

**Report of the  
Ad-Hoc Committee for Graduate Diversity and Support  
of the  
Faculty Senate,  
University of Rochester**

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***Committee charge:*** The Ad-Hoc Committee for Graduate Diversity and Support is hereby formed by the Faculty Senate. We charge the committee to compose a report, to be discussed at a Senate meeting in early fall and submitted one week beforehand. The report is to recommend methods for recruiting, retaining, mentoring, and fostering success among graduate students from underrepresented groups. The report should recommend whether to pursue the endowment of Provost's Fellowships, Sproull Fellowships, and other fellowships; and at what scale. Recommendations for financial implementation are also of interest. Effects on the University's teaching and research missions should be considered. Recommendations should be based on documented best practices. Recommendations should account for the actions of peer institutions and consider challenges and opportunities, including those raised by the pandemic and protests of 2020.

## Executive Summary

The PhD programs at the University of Rochester are overdue for a transformative initiative empowering them to rise to new levels of excellence. This committee recommends a comprehensive program for recruiting extraordinary prospective PhD students, including domestic students from underrepresented groups, then supporting their Doctoral studies, and fostering lifelong success.

We need a major, sustained initiative for many reasons. Central to both our research and teaching missions, our PhD programs are foundational to our reputation, competitive advantages, alumni base, and tuition revenue, including undergraduate tuition. Our outstanding PhD alums — three Nobel Prize winners, prominent entrepreneurs, eminent researchers, thought leaders — demonstrate U of R's extraordinary legacy but were recruited and retained in an earlier era. No major initiative for the PhD programs has been mounted in decades. Meanwhile, our peers and aspirational peers have enhanced their PhD programs, surpassing U of R in rank and in prevalence of prestigious fellowships like Hertz, Moore, NSF GRFP, and NDSEG. Our internal fellowships are suffering budget shortfalls due to a historic economic downturn. And amidst the 2020 summer of racial reckoning, students, alums, and supporters are demanding action to increase equity and inclusivity.

By undertaking an initiative immediately, we can leverage powerful opportunities. Protests and outcries have made supporters enthusiastic to contribute to bold steps for increasing equity and inclusivity. Because financial markets are faring well through the downturn, donors may be able to support a bold initiative even as depressed job markets bring more PhD applicants. Many of our PhD alums are outstanding and will support an initiative, through donations and public outreach. Substantial synergistic federal funding for both inclusivity and research, for example from the National Science Foundation, can complement the initiative through major grants. U of R Advancement reports that fundraising for students is often easier than fundraising for other projects, and the new Together for Rochester campaign is already prioritizing student support. Now is the time to establish a legacy of renewed excellence and inclusivity in our PhD programs.

This committee recommends a major initiative for our PhD programs for graduate diversity and support. U of R's endowment should be expanded by no less than \$50M specifically for supporting 24 prestigious graduate fellowships per year, so that about 120 Fellows are active at any time, comprising about 7.5% of the PhD student population. Endowing the fellowships will protect them from budget fluctuations and ensure that we can capitalize when future economic downturns expand applicant pools. This committee also recommends enhanced efforts to recruit, retain, and foster success among PhD students, especially those from underrepresented groups. Efforts should draw on established best-practices including targeted recruiting at undergraduate institutions, support for undergraduate research and pre-doc programs, a rising scholar conference to

bring potential PhD applicants to U of R, increased faculty diversity, larger stipends with greater financial stability, structured mentoring and cohort-building with financial incentives for mentors, and improved career placement support for graduate students. Efforts should leverage internal expertise and should supplement — not replace — existing efforts at places like the Kearns Center, the Office of Equity and Inclusion, the Greene Center, and the University Council on Graduate Education.

This initiative would ensure the future of U of R and take a major step forward in our ongoing work to be “ever better.”

## **1. Needs for a major initiative for graduate student diversity and support**

The University of Rochester is facing increased competition in scholarly excellence as research universities across the nation have recognized the importance of graduate student diversity and support. The differential between U of R graduate student support and that of the Ivy League schools and other top competitor schools has recently widened significantly. Notre Dame's Provost Fellowship pays \$40,000 per year, for example, while graduate support for the top national diversity candidates at Dartmouth ranges between \$36,000-\$55,000 per year, but U of R's Provost Fellowship provides academic departments with just \$21,000 per year for two years.

Enhanced graduate student support is equally important to U of R as a tool for recruiting top faculty and excellent undergraduate students, because a diverse, outstanding pool of PhD students will attract both. Enhanced graduate support at U of R will provide fellowship stipends that ease the fundraising burden on our faculty and create a level of graduate activity commensurate with rapidly changing fields of inquiry. Enhanced graduate support will bring a diverse and inspiring PhD student population who can mentor undergraduates, serving as social and academic role models. Those great PhD students will go on to be great alums, bringing prestige and perhaps financial support to U of R as they flourish professionally.

Enhanced graduate support is also vital to U of R's status as an AAU institution whose mission rests on world-class research. AAU institutions are charged with attracting a broad spectrum of PhD candidates within their role to prepare new generation of scholars. Staying competitive among AAU peer institutions and maintaining our AAU status, along with the prestige and advantages it brings, requires continuous innovation and ongoing improvements to excellence with diversity in mind. In fact, the AAU is currently running a PhD Education Initiative in which eight member universities are implementing best-practices for STEM PhD education, as identified by a National Academies report.<sup>1</sup> U of R's Vision and Values statement specifically lists leadership: "We take initiative and share responsibility for exemplifying excellence." U of R's leadership will be maintained only by extending our commitment to a strengthened research base amid the field of competing national research institutions.

The Vision and Values statement also lists equity: "We commit to diversity, inclusion, and access." As the United States becomes increasingly multicultural and multiracial, U of R must reorient its training of graduate student researchers accordingly. Our home should matter, too, and the city of Rochester is predominantly populated by people whose ethnic and racial groups are seriously underrepresented at the University of Rochester. Our

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<sup>1</sup> "AAU Receives Grants to Promote More Student-Centered Doctoral Education," AAU Press Release, March 7, 2019.

research base must include increased support for diversified graduate programs if we are to continue the University's track record of producing great alums who represent the breadth of our society and can engage the diversity of ideas that such a society implies.

## **2. Timeliness and opportunities for a major initiative for graduate student diversity and support**

Of all the major institutional initiatives launched by U of R since the Sproull Presidency, no campaign has been specifically focused on transforming and elevating the PhD programs. This can be viewed as a "missing element" as our institution advanced over the past decades. Yet with all the turmoil of the year 2020, there are unique opportunities for launching a major, highly successful campaign for this purpose.

Recent headlines give prospective donors, including U of R PhD alums, compelling reasons to support a major initiative for graduate programs. Nobel Prizes to Richard Thaler (Economic Sciences, 2017; '74 PhD), Donna Strickland (Physics, 2018; '89 PhD) and Harvey Alter (Physiology or Medicine, 2020; '56, '60 MD) show U of R doctoral programs as a crucible for catalyzing lifelong success and transforming the world. Those and other wins demonstrate that our programs have been successful and can be more successful with enhanced support. Meanwhile, the 2020 summer of racial reckoning has galvanized support for equity efforts in all parts of our society, including universities. Existing programs like the Kearns Center that create pathways for success for underrepresented groups and first-generation college students are rightfully enjoying widespread recognition. A new, major initiative for diversity and support is likely to benefit from the same deep and sustained donor enthusiasm.

By leveraging funds raised from alumni donors and friends of the University, a major initiative would also lead to synergistic funding from the federal government, which is offering new grant opportunities targeted at racial inequalities. U of R has already established an impressive track record in attracting NSF and other agency and foundation funds that support effective programs for students from underrepresented backgrounds and first-generation college students. Building on this success, and with some modest additional resources, U of R can attract major grants from government and foundation programs that will benefit not only PhD programs but also the wider University.

The covid-19 pandemic is causing the worst economic downturn since the Great Depression, but with that crisis comes unique opportunity. Graduate applicant pools are almost certain to grow sharply, especially among domestic students, until job markets recover. A major initiative would leverage that growth by bringing the best and brightest to U of R. And the current downturn differs from nearly all before in that financial markets are surprisingly resilient, so potential donors still have significant resources to contribute.

Finally, the urgency of launching a major initiative now is accentuated by recent actions of our peer (and aspirational peer) private research universities, with whom we compete for attracting, recruiting, and retaining outstanding graduate students. A leading example is Vanderbilt University, which established a \$125M graduate education initiative precisely for graduate programs, including scholarships and a leadership center for PhD students<sup>2</sup>. This provides visibility and great incentives for prospective students to choose Vanderbilt, and at the same time promotes the research and educational missions of departments and faculty. U of R as a Tier-1 research university cannot thrive without the means to attract, recruit, and retain promising PhD students, and as the competitive landscape of higher education changes, so must we.

### **3. Recommended actions for a major initiative for graduate student diversity and support**

**Guiding principles:** The PhD programs at the University of Rochester are integral to the research and teaching mission of the University. PhD students work closely with faculty advisors on original research, discovering new knowledge. Many also serve as teaching assistants, often for large courses of undergraduate and masters students. Finally, our PhD students help to drive the undergraduate research mission through providing direct supervision and oversight in lab-based experiences.

The PhD programs at Rochester are characterized by academic excellence, and many PhD graduates have had wide impact on academic research and other activities in universities, industry, and government. Two recent Nobel Laureates received PhDs from the University: Richard Thaler (2017 Nobel Prize in Economic Sciences, '74 PhD in Economics) and Donna Strickland (2018 Nobel Prize in Physics, '89 PhD in Optics). One recent Nobel Laureate received an MD from the University: Harvey Alter (2020 Nobel Prize in Physiology or Medicine; '56, '60 MD). Dr. Strickland was only the third woman since 1903 to receive the Nobel Prize in Physics and did her groundbreaking research while a PhD student in the 1980s, working with Gerard Mourou at the Laboratory for Laser Energetics<sup>3</sup>. Table 2 provides a partial list of living, distinguished PhD alums and their accomplishments, who graduated from 1970 to 2005.<sup>4</sup>

Our guiding principle in preparing these recommendations is the need to attract, recruit, and retain an excellent and diverse U of R graduate population, particularly in PhD programs. Diversity in PhD programs is not an isolated phenomenon—it both influences and is influenced by other factors, including faculty diversity, but also a culture of mentorship and inclusivity. Partly for this reason, we believe that graduate diversity is an

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<sup>2</sup> <https://news.vanderbilt.edu/2017/10/02/bold-125-million-investment-supports-landmark-graduate-student-scholarships-and-leadership-institute/>

<sup>3</sup> “Love at First Light,” (2018), *Rochester Review*, Fall 2018.

<sup>4</sup> The list is drawn from public sources (e.g., Wikipedia, UR Department and School web sites) and is meant to be suggestive, rather than comprehensive or representative.

excellent place to put efforts with a view to increased diversity in general. The recommendations we make concerning graduate students can, we think, act as a major driver of campus-wide diversity and inclusion.

***Essential considerations:*** Efforts to increase diversity and inclusion involve much more than an increase in the numbers of people on campus who come from diverse backgrounds and underrepresented groups. The goal is to build a community in which there is diversity at all levels and where people from all backgrounds feel welcome, included, comfortable—even at home. These are the conditions under which people do their best work, and essential to our core values as expressed in the slogan *MELIORA*.

We should aim to lay the foundations now for organic, self-maintaining inclusivity. This requires us to pay attention to the connections between diversity in the various parts and levels of the University community.

We know that there are many initiatives already in process at U of R that aim at increased diversity and inclusion, and we applaud these. We hope that our recommendations can serve to help integrate these various initiatives, and to augment them.

***An integrated approach:*** We believe that a multi-dimensional approach is likely to be the most successful in achieving our goal of lasting and meaningful diversity and inclusion. Having a diverse body of graduate students who feel at home at U of R is not something that can be neatly separated from faculty diversity and depends on more than just the number of people in any given group. For diversity to be meaningful, people need to feel kinship with those around them, and to feel respected and valued professionally and personally throughout the University. Differences need to be appreciated and celebrated. By interacting, different people and groups find themselves on an equal footing and engaged in a common enterprise.

Therefore, our recommendations reach beyond graduate recruiting to suggestions concerning faculty, staff, administration, current students, alums, and the broader community of Rochester. We recommend improved PhD student recruiting, diversifying our applicant pool and increasing the rate at which outstanding applicants come to U of R. We further recommend increased support for PhD students that will catalyze their success in scholarly activities, degree completion, and careers beyond PhD.

### 3.1 Improving PhD student recruiting

U of R must grow and diversify its pool of PhD applicants, and existing surveys have highlighted several challenges that need to be overcome.<sup>5</sup> Crucially, potential PhD applicants often lack knowledge about admissions criteria and PhD career trajectories. Undergraduates often obtain such information from informal networks of friends and

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<sup>5</sup> <https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.34.3.193>

peers. Since such networks are often based on ethnicity/race, underrepresented groups may be left out. To inform promising potential PhD applicants about the great opportunities awaiting them at U of R, we recommend University-level support for targeted recruiting at undergraduate institutions, undergraduate research and pre-doc “bridge” programs, and a rising scholar conference to be hosted at U of R. Centralized recruiting, admissions, and enrollment activities are essential, even as individual PhD programs continue making the final admissions decisions. The University Office of Graduate Education could take responsibility for these efforts, with input from the University Council on Graduate Education, led by the Vice Provost and University Dean of Graduate Education. Support should also be provided at the School and Department levels.

***Targeted recruiting at undergraduate institutions and events:*** Being a small research university allows U of R to be close-knit, collegial, focused, and nimble — but hinders our name-recognition among promising potential PhD applicants. Experience shows that attracting an excellent and diverse pool requires targeted efforts to provide information about U of R and its great PhD programs. It is essential to foster personal relationships with faculty colleagues, administrators, and students at colleges and universities that produce great applicants, and at events attracting potential applicants. Historically Black colleges and universities (HBCUs), women’s universities, and top-ranked undergraduate-only institutions are natural partners because they actively seek to place their graduates in excellent PhD programs like those at U of R.

We recommend University-level support for establishing and maintaining student pipelines from such institutions. Existing relationships with Jackson State University and the City University of New York could serve as models. Funds should be made available for U of R faculty and staff to visit those institutions in person, talk about PhD programs at U of R, talk about their own scholarship, and meet students. Funds should be made available for faculty and staff from those institutions to visit U of R and give presentations about their work. We also recommend University-level support for recruiting at events that attract diverse and excellent potential applicants, such as the Getting Ready for Advanced Degrees (GRAD) Lab events<sup>6</sup> of the National Consortium for Graduate Degrees for Minorities in Engineering and Science (GEM) or the National Conference on Undergraduate Research (NCUR)<sup>7</sup>. Targeted recruiting at undergraduate institutions and events should be tracked and quantitatively linked to subsequent PhD applications, PhD acceptances, and PhD matriculation.

***University-level support for undergraduate research and pre-doc “bridge” programs:*** Such programs would sponsor students to spend a summer interacting with faculty at U of R, doing research and/or taking courses designed to facilitate PhD admission and success. The programs would introduce students to scholarly work in their

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<sup>6</sup> <https://www.gemfellowship.org/about-gem/gem-events-and-conferences/grad-lab/>

<sup>7</sup> <https://www.cur.org/what/events/students/ncur/>



chosen field of study, bridge gaps between undergraduate and graduate studies, and create a network of peers and mentors. Given the strength of U of R's undergraduate students, the programs should prioritize U of R students in addition to students from other universities.

Existing, successful programs at U of R can serve as models. The Xerox Engineering Fellows program has provided stipends, housing, professionalization courses, and full-time summer research for many U of R undergraduates over many years, focusing particularly on students from underrepresented groups. Multiple National Science Foundation Research Experience for Undergraduates (NSF REU) sites are currently active at U of R, likewise providing stipends for full-time summer research, typically for undergraduates from other universities. Since 2019, undergraduate researchers from REU sites or other funding sources can join the social and professional events provided for Xerox Fellows by the Kearns Center, thereby building their networks and enjoying the support of a cohort of peers. The American Physical Society and American Chemical Society run bridge programs<sup>8</sup> that differ in that they provide extra support for students from underrepresented groups after admission to PhD study; those programs are discussed further below. The Take 5 program might also serve as a model.

Undergraduate research and pre-doc programs are becoming common not just in the hard sciences and engineering, but in the social sciences as well. In economics, for example, pre-doc programs are offered by the American Economic Association<sup>9</sup> as well as many universities<sup>10</sup> including University of Wisconsin, University Texas at Austin, Duke University, Tufts University, UCLA, Washington University, Vanderbilt University, and Yale University. Stanford also offers an Economics pre-doc program.<sup>11</sup> The University of Chicago offers pre-doc programs in both Economics<sup>12</sup> and energy policy.<sup>13</sup> We recommend ongoing and expanded University-level support for undergraduate research and pre-doc programs. Efforts should focus on preparing undergraduates for PhD success — especially PhD success at U of R — and should coordinate with the University's PhD programs. Faculty sabbaticals or fellowships (like the Sykes Awards) could incentivize development of pre-doc courses. In the social sciences, pre-doc courses could focus directly on issues of racial and gender inequity; a University curriculum attuned to these pressing problems is likely to benefit all our diversity efforts and initiatives. Expanding summer undergraduate activity at U of R could have the additional benefit of generating revenue from researchers living in the dormitories.

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<sup>8</sup> <https://www.aps.org/programs/minorities/bridge/about.cfm>.

<https://www.acs.org/content/acs/en/education/students/graduate/bridge-project.html>

<sup>9</sup> <https://www.aeaweb.org/about-aea/committees/aeasp>

<sup>10</sup> <https://www.aeaweb.org/articles?id=10.1257/jep.30.4.221>, <https://tobin.yale.edu/tobin-predoc-fellows>

<sup>11</sup> <https://siepr.stanford.edu/programs/predoc-research-fellowship-opportunities>

<sup>12</sup> <https://bfi.uchicago.edu/info-for/prep/>

<sup>13</sup> <https://www.epicpredocfellowship.com/>

***Rising scholar conference:*** We propose an annual conference for rising scholars in all fields relevant to PhD programs at U of R. The conference would bring undergraduate researchers, pre-doctoral scholars, and other promising potential PhD applicants, especially those from underrepresented groups, to visit U of R, see presentations about research here, participate in short courses, and perhaps present their own work. Promising potential PhD applicants would experience our beautiful campus, ample facilities, and outstanding scholarly environment. Academic departments would host open-house events during the conference. Existing PhD students — especially winners of honorary fellowships — would serve as ambassadors by chairing sessions, judging posters, leading mini-courses, and serving on panels. The resulting interactions would connect potential applicants to existing PhD students, would amplify the impact of PhD fellowships, and would strengthen PhD student CVs by involving them with conference leadership. A network of peers and mentors would form organically. The conference would take place in the fall, before PhD application deadlines.

The conference could be modeled on existing, similar events. The Success, Opportunity and Access in Research (SOAR) event<sup>14</sup> run by the Kearns Center specifically targets prospective graduate students from underrepresented groups and has similar structure to what this committee recommends. A Graduate Symposium for Arts, Sciences, and Engineering, though cancelled because of the pandemic, was planned for spring 2020, with U of R Trustee and emcee Barbara Burger leading a discussion for women in STEM. The Undergraduate Research Expo run by the Office of Undergraduate Research and the summer research symposia associated with the Xerox Engineering Fellows program and the NSF REU programs at U of R could also serve as models. Similar events at peer institutions include the GSB Rising Scholars Conference at Stanford<sup>15</sup> and Women in Economics Workshop at Boston University.<sup>16</sup> In fact, the BU workshop is student-run; we ask that U of R initiatives to be similarly welcome and supported by the University community, without asking student volunteers to do all the work. The National Conference on Undergraduate Research, attended by many recent U of R students with funding from the University, might also serve as a model. The conference this committee recommends could be run in coordination with the Upstate NY GEM GRAD Lab event. The conference might be run in collaboration with other universities to increase the audience and impact.

***Broader factors affecting successful recruiting:*** PhD recruiting is affected by many factors beyond actions taken with recruiting in mind, including the strength of our faculty, the record of past PhD student placement, scholarly interests of faculty, faculty funding, faculty diversity, University research resources and facilities, and maintaining a welcoming, comfortable environment. Many of these represent current strengths of U of R graduate programs. If we aim to increase PhD student diversity, we should pay special

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<sup>14</sup> <http://www.rochester.edu/college/kearnscenter/graduate/soar.html>

<sup>15</sup> <https://www.gsb.stanford.edu/faculty-research/faculty/conferences/rising-scholars-conference>

<sup>16</sup> <http://www.bu.edu/econ/community/studentorgs/weorg>

attention to research areas that can serve to attract students from under-represented groups.

It is essential for graduate students to see the University as a welcoming and inclusive place where they can expect to feel well supported, at ease, and even at home — as so many of us do. A crucial factor in this regard is increased diversity among faculty. It matters to students to see people with whom they feel some affinity among faculty and administration, not only among their own cohort. And it is equally important for prospective students to see that people from every group are fully included in the life of the relevant department, program, school, etc.

We recommend continued and renewed efforts to hire diverse faculty, including faculty from underrepresented groups. Such efforts should proceed at the University level, as overseen by the Office of Equity and Inclusion, and also at School and Department levels. Those efforts should be made more visible to faculty, staff, alums, undergraduate students, and (most germane to the mission of this report) graduate students. Many peer institutions have recently instituted substantial initiatives to promote the dual objective of research excellence and increased diversity: \$100M at Vanderbilt University (in addition to their graduate student initiative, mentioned above)<sup>17</sup>, \$85M at Yale University<sup>18</sup>, and \$50M at Brown University<sup>19</sup>. U of R must likewise make substantial efforts.

We also believe that alums and staff represent untapped resources for recruiting. Both can speak to the quality of life on campus and be sources of support or even mentorship for graduate students.

### **3.2 Offering stronger support for PhD students**

U of R must offer stronger support for PhD students during their time at the University. This objective is synergistic with effective recruiting because many of the same factors that attract applicants to the University's PhD programs also enhance retention, including a culture of inclusivity and personal connection, conferences and research activities that bring people together, and diversity of colleagues and mentors. But recruiting alone falls short of what is needed to propel U of R PhD students to resounding success in their degrees, their scholarly work, and their ongoing careers — and to make U of R ever better. We recommend a major fundraising initiative for PhD fellowships, University-level support for structured mentoring and professional development programs, and improved placement and career support for PhD students. The Office of Advancement would lead the fundraising. Mentoring and professional development

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<sup>17</sup> <https://news.vanderbilt.edu/2020/09/23/100-million-destination-vanderbilt-initiative-launched-to-recruit-top-faculty-address-essential-challenges/>

<sup>18</sup> <https://faculty.yale.edu/diversity/initiative-faculty-excellence-and-diversity>

<sup>19</sup> <https://www.bu.edu/diversity/initiatives-data/faculty-hiring/>

needs vary among fields and would most naturally be led at the Department level but must be supported with funds and oversight from the Schools and/or University. Responsibility could fall to the Office of the Vice Provost and University Dean of Graduate Education. Needs for placement and career support also vary among fields and should be led by Departments with funds and oversight from the University level, perhaps overseen by the Associate Vice Provost of Career Education Initiatives, drawing on existing resources like the Greene Center for Career Education and Connections in Arts, Sciences, and Engineering; the Broadening Experiences in Scientific Training (URBEST) program in the School of Medicine and Dentistry, and similar organizations in other parts of the University.

***Fundraising for PhD fellowships:*** Other universities are awarding fellowships with generous stipends to attract and retain PhD students that are out of reach of U of R. Some are students whose impeccable grades and test scores allow them to command top dollar. Some are students from underrepresented groups, who frequently face financial challenges and need generous stipends. Graduate students are often less financially secure than undergraduates, staff, or faculty. Research studies indicate that students from underrepresented groups often have high levels of debt after completing their undergraduate degrees and are reluctant to incur even more debt with doctoral study. U of R does provide fellowships for PhD study, including the Sproull Fellowship and the Provost's Fellowship, which is aimed specifically at recruiting candidates from underrepresented groups. Existing fellowships do correlate with success at U of R. Among PhD students starting between 2005 and 2008, those who did not complete a PhD within 10 years represented 28% of students without fellowships but only 5% of students with fellowships.<sup>20</sup> But too few fellowships are awarded, and awards are often too small. Take rates among applicants awarded Sproull and Provost's Fellowships are often lower than take rates among other applicants. Worse, these fellowships draw more than 90% of their funding from U of R's general budget — not from dedicated funds. Thus, the University's ability to award them decreases during times of financial challenge, such as the current pandemic.

We recommend a major fundraising initiative for PhD fellowships. Fundraising efforts should be targeted toward endowing these and other graduate fellowships to the greatest extent possible. An endowment can be built from large, named gifts from a few donors, or from smaller gifts from many donors. Committed annual gifts for graduate fellowships could also be effective, as long as they are stable: insulated from budget fluctuations and extending far enough into the future that awardees' support is guaranteed throughout their time at U of R. For example, a group of alums could contribute smaller scholarship donations each year for five years. Building diversity and ensuring excellence takes time and requires long-term commitment. Fellowships could be awarded under the existing titles (Sproull and Provost's), or new titles could augment those. Carefully considering the nationwide pool of McNair Scholars for fellowships would help increase diversity.

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<sup>20</sup> Data from Kristin Balonek, University of Rochester Institutional Research.

Making a real impact requires significant funds. As Table 1 shows, endowed support for fellows that comprise 7.5% of the U of R PhD student population requires a principal of about \$50M. For comparison, Vanderbilt conferred 291 PhDs in 2019<sup>21</sup> and has a \$125M graduate education initiative;<sup>22</sup> U of R conferred 201 PhDs in 2017, so proportional funding would require \$86M. Estimating an average stipend (from some source, internal or external) for each of the 1600 PhD students at U of R to be \$25k per year, the total stipend outlay is approximately \$40M annually. A \$50M endowment expansion is of the same order of magnitude but could make the University far stronger and would survive in perpetuity.

*Table 1: Funds required for supporting PhD Fellows. We assume each fellowship provides a \$34k/year stipend for 3 years, that each fellow spends 5 years at U of R, that the draw from endowment is 5%, and that U of R will continue to have 1600 PhD students. These numbers are inspired by the NSF GRFP<sup>23</sup> 3-year model and are illustrative; 4-year support might fit better with stipend financing practices in some schools or departments.*

Number of fellows admitted each year	Total number of active fellows	Fellows as fraction of PhD students	Annual income needed to support fellows	Endowment needed for income
12	60	3.75%	\$1.224M	\$24.48M
16	80	5%	\$1.632M	\$32.64M
24	120	7.5%	\$2.448M	\$48.96M
32	160	10%	\$3.264M	\$65.28M

That said, fellowships might also be supported with annual giving, which requires less up-front contribution than endowment but relies on receiving ongoing donations. A combined approach might be effective. Fundraising takes time, and new fellowships could be phased in over a few years, though delays should be avoided wherever possible. We recommend amplifying the impact of fellowship funds by involving fellows as ambassadors and mentors in the U of R community, as described elsewhere in this report. This committee is aware that we are making a big ask for this major initiative, and we believe that graduate programs at U of R deserve no less.

The list of PhD graduates provides a starting point for Advancement to solicit funds from this alum group, although undoubtedly, they have their own list of alums who may want to donate. Fellowship awards would be decided with procedures similar to those currently used for Sproull and Provost's Awards, in which Departments nominate candidates and a University-level committee makes final decisions.

<sup>21</sup> <https://www.vanderbilt.edu/about/facts/>

<sup>22</sup> <https://news.vanderbilt.edu/2017/10/02/bold-125-million-investment-supports-landmark-graduate-student-scholarships-and-leadership-institute/>

<sup>23</sup> <http://www.nsfgrfp.org/>

**Structured mentoring, cohorts, and tutoring:** Catalyzing outstanding outcomes among U of R PhD students requires more than just funding — students need regular, structured, interpersonal support. Another challenge linked to the small size of U of R is the tendency for PhD students to become isolated because many academic departments have few graduate students. Isolation is severely exacerbated by the covid-19 pandemic, and even when vaccines become available, increased telecommuting, and therefore increased risk of isolation, seems likely to become permanent.

PhD students have thesis advisors and academic committees, but need other mentors, too. Additional mentors offer students meaningful personal connections to the University. Mentors offer invaluable, informal advice about time management, professionalization, job hunting, and a myriad of other topics. We recommend PhD students be grouped into cohorts that connect contemporary or near-contemporary students from related fields. Each cohort would meet regularly, perhaps a few times a year over lunch or dinner, with an experienced graduate student, like a winner of an honorary fellowship, assigned as mentor. The University could provide the meal. Others willing to share helpful career advice — faculty, staff, postdoctoral researchers — could join as guest speakers. Optional interest groups for students from underrepresented groups could also be supported, though neither Provost’s Fellows nor other people from underrepresented groups should be asked to do a disproportionate amount of the work of promoting diversity. Everyone should contribute. Existing programs could serve as models. Graduate Students of Color (GSOC) Gatherings currently convene weekly, facilitated by the Kearns Center, to connect graduate students from underrepresented groups across Arts, Sciences, and Engineering. Those gatherings could be expanded to include the entire University.

Mentoring is of course time-consuming, and so we recommend incentives for mentors. Exemplary efforts should be publicized, celebrated, and tangibly rewarded, whether the mentoring relationship is formal or informal. This is an important way to make the personal touch a permanent part of the University’s culture.

Tutoring should also be considered. Providing new PhD students with tutors from among the more senior PhD students has proved effective in the American Physical Society Bridge Program,<sup>24</sup> which is increasing the number of PhDs awarded to students from underrepresented groups, and with which U of R is affiliated. The American Chemical Society is now implementing a similar bridge program<sup>25</sup>. University-level support for academic tutoring for graduate-level courses should also be considered. The Graduate Assistance in Areas of National Need (GAANN) program of the US Department of Education formerly provided funding for similar initiatives and should be leveraged if it is reinstated.

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<sup>24</sup> <https://www.aps.org/programs/minorities/bridge/about.cfm>

<sup>25</sup> <https://www.acs.org/content/acs/en/education/students/graduate/bridge-project.html>

***Improved placement and career support for graduate students:*** True success for U of R PhD students means more than passing required classes and more than defending a dissertation — it means continuing into a career of leadership and excellence. For a few, that career will lead to a faculty position, but in 2020 and beyond, most will work outside academia. For those students, the first step after the PhD is often difficult, because few faculty advisors have spent much of their careers away from universities; their networks and knowledge have limited reach.

We call on U of R to improve placement and career support for graduate students, especially those seeking careers outside academia. Though career options vary more at the PhD level than at the BS level, the Greene Center for Career Education and Connections, having already built substantial infrastructure, might logically lead the effort. U of R is already a member of the National Consortium for Graduate Degrees for Minorities in Engineering and Science<sup>26</sup>, which offers a private-sector internship program. U of R could use that program more extensively, and also take it as a model for further efforts, including efforts in fields other than engineering and science. Finding careers outside academia can be particularly tricky for PhD students in the humanities and social sciences, so U of R should compile resources for those students specifically, as peer institutions do<sup>27</sup>. For PhD students who do intend to pursue careers in academia, the existing Future Faculty Program<sup>28</sup> could be reinforced and expanded. For all PhD students, personal connections will be important, so U of R must build and maintain well-documented relationships with PhD alums and with their employers. A central database is essential. Placement and career support efforts might also build on programs run by scholarly societies, who are often effective in fostering professional networking, even beyond academia.

Many of these recommended actions for offering stronger support for PhD students could be implemented in coordination with the AAU PhD Education Initiative<sup>29</sup>. U of R might formally join the initiative, or might build on the strategy and ideas of the initiative even without formal involvement.

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<sup>26</sup> <https://www.gemfellowship.org/>

<sup>27</sup> <https://sites.lsa.umich.edu/humanities-phd-proj/category/student-resources/job-search/>,  
<https://grad.berkeley.edu/news/professional-development/job-tech-humanities-ph-d/>,  
[https://www.fordham.edu/info/22167/student\\_resources/7096/non-academic\\_career\\_resources\\_for\\_humanities\\_phds](https://www.fordham.edu/info/22167/student_resources/7096/non-academic_career_resources_for_humanities_phds), <https://gsas.columbia.edu/graduate-life/career-development/humanities-social-sciences>

<sup>28</sup> <https://www.rochester.edu/provost/faculty-development/future-faculty-workshops/>

<sup>29</sup> “AAU Receives Grants to Promote More Student-Centered Doctoral Education,” AAU Press Release, March 7, 2019.

Table 2: Partial List of Distinguished PhD Graduates  
from the University of Rochester (1970-2005)

- Donna Strickland ('89 PhD, Optics), 2018 Nobel Laureate in Physics
- Richard Thaler ('74 PhD, Economics), 2017 Nobel Laureate in Economic Sciences
- Masatoshi Koshiha ('55 PhD, Physics), 2002 Nobel Laureate in Physics
  
- John Aldrich ('75 PhD, Political Science), Pfizer-Pratt University Professor of Political Science at Duke University, AAAS Fellow
- Corinna Cortes ('93 PhD, Computer Science), Vice President and Head of Google Research NY, 2008 Paris Kanellakis Award Theory and Practice Award of the ACM, 2000 AT&T Science and Technology Medal
- Daniel Diermeier ('95 PhD, Political Science), Current Chancellor of Vanderbilt University, Provost (2016-20) of the University of Chicago, Dean (2014-16) of the Harris School of Public Policy at the University of Chicago, AAAS Fellow
- John diPersio ('80 MD/PhD, Microbiology), Deputy Director, Alvin J. Siteman Cancer Center; Virginia E. and Samuel J. Golman Endowed Professor of Oncology; Chief, Division of Oncology, Washington University School of Medicine
- Robert J. Dolan ('77 PhD, Simon School, Marketing), Baker Foundation Professor at Harvard Business School, Dean (2001-12) of the Stephen M. Ross School of Business at the University of Michigan
- Morris Fiorina ('72 PhD, Political Science), Wendt Family Professor of Political Science at Stanford University, Senior Fellow at the Hoover Institution
- Kenneth French ('83 PhD, Simon School, Finance), Roth Family Distinguished Professor of Finance at Tuck School of Business, Dartmouth College, 2007 President of American Finance Association, AAAS Fellow
- Barry L. Gan ('84 PhD, Philosophy), Professor of Philosophy and Director of the Center for Nonviolence at St. Bonaventure University, Frank Chapman Sharp Essay Prize (1991) of the American Philosophical Association



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- Amit Goyal ('91 PhD, Material Science and Engineering), SUNY Empire Innovation Professor at SUNY-Buffalo, Corporate Fellow, Distinguished Scientist and Inventor, Oak Ridge National Laboratory, National Academy of Engineering (2018), National Academy of Inventors (2014)
- Jerry Green ('70 PhD Economics), John Leverett Professor in the University and the David A. Wells Professor of Political Economy at Harvard, Chair of the Harvard Department of Economics (84-87), Provost at Harvard (92-94), AAAS Fellow
- N. Katherine Hayles, ('77 PhD, English), Professor and Director of Graduate Studies in Literature at Duke University, Suzanne K. Langer Award for Outstanding Scholarship
- Paul M. Healy ('81 PhD, Simon School, Finance), James R. Williston James R. Williston Professor, Senior Associate Dean for Faculty Development at Harvard Business School
- Mary Jo Heath ('88 PhD, Eastman, Music Theory), Senior Radio Producer and Radio Host of the NY Metropolitan Opera, Product Manager at Phillips Classic Records (1989-99)
- Evelyn Brooks Higginbotham ('84 PhD, History), Historian, Victor S. Thomas Professor of History and African and African American Studies at Harvard University, 2014 National Humanities Medal
- Peter van Inwagen ('69 PhD, Philosophy), John Cardinal O'Hara Professor of Philosophy at the University of Notre Dame, Former President of Society of Christian Philosophers
- Andrea Kalyn ('02 Eastman, Musicology), President of New England Conservatory, Dean of the Oberlin Conservatory (2014-18), Associate Dean for Academic Affairs, Professor of Music at Oberlin College
- Tamara Levitz ('94 Eastman, Musicology), Professor of Comparative Literature and Musicology at UCLA, Prose Award in Music and the Performing Arts (2012), Otto Kinkeldey Award (2012) of the American Musicological Society,
- Joseph B. Martin ('71 PhD, Anatomy), Edward R. and Anne G. Lefler Professor Emeritus of Neurobiology, Dean of Harvard Medical School and the UCSF School of Medicine, 6th Chancellor of the University of California, San Francisco, Member of the National Academy of Sciences, AAAS Fellow
- Brian C. Mitchell ('78 PhD, History), President of Bucknell University (2004-10), President of Washington and Jefferson College (1998-2004)
- Thomas Perry, ('74 PhD, Literature), Mystery Writer, Gumshoe Award for Best Mystery, Edgar Award for Best First Novel by an American Author

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- Webster H. Pilcher, ('80 MD/PhD, Neuosciences/Anatomy), Ernest & Thelma Del Monte Distinguished Professor of Neuromedicine; Chair of Neurosurgery at the University of Rochester Medical Center
- Richard Rashid ('80 PhD, Computer Science), Senior VP, Chief Researcher and Founder of Microsoft Research, Inventor of the Mach operating system, Professor of Computer Science at Carnegie Mellon University (1979-91), Member of National Academy of Engineering and National Science Foundation
- Nasser Saidi (79' PhD, Economics), Lebanese Minister of Economy and Trade and Minister of Industry (98-00), Vice Governor of the Lebanese Central Bank (93-03), Member of IMF's Regional Advisory Group for MENA, Co-chair of the OECD MENA Corporate Governance Working Group, named several times among the 50 Most Influential Arabs in the World by Middle East Magazine
- José Scheinkman ('74 PhD Economics), Theodore A. Wells '29 Professor of Economics at Princeton University, Member of USNAS, AAAS and AFA Fellow
- Gary Schuster ('71 PhD, Chemistry), Vasser Woolley Chair of Chemistry and Biochemistry at Georgia Tech, Former Provost and Executive Vice President of Georgia Institute of Technology (2006-09), Interim President (2008-09), Charles Holmes Herty Medal (2006), Arthur C Cope Award (1994)
- Andrzej Skrzypacz ('00 PhD Economics) The Theodore J. Kreps Professor of Economics at Stanford University, R. Michael Shanahan Faculty Fellow (2016-2017), Econometric Society Fellow

Notes and Sources: The list is taken from the Wikipedia List of Notable Alumni from the U of R and University of Rochester Web Sites. We restricted the list to living PhD alumni who received their doctorate from 1970 – 2005. The list is a sampling of the many PhD alumni and their achievements across the many departments and schools of the University of Rochester. It is meant to be suggestive and is not intended to be comprehensive or representative. There are many more names that could be added to this list.