in retention and success of students from underrepresented groups and a related unwillingness to address micro and macro aggressions that permeate the climates of certain units.

Key ways in which these concerns can be addressed include the Graduate Dean, as well as the Provost and the Chancellor, publicly highlighting the university's commitment to graduate education, in general, and to diversity in graduate education at Vanderbilt, in particular. Another crucial action that the university can and should take is replicating the most successful elements of the Initiative for Maintaining Student Diversity (IMSD) and the Fisk-Vanderbilt Bridge programs across the university. These elements include prioritizing mentoring relationships that could begin even before students reach the Vanderbilt campus, through summer research programs and other institutionalized undertakings, and continue throughout their years here. They also include building and sustaining long-term mutually beneficial relationships with HBCU and other institutional partners to ensure a pipeline that will lead the best undergraduates to come to and succeed at Vanderbilt. A third way the Vanderbilt administration can speak to these concerns is by prioritizing the recruitment and retention of younger faculty, especially those from underrepresented groups. This should include regular evaluation of the institutional and departmental climates in which these faculty members are required to work, as well as of departments' track records in recruitment and retention, combined with an administration-level redirecting of departments toward creating better climates and developing better track records.

Active and publicly given support, by the Graduate School and university administration, of innovative research by faculty members as well as by graduate students, even if it does not fit within neat disciplinary boundaries is also vital to addressing these concerns. Even if departments are not prioritizing innovation, perhaps out of concern that traditional fields will be overrun, the Graduate School and the university can, should, and must.

Actions to ensure that Vanderbilt attracts and retains the best students from all backgrounds:

- The Graduate School should encourage, hold, and/or facilitate University-wide conversations about different departments' definitions of "best" to take place after department faculty meet and debate and decide on their department's definition of "best" and their 5 year action plan/strategic plan for getting the best.
- Review the scholarship on graduate education and produce a white paper on which practices the research says produce the outcomes Vanderbilt most desires.
- Produce a report on the character and impact of our current practices, especially with regard to diversity and retention of graduate students and faculty from underrepresented minority groups.
- The Graduate School should help individual DGSs and departments conduct department level research on the character and impact of specific current practices.
- Recognize that retaining the best students and helping those students stay best throughout their graduate career is crucial; the Graduate School should understand and communicate to departments that best is at once a status and a process; students come in as one kind of best and graduate school should sustain that while helping them become another kind of best, a well-trained professional kind of best, on their path to graduation.
- At administrative levels above the department or school, Vanderbilt should identify areas of scholarship and graduate training that have a high potential for realizing positive social change (e.g., graduate work in divinities, teaching or health service provision for high needs communities), yet offer limited compensation to our graduates as they transition into the workforce. Prospective graduate students with limited personal or family resources may be least likely to enter these areas of study, and the tuition and fellowship packages we offer could take this into account in an effort to ensure we admit students with diverse life experiences in these areas of study. One strategy for recruiting these kinds of students is to design, name, and award targeted fellowship support (e.g., Vanderbilt Graduate Fellowships for Social Change).
- Provide a sixth year of funding for doctoral students in departments in which the data shows that doing so will increase the quality of the dissertation as well as placement rates.³

³ One DGS has described the need this way: "*we believe that transforming our PhD program into a six-year plan of study while adding another year of lines is ultimately the best way to make us more competitive with the best programs in the country. We recognize that following this route would involve a considerable investment of additional financial*

- Gather data to help departments and schools evaluate faculty quality in terms of mentoring as well as in terms of publications, possibly by adding a mentoring section to TRS that allows faculty to list all the students with whom they are working, not just the students whose committees they are chairing.
- Increase and support programs in present and future cutting edge areas; rewarding departments that encourage and support faculty identifying and anticipating the cutting edge areas, in addition to encouraging and supporting faculty working in traditional areas; make university level investment in cultivating and supporting forward thinking and innovative faculty.
- Reduce structural barriers to graduate student interdisciplinary engagement in addition to rewarding departments for facilitating this interdisciplinary work instead of treating it as a betrayal of one's home discipline/department
- Convene a research team to support and/or work with Ruth Schemmer to map out the careers of the future and delineate what skills will be needed.
- Increase the Graduate School's national visibility and reputation by providing opportunities and incentives for faculty and current graduate students to travel to speak with high achieving undergraduates in key departments at institutions across the country, by organizing summer programs for juniors from universities across the country, and by creating and drawing on regional graduate alumni networks.
- Cultivate and build on connections with faculty members at key institutions that do or could send us their top undergraduates, ensuring that those faculty members are fully informed about the successes of our graduate programs. Provide incentives for VU faculty to invite colleagues to come to campus not just for academic talks, but also to speak with our graduate students and/or learn about our graduate students' work through presentations or panel discussions, fundamentally to see what Vanderbilt does for our graduate students. Provide incentives for faculty members to publish about graduate education, in academic and non-academic venues.
- Ensure better marketing by the Graduate School and by individual departments of the import of a Ph.D.—Research, Development, Discovery, and Innovation.

resources. And as challenging as such an initiative might seem, more and more of our peer institutions are making precisely this move. Examining the data from our peers in 2008-2009, we can see that the number of institutions offering six years of support increased substantially, from two (Columbia and Stanford) to three (Columbia, Stanford and Michigan) with an additional two schools reporting limited funding past year five (UCLA and UC-Berkeley). 2009-10's comparisons show that number continuing to rise: schools offering six years had grown to include UC-Berkeley, Columbia, Michigan, NYU, Stanford, and Rutgers. Starting three years ago, many more schools, including Brown, Duke, Emory, Harvard, Johns Hopkins, and Northwestern, noted that they work internally to provide sixth-year funding as needed, and two years ago, many of those programs commented that they are working to institutionalize funding for the sixth year."

Answers to ensure that Vanderbilt attracts and retains students from underrepresented US minority groups:

Those listed above, plus the following:

- Actively and publicly prioritize diversity by the deans of Vanderbilt's school and colleges, including the Graduate School. The schools must go beyond assuming that diversity will happen automatically if recruitment and admissions are left completely up to departments; the deans need to have increased power and resources to make clear to departments that they will lose something if they don't recruit and retain US minority students.
- VIRG and/or the Graduate School should compile and publish recruitment and retention numbers for each department to help encourage action and reward success in actively addressing the need for diversity that has been (or will have been) publicly prioritized by the Chancellor, Provost, and Graduate Dean.
- The schools should facilitate and provide incentives for department level research projects, conversations, and strategic plans focused on addressing diversity, particularly with respect to US minority students. Part of that facilitation could productively include the Graduate School providing funding for graduate student fellows to do this research as part of an immersion experience that introduces them to and which might prepare them for jobs in Higher Education Administration.
- The Graduate School should work with departments, providing resources and training to help them build and maintain relationships with HBCUs and other institutions to create a pipeline that can/will lead students from underrepresented groups to Vanderbilt. The Fisk-Vanderbilt Bridge Program is a model for this, and we should consider whether and how the model could be expanded to other disciplines.
- The Graduate School should encourage faculty members (or departments) to help the Graduate School staff create, conduct, and evaluate summer research programs for US minority students (Mellon Mays, McNair, Leadership Alliance). Inviting potential students to visit before they are admitted even, possibly, before they apply; a long term plan for the Graduate School that is focused on building relationships and visibility so that Vanderbilt will be on the radar of the top US minority students by the end of their junior years of high school;
- The Graduate School should create and support institutionalized sanctioned professional and intellectual spaces in which students can interact across disciplines—e.g. a monthly brown bag; currently there are only episodic spaces sectioned by discipline.
- Regularly scheduled meetings should take place between the Dean of the Graduate School and graduate student organizations, including especially those of students of color to help the Graduate School convey the point that “we care what happens to you when you're here.” The current sentiment among graduate students of color seems to be that the university is only interested in getting them here so the numbers look good and does not actually care about their experiences,

about the climate in which they are being required to live and work. The IMSD program is a model in multiple areas, this area among them.

- Departments should be encouraged to integrate consideration of race into the department curriculum.
- The Graduate School should sponsor workshops for faculty members on avoiding micro aggressions in teaching and mentoring relationships
- Study and replicate most successful elements of the IMSD program across the institution, elements include ongoing mentoring, students moving in a month before school starts to acclimate themselves and build working relationships with faculty members, regular publication of newsletters showcasing participants and their research, exploring federal funding possibilities, gathering and showing departments data that shows the likely impact of diversity on the priorities that matter to departments (placement, publications, etc.), ongoing surveying of students throughout their years at Vanderbilt instead of waiting until the end and only having/doing exit interviews.
- The university and the Graduate School should publicly and actively prioritize good mentoring by providing recognition and time off for good mentors, providing training in mentoring, incentivizing mentoring (especially needed in non-lab centered fields in which graduate students can be seen as a burden rather than as labor or as valuable interlocutors).
- University and Graduate School administration should lead high-level public conversations/discussions regarding the definition(s) of “diversity” as well as about how individuals and entities within the university will be held accountable.
- Develop a robust bias reporting system that would provide an official way for students and faculty to report biases and have them addressed in meaningful ways, in ways that address the needs of the victims and are not simply focused on protecting the university from lawsuits.
- Publicly given university-wide dialogues about the issues and solutions identified and research-based reports created by student organizations.
- Require Intergroup Relations training for faculty, especially those in administrative roles (e.g. DGSs and Chairs)
- Recognize the need for sustained dialogue and action, dialogue and action that are not simply about reacting to a specific flare-up but that are about the ongoing work of creating and sustaining an inclusive climate in which diversities and power dynamics are consistently receiving attention.
- Consider tying student organization budgets to their providing consistent and sufficient evidence of programming that addresses the university’s priorities re: diversity in substantive ways, similar to the ways in which student organization budgets are currently tied to attendance numbers for their programs.

Graduate Students’ Report

The necessity of additional support was a recurrent theme across our interviews with graduate students in all Vanderbilt colleges. The students note an absence of cross college relationships and access to social support systems. Students maintained that in order for

Vanderbilt to improve their education experience the administration must zero in on providing an environment that fosters advocacy, consistency, and honesty on the part of faculty and administrators. All students accepted into Vanderbilt are here due to their merit, their intellectual caliber, and their grit and determination. However, the responsibility of the University does not end after admission. It ends when students walk across the stage, accept their diplomas and walk into the world with their education as their armament of choice.

Advocacy is of paramount importance to a graduate student achieving success. When a student comes to Vanderbilt the transition will be challenging due the acclimation period and the steep learning curve of a new academic environment. Many domestic students of color noted a lack of accessible faculty members (outside of their PI or advisor) with whom they could consult. There is a need for a better support system and safety net for students. Having an administrator or faculty mentor with whom a student can speak to in confidence without the fear of reprisal or departmental backlash is a real need that must be addressed. STEM students, medical students, and graduate students alike, face a challenging, regimented education process and curriculum that is unforgiving in many ways. The lack of interdepartmental access to other students and faculty within the community leaves a gap in the resources and support available to graduate students of color.

The need for consistency is a concern that begins during a graduate student's pre-admission status and continues throughout their academic careers here. As a prestigious research institution, Vanderbilt prides itself on the high caliber of research it conducts on a daily basis. Diversifying the Vanderbilt community cannot be a plan that is simply put on paper, practiced in recruitment, but not nurtured in its embodiment. The experience of graduate students of color differs from the general student body in a host of ways that cannot be addressed in an addendum. It is a mission that the administrators as well as faculty must be committed to outside of sheer numbers and percentages. Talks, discussions, annuals reports and other initiatives are important, but often times intermittent. The key to success is continuity and the work cannot remain on the backs of a few select faculty and staff. When students see a conscientious effort being made on all levels of the university to address climate, curriculum and implementation students in turn will be more apt to choose Vanderbilt as their place of study.⁴

Honesty of administrators and faculty alike is a must. Issues of racial profiling, socioeconomic class-based biases, implicit prejudices and microaggressions in the classroom, and in the general social experiences of students are realities from which the University cannot shy away. A graduate student's education does not solely encompass the lectures and research conducted within the four walls of the seminar hall. As one student put it, he knows he fits into his department, but becomes viscerally aware of his "outsider-ness" the moment he steps past the breezeway.

Our graduate students come from institutions with different pedagogies, environments and cultures. Yet their individual education experiences prior to Vanderbilt constitute just the tip of the iceberg. Every student has a different story, whether that student is a first generation

⁴ The IMSD program is a prime example of this providing all encompassing support. Students repeatedly spoke the praises of Linda Sealy, Roger Chalkey, and Dean Brunson. And stated they would highly recommend the program to other students.

American, first generation college attendee, a filial provider or parent, it is important to understand and acknowledge that every student does not have the privilege of just being a student. There is a need for a better safety net for students. Most graduate students are from out of town and must acclimate to their new home in Nashville. Without a centralized graduate structure or gatekeeper, many students have additional stressors they deal with that impede their ability to focus solely on academics. It is important that at the start of a student's graduate and professional career more focus is paid to garner a holistic idea of what our students are balancing in their lives.

Facilitation of Interdisciplinary Courses of Study

“As our global society faces increasingly complex challenges that defy disciplinary boundaries and demand new and varied ways of engaging with research contexts, doctoral researchers need training that equip them to make useful and ethical responses that are appreciative of complexity.”

— *Reshaping Doctoral Education, International Approaches and Pedagogies*

The new Strategic Plan accords interdisciplinary research, education, and training key roles in catalyzing academic excellence at Vanderbilt, made manifest by the inauguration of the TIPs Council and the proposed Cross-College Teaching Initiative. This intent will leverage trans-institutional investments in intellectual capital and infrastructure to fundamentally shape the training of the next generation of scholars, scientists, engineers, and political and academic leaders.

Associated with the hubs of interdisciplinary research typically carried in centers and institutes, interdisciplinary graduate programs were conceived and implemented to provide the academic underpinnings that frame the didactic and research training of graduate students and postdoctoral scholars. Programs such as the Interdisciplinary Graduate Program (IGP), Quantitative and Chemical Biology (QCB), Chemical and Physical Biology (CPB), and Neuroscience bring together mentors and students from across the colleges to provide unique educational and training opportunities; these programs represent pioneering efforts at both national and international levels. Continued success and further expansion of these programs will require innovative ways of thinking about the financial models necessary for their sustainability.

The Robert Penn Warren Center for the Humanities provides spaces for graduate students through working groups and dissertation fellowships, and for faculty members through its annual Fellows' Seminar. Funding for these undertakings remains relatively limited, however, and could benefit from more focused institutional investment in humanities-based interdisciplinarity, and increased participation by faculty from the physical sciences, mathematics, and engineering. In this way, the Center could provide an even greater benefit for the institution's path to achieving the goals for interdisciplinary innovation outlined in the Academic Strategic Plan.

One of the challenges that has emerged from the establishment of interdisciplinary graduate programs is the need for faculty to develop new and update existing courses, and to instruct,

mentor, and advise graduate students in these courses. Extramural funding supports some of the programs, but it rarely supports course development and does not support faculty teaching. While there has been differential institutional backing for interdisciplinary efforts across campus and within programs, there is widespread support for the establishment of a centrally administered direct support mechanism. Such a mechanism could be implemented by the Graduate School, in concert with the Provost's office, with the explicit goals of facilitating the support of existing interdisciplinary graduate programs and creating new programs.

Trans-institutional program support of graduate students faces similar challenges, reflecting the structural differences and inequities among the disparate funding mechanisms across campus. Admission is often capped well under capacity (defined by available slots in pertinent labs). The availability of positions in labs is determined by availability of funds. The current funding structure of graduate education, which is primarily department-centric, must be reevaluated and redesigned to keep pace with current trends in interdisciplinary education. The graduate programs must be granted faculty instructional time and graduate lines to function efficiently and effectively over the long term. However, this must be done without sacrificing the great strength that Vanderbilt has established within disciplinary boundaries.

Too often, the staffing of graduate courses happens as an afterthought, resulting in graduate courses not being taught, or being taught very infrequently or sometimes not at all. This problem is particularly prominent in departments with many research-active faculty and those with undergraduate student / faculty ratios that are well above the University's average. While not unique to interdisciplinary graduate programs, the natural tension that is often present between the need for faculty to teach undergraduate courses and graduate courses must be addressed, and educational activities in graduate education must carry importance and weight equal to their counterparts in undergraduate education.

Trans-institutional Initiatives and Intersections within the Academic Strategic Plan

As described in the new strategic plan, Vanderbilt University is uniquely positioned to capitalize on its geography and culture to create innovative programs at the intersections of traditional college and programmatic borders. Examples of successful trans-institutional centers and institutes, such as the Vanderbilt Brain Institute (VBI), the Vanderbilt Institute of Chemical Biology (VICB), the Vanderbilt University Institute for Imaging Sciences (VUIIS), the Vanderbilt Initiative for Surgical Engineering (VISE), and the Vanderbilt Institute of Nanoscale Science and Engineering (VINSE) illustrate how we foster transformational interdisciplinary research, training, and education. However, the view across the university landscape suggests enormous untapped potential. Our academic community can both identify and nurture trans-institutional fields of inquiry in which Vanderbilt is uniquely positioned to be a world leader. For example, Vanderbilt has built research initiatives in both Educational Neuroscience and Law and Neuroscience, each of which has spawned unique graduate programs whose mission is to train the next leaders in these emerging disciplines. Each of these new initiatives was borne from informal conversations among faculty who had a vision that transcended their home college and embraced the "One Vanderbilt" ideology. We suggest that the Graduate School is uniquely positioned to complement and facilitate these types of grassroots efforts, and to leverage the intellectual capital of faculty involved in these efforts to provide unique educational opportunities for our students. To do this, we envision two novel efforts: (1) a set of mechanisms

to identify and foster novel interdisciplinary interactions (Academic Incubators/Salons) and (2) a mechanism to quantify and map faculty academic interactions across institutional units (Academic Connectomics).

The core concept behind the incubator is the creation of a mechanism to bring together faculty from different colleges in an effort to seed conversations about collaborative possibilities in graduate education and research. We envision such an academic incubator or “salon” to take place over an afternoon to introduce a small number of faculty members and graduate students and to begin the conversation, after which informal discussions over refreshments end the session. The middle part of the program would be reserved for discussion and open conversation, and will involve a facilitator as well as invited guests from both the community and from academic institutions beyond Vanderbilt.

The second concept to further foster trans-institutional and interdisciplinary connections involves the development of a search tool that would identify patterns of connectivity among our faculty. Such tools are becoming increasingly commonplace in today’s arena of “big data,” and the informatics approach could closely resemble tools used in contemporary “connectomics” and social networking algorithms. Although it is envisioned that a sophisticated bibliographic informatics-based platform will be created, the initial search tool could simply “mine” the CVs of our faculty to identify common key words and areas of thematic interest. In this manner we would create a “Vandy Connectome” that identifies areas of potential overlap and shared interests, and thus potential partners for collaboration and intellectual exchange. This tool would allow the mapping and visualization of both existing and as yet unrealized academic connections and to track the dynamic nature of these connections over time. Thus, the Vandy Connectome would: (1) establish a big data visualization tool for academic endeavors and relationships, (2) identify latent unrealized areas of convergence for stimulation and seeding, and (3) evaluate the outcomes of the Strategic Plan and the Transinstitutional Programs that will stem from new investments. This final outcome would represent a key metric for tracking the success of these endeavors as the initial Vandy Connectome evolves over time.

One of the most tangible benefits of these expanded roles for the Graduate School is a greater fostering of the “One Vanderbilt” ideal. Our faculty and students have a thirst for learning and interaction, and the ability to exchange ideas and broaden horizons through these conversations should only further promote the Vanderbilt *esprit de corps*. Promoting engagement with our community is a core element of the proposed discussions to be achieved through the identification of key community partners, and should serve to further strengthen ties between Vanderbilt and Nashville. Finally, because our increasingly interconnected world is forcing us to think and work outside of traditional disciplinary boundaries, many of the topics chosen are expected to be of great individual, societal, and global significance.

Education of Graduate Students: Research Teaching, Training, and Mentoring

Doctoral and Master’s students have very different experiences across the Vanderbilt campus in terms of the quality of their mentoring, level of support and their strategies for transitioning into employment after graduate school. Proposals to change student support, the size of incoming

cohorts, and the number of years of support are difficult to design and implement consistently and equitably across programs. The BRET office has systematically tracked graduate students' transition to the market place, and this effort should be expanded across the university. Understanding the variability in experiences and employment outcomes should be a central concern of a newly organized and adequately funded Graduate School.

How we value and craft a highly productive “graduate student experience” is influenced by several core tensions. Each tension raises concerns and presents opportunities. We aim to understand these concerns and opportunities within the frameworks of the various academic and disciplinary fields. In what follows, we describe these tensions, concerns, and opportunities, and propose new or different kinds of learning and teaching experiences for graduate students and their advisors on the Vanderbilt campus.

Several core tensions and barriers have been identified:

- Different time scales prompt different perspectives on graduate education.
 - Graduate students are considered to be “short timers” in our graduate programs, with understandable concerns about maintaining a social or family life even as they launch their professional or academic career trajectory. Faculty tend to adopt a longer-term perspective on developing programs, securing resources to support research and doctoral education and training, and providing high-quality instruction and learning experiences for sequential cohorts of doctoral students (i.e., not just for the current cohort). Almost everyone wants or needs additional resources to explore cutting-edge questions, attract and keep the very best faculty, and recruit and train extraordinary graduate students. Securing adequate funding levels is a serious and omnipresent need in any excellent university, and it certainly is in the foreground here at Vanderbilt. Because no amount of internal resources will ever be sufficient to meet the demand, there is a pressing need to develop and support new strategies for external support for graduate education. For example, development of training grants presents such an opportunity. Administrative resources to aid faculty with the administrative tasks associated with training grant writing and submission should be enhanced.
- Learning, teaching, and academic productivity are often at odds.
 - The need to produce and deliver new knowledge, funding, and publications competes with other academic activities of teaching and service (for faculty) and teaching and learning (for graduate students). Many faculty members, whose time is already fully committed to classroom teaching, administrative responsibilities, and research, feel that there is little time left to mentor graduate students. Many graduate students, in turn, feel that they are being treated as a discounted labor force.
- Should the job market lead or follow the development of academic disciplines?

- Graduate students seek learning experiences that will prepare them for a wider variety of jobs, some of which are in emerging fields of study that are not yet well represented on this campus (e.g., digital humanities and public scholarship). At the same time, faculty feel a responsibility to serve and advance their academic disciplines—a form of stewardship that not only preserves a key role of the university but also acknowledges that what is demanded by the market is, in part, driven by advances in their fields. We could create invitational Summer Institutes for rising stars among our faculty and highly promising doctoral students, organized around issues of societal significance (e.g., climate change, public understanding of science). Such a program could generate enormous networking potential for both our students and faculty.

The Intersection of Graduate Students, Undergraduates, and the Teaching Experience

Vanderbilt has evolved from an elite regional university with a strong focus on excellence in undergraduate teaching carried out primarily by its faculty, to an emerging international institution with increasing preeminence in innovative research that is well funded and supported. This transformation warrants more intensive analysis in several areas with the aim of further enhancing the quality of overall educational delivery and production of knowledge. Vanderbilt, in parallel with peers—research-intensive institutions— must rigorously re-assess and implement substantive new, or revised, strategies and policies in order to excel as a university that *teaches* its students effectively. A core component of this transformation must be the elevation of graduate education to a status commensurate with our international research stature. To achieve this, we must comprehensively train our graduate students to be great scholars and teachers, by addressing four key issues:

- **Inconsistency within the teaching experience.** There is marked diversity of teaching experiences for graduate students at Vanderbilt. Naturally, both the needs and desirability of such experiences will vary by field and individual student. For example, master's and doctoral level students are responsible for the majority of foreign language instruction at the introductory level, relying upon pre-prepared syllabi that afford few opportunities for pedagogical creativity. Few graduate students function as instructors of record (IoR) although some have indicated that they would benefit considerably from being able to teach a course as the sole—or primary—instructor. Others either do not wish to be an IoR or do not have that opportunity, for in some departments it is structurally impossible and/or clearly discouraged, the perception being that the primary responsibility for graduate students is to focus on scholarly output and make progress toward completion of their degrees. Most graduate students in social sciences and humanities embrace the role of teaching fellow as the primary modality in which to teach undergraduates, while in engineering and the physical sciences, graduate students' opportunities to teach are largely limited to teaching assistantships. There are variations on this theme, but this emerged as a clear pattern. Students in STEM disciplines appear to have the most choices. Interviews with graduate students in these disciplines reveal that many opt out of teaching responsibilities,

while for others, teaching labs or recitations—or on rarer occasions guest-lecturing for their doctoral advisors—is a mandatory component of their first-year experience. Regardless of the variety of teaching modalities, and arrangements, we must recognize that graduate students are indispensable members of the community of teachers at Vanderbilt, and the various impediments and challenges that prevent those graduate students at Vanderbilt who desire teaching opportunities should be addressed and venues created to provide those students with the ability to develop that particular skill set.

- **Professionalization of teaching.** This issue regards how much institutional emphasis and support has been earmarked for teaching excellence. Vanderbilt is fortunate to have a vibrant Center for Teaching (CFT) that offers Teaching Fellowships that support the University’s teaching and research mission. Furthermore, each year, approximately 70 graduate students participate in CFT’s Teaching Certificate Program, which demonstrates their desire to develop and pursue excellence in the art of pedagogy. Given the existing Teaching Fellowships and BOLD (Blended Online Learning Design), creative synergies between the CFT and all entities within Vanderbilt that address instruction should be further marshaled to facilitate Vanderbilt’s aspiration to become a best-practice institution in both teaching and research. CFT is particularly well suited to address empirically how excellence in graduate training in teaching can be obtained in concert with students’ pursuit of research excellence. Encouraging advanced graduate students to seek opportunities—under the auspices of either the Ingram Commons or the Warren-Moore Colleges—to teach classes in their areas of research expertise would enable students engage in the next stage of graduate training through CFT, and would help undergraduates take maximum advantage of studying at a research university by granting them access to a broad spectrum of leading-edge research topics.
- **The role of faculty advisors.** Vanderbilt must examine and address the role of faculty in training the new generation of teachers and scholars. While some advisors—and not merely those who support the training of graduate students through external funding—are not eager to let their graduate students teach; others, even those within the same field, respond with alacrity to identify opportunities for their students to teach. Questions such as “How does producing excellent *teachers* help raise the profile of Vanderbilt as a *research* University?” “How does the funding stream and allocation issue manifest itself?” “If more teaching opportunities are sought, what *type* of teaching would be most beneficial to both to faculty advisors graduate students, and undergraduate?” ought to be at the forefront if Vanderbilt is to remain deeply committed to training excellent graduate students who possess comparable levels of competence in teaching as well as research.
- **Post-graduate placement and its valuation metric.** What do departments and their faculty members consider being “successful final products” of their programs? Traditionally, in many but not all disciplines, tenure-track faculty

positions at research institutions like Vanderbilt, have been looked upon as the ideal targets of employment with industry jobs, positions in government labs, and teaching positions in liberal arts colleges as close seconds. How are departments reacting to graduate students who aim to pursue career paths that are more teaching-intensive because they are less driven by the desire to publish as research scholars? This issue is germane to many institutions, not just Vanderbilt, but forces associated with departmental rankings continue to value and privilege tenure-track positions in research institutions. We suggest that Vanderbilt face this reality and recognize that these “alternative career” paths are equally valuable for the individuals pursuing them and for the reputation of our institution.

Other Aspects of Graduate Student Life

To enable graduate students to focus on their studies and make the most of their educational opportunities, Vanderbilt should help streamline other aspects of their lives as well. Whereas the issues discussed below are certainly important for students coming from within the US, the increasing globalization of the markets for graduate students confers on some of these issues a special importance.

One critical dimension in which Vanderbilt is not competitive with peer and aspirational schools is in the provision of graduate housing. The following schools provide graduate housing on or near the campus, and some prioritize new and international students: BU; Brown; Caltech; Case Western; Duke; Harvard; NYU; Northwestern; Penn; Rice; Stanford; UC-San Diego; U of Chicago; Wash U; and Yale. Like Vanderbilt, Emory and Johns Hopkins do not offer graduate housing, but refer students to rental housing opportunities in the community. Even if this was a sensible policy in the past, there are several reasons to change it going forward. Rents around Vanderbilt are already high and rising; although new apartment buildings are being built, they are very high-end and expensive. Students living further away must drive to campus, which entails costs of car ownership and parking (although some do live along and use bus lines). The provision by Vanderbilt of housing along bus lines, or within walking distance of campus, could significantly lower the cost of living for students, relieving some of the pressure on stipends and enabling students to feel more a part of the Vanderbilt community. International students and students with families especially would benefit from being able to rely on having a safe, clean, and welcoming place to live upon arrival in unfamiliar surroundings. Family housing on or near campus, along with expanded or subsidized child care nearby, would respond to a need voiced by graduate students with children and their supervising faculty alike.

Concerns about the health insurance provided to graduate students are many and deeply-felt. The timing of students' arrival on campus may not be consistent with the insurance start dates. For instance, some programs require students to arrive early in August (for training that begins prior to the start of the term) and encourage students to initiate their apartment rentals in July to maximize potential availability. Students that arrive on campus well before the beginning of the Fall semester's insurance start date (which has been August 12 for several years) may face several weeks during which they are not covered by health insurance. This is especially problematic for students returning to school after being employed and for international students

arriving from abroad. Indeed, international students may arrive without even recognizing and anticipating the absence of a health safety net or state-provided healthcare.

Discussions with graduate student representatives about health coverage and customer service indicate that the insurance coverage itself could be improved by including more preventive care, but students also found the insurer unable or unwilling to disseminate information that is vital to understanding how to access care and determine what will be covered, especially with respect to children. One student reported having to spend hours on the phone to find out about local providers; rebut letters denying eligible services and expenses; and establish that Vanderbilt had sent funds that the insurer had failed to record, leading to denial of service. With respect to the delivery of services, students want to be able to establish a “primary-care provider” relationship with a nurse practitioner or physician, rather than seeing a different provider every time they go to Student Health (and feeling that they are being treated like undergraduates). Students or their children may have chronic health conditions for which this continuity of care is important. Students also expressed a need for expanded mental health services for graduate students. Undergraduates may still be seen by their family physicians on breaks “at home,” but Vanderbilt/Nashville is home for many graduate students for five or more years.

Graduate students with children have additional needs beyond health insurance for their families. Vanderbilt daycare facilities have long waiting lists and are unaffordable for most student parents. Vanderbilt could prioritize student parents, or scale the cost of daycare to income. The “urgent-need sitter service” for staff members could be expanded to include students with children; this would help students with exams or other crucial responsibilities to deal with the unexpected illness of a child. Even if Vanderbilt is unable to expand these services, a dedicated staff person could be identified to help with referrals to programs and services, keep track of openings at local daycare facilities, and organize events such as “Parents’ Night Out” or “exchanges” where parents can sit for others’ children in exchange for a future night out.

Reimbursement for work-related travel is another problem for some graduate students, because they must advance the costs and then wait to be reimbursed, which can take weeks or months. As graduate students attend more conferences (and as more conferences involve international travel), the cost becomes prohibitive if they cannot manage the up-front costs. As much as the faculty dislike Concur, some of its functions (e.g., direct-deposit reimbursement, institutional purchase of plane tickets) would be useful for graduate students, who currently do not have access to it. Other seemingly more mundane aspects of travel are also of concern. For instance, given that securing affordable rents tends to necessitate driving to campus, graduate students would like the costs of parking to be income-scaled, as they are for Vanderbilt employees.

Some students are interested in interdisciplinary training and are engaged in such programs. But even those with more narrowly-focused programs express an interest in meeting students from other departments or programs, learning the questions and methods of analysis that others are pursuing, and finding opportunities for inspiration and collaboration. Suggested ways to fulfill these requests include a university-sponsored Graduate Research Day with poster sessions to complement activities organized by the Graduate Student Council (such as 3MT and a cross-disciplinary seminar series that is currently under consideration). Several ways to facilitate these interactions have been suggested, from a virtual meeting place to a physical space dedicated to

graduate students (including, for example, a bar and game room). Leaders of graduate student groups indicate that they find it nearly impossible to find meeting space for events on campus that does not involve substantial expenditures. A dedicated space (perhaps in Alumni Hall) would greatly alleviate these concerns, although it is unclear whether a single space would fulfill both the need for a more formal meeting/event space and the need for a casual gathering place.

Finally—it may go without saying but, on the other hand, cannot be said often enough—there is no question that the current stipend levels in many departments make it very difficult for them to compete successfully for the best entering students. An analysis should be conducted to compare each of our graduate programs with peer programs to get a better sense of where each stands in the national landscape. The Graduate School should take a central role in the collection and analysis of these data.

Postdoctoral Fellows

Vanderbilt hosts a large cadre of postdoctoral fellows who occupy a transitional position between graduate student and full-fledged independent researcher, although they evolve significantly towards the latter as their training progresses. The postdoctoral fellows also frequently have families, making issues such as childcare, access to affordable housing, work/life balance, and appropriate salary and benefits of paramount importance to these members of the Vanderbilt community. At the present time, our postdoctoral trainees lack a “home.” We have an obligation to ensure that their positions, although typically only temporary, reflect well on Vanderbilt’s commitment to both education and research. Some level of postdoctoral services at VUMC is provided through the BRET Office of Postdoctoral Affairs, while a more minimal level of coordination is provided for postdocs on the Central Campus. Given the significant overlap in the needs of graduate student and postdoc populations, it is logical that many of the career and advising services outlined in this report be made available to postdoctoral fellows through a central office that could also provide tracking and procedural oversight where needed. The Graduate School should take ownership of all postdoctoral affairs.