Proposal for Program in Neuroscience GRE Waiver

The interdisciplinary Program in Neuroscience, with support from both the College of Arts and Sciences and the College of Medicine, offers one doctoral degree program in Neuroscience. We are requesting permission to waive the GRE admission requirement for select, outstanding students who apply to this program.

Currently, GRE scores are only one of several factors that are considered when evaluating prospective students. Other factors, which are already weighted higher than the GRE by many of our faculty, include previous research experience, relevant course work, letters of recommendation, relevant employment, and upper-division GPA. The Program in Neuroscience is requesting a GRE waiver based on a growing body of research that finds only a weak correlation between the GRE and success in STEM-related fields, including Neuroscience. We believe that waiving the GRE admission requirement will allow us to increase our pool of applicants, which in turn will help us achieve our goals of (i) admitting students who are highly likely to be successful in our doctoral program, (ii) increasing our ability to compete for the most highly qualified applicants among other Neuroscience Programs that have already waived or do not require the GRE, and (iii) increasing the number of underrepresented students in our doctoral program.

Proposed Criteria for a GRE Waiver

The GRE admission requirement will be waived for select, outstanding students who meet at least one of the key criteria for demonstrating Success and Aptitude for Research plus at least one of the key criteria demonstrating Academic Preparation. These criteria are as follows:

Success and Aptitude for Research:
- Undergraduate research-based thesis in a relevant field*.
- Post-graduate research experience in a relevant field*.
- Extensive (at least 4 months) relevant research or laboratory experience related to the applicant's graduate training goals.
- Co-authored research paper published in a peer-reviewed scientific journal.
- Extensive (at least 4 months) relevant employment related to the applicant's graduate training goals.

> *Examples of relevant fields include, but are not limited to, neuroscience, biology, biochemistry, chemistry, genetics, psychology, engineering, computer science and/or 2 years of medical school.*

Academic Preparation:
- Upper-division undergraduate GPA of 3.2 (on a 4.0 scale) or higher from any nationally or internationally accredited college or university.
- Graduate GPA of 3.5 (on a 4.0 scale) or higher from any nationally or internationally accredited college or university.

Prospective students must present supportive evidence within their application that they meet the selected waiver criteria. All applicants will have the option to report their GRE test scores.

Rationale for a GRE Waiver

A growing body of research has questioned the predictive validity of GRE scores, particularly in STEM fields, with most studies reaching the conclusion that the GRE provides little objective information to reliably identify who will be successful in graduate school (Miller & Stassun, 2014). In support of this conclusion, a meta-analysis of 1753 independent studies conducted over 50 years found weak or negative correlations between GRE scores and indices of success in graduate school (Kuncel et al, 2001). Moreover, a recent study of 683 doctoral students in the Vanderbilt Interdisciplinary Graduate Program, which includes Neuroscience and related doctoral programs, found that the GRE was not useful in predicting who will pass the doctoral qualifying exam, deliver more conference presentations, publish more first-author research papers, obtain an individual grant or fellowship, have a shorter time to degree, or earn the doctoral degree (Moneta-Koehler et al, 2017). In this same study, GRE scores were found to be a weak to moderate predictor of graduate GPA, whereas other measures, including undergraduate GPA, were found to be better predictors of success in graduate school (Moneta-Koehler et al, 2017). Similar results were obtained in another recent study of 280 doctoral students in the Biological and Biomedical Program at the University of North Carolina at Chapel Hill, which includes their Neuroscience program (Hall et al, 2017). Based on their own and others' findings, the authors concluded that "the most commonly used standardized test (the general GRE) is a particularly ineffective predictive tool". Consistent with this research, the Educational Testing Service (ETS), which administers the GRE, discourages the use of GRE cut off scores for admissions, and acknowledges that the GRE does not predict other skills needed to succeed in a variety of graduate programs (GRE Guide to the Use of Scores 2015-2016; Enright & Gitomer, 1989).

There is also a concern that the GRE puts highly capable women and underrepresented groups at a competitive disadvantage for admission to graduate training programs (Benderly, 2017; Miller & Stassun, 2014; Moneta-Koehler et al, 2017). This is because scores on the GRE, similar to most standardized tests, reflect certain demographic characteristics, such as socioeconomic status, that are unrelated to academic preparation, intellectual capacity, and potential for academic success. This has led to test disparity, with women scoring an average of 80 points lower than men, and African Americans scoring an average of 200 points lower than Caucasian Americans (Miller & Stassun, 2014). Thus, the traditional focus on GRE scores and the misguided approach of using GRE minimum scores for admission may be a driving force for the continuing under-representation of women and minorities in graduate programs in general, and STEM fields in particular. Because this represents a salient and ongoing concern for our Neuroscience doctoral program, we believe that waiving the GRE and including other criteria that are more predictive of future success and aptitude for research and academic performance will help us meet our goal of increasing diversity within our program.

STEM fields have led the movement to drop the GRE admission requirement. In a 2018 survey of application requirements at 50 top-ranked U.S. research universities, 35% of Neuroscience Ph.D. programs dropped the GRE requirement between 2016 and 2018 and more reported planning to do so for 2019 and 2020 admissions (Langin, 2019). Importantly, many peer and aspirational doctoral Programs in Neuroscience have either dropped the GRE admission requirement or allowed applicants to waive the GRE if other criteria, deemed more indicative of success in graduate school, are met. The following represents only a subset of these institutions: Brandeis University[1], Emory University[2], Georgetown University[3], University of California – Berkeley[4], University of Massachusetts – Amherst[5], University of Michigan[6], University of Pittsburgh[7], University of Washington[8], University of Wisconsin – Madison[9], and Yale University[10]. Given the stellar reputation of these and other institutions (including several within the top 10 nationally-ranked Neuroscience programs[11]) that have already waived or do not require the GRE, we see no threat to the perceived rigor or acclaim of FSU or the Colleges and Departments that comprise

our interdisciplinary graduate program if we are approved to waive the GRE admission requirement. We also believe that waiving the GRE requirement for qualified students will help us to address the steady decline in applications we have seen over the past three years (2017 n= 65, 2018, n = 60, 2019, n = 40). We expect the number of students who apply to our program will increase, enlarging our selection pool and giving us a competitive advantage to attract high-caliber students who may not otherwise apply if the GRE requirement for admission cannot be waived.

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[1]https://www.brandeis.edu/neuroscience/graduate/apply/index.html;
[2]http://biomed.emory.edu/PROGRAM_SITES/NS/admissions/factsfaq.html;
[3]https://neuroscience.georgetown.edu/admissions.html; [4]https://neuroscience.berkeley.edu/ph-d-program/how-to-apply/;
[5]http://gpls.cns.umass.edu/nsb/admissions/how-to-apply; [6]https://neuroscience.med.umich.edu/admission;
[7]http://www.cnup.pitt.edu/training/phd-program; [8]https://depts.washington.edu/neurogrd/prospective-students/admissions/;
[9]https://ntp.neuroscience.wisc.edu/admissions-requirements/; [10]https://gsas.yale.edu/admissions/required-examinations;
[11]https://www.usnews.com/education/best-global-universities/neuroscience-behavior

Justification for the Selected Criteria for a GRE Waiver

The GRE admission requirement will be waived for select, outstanding students who meet at least one of the key criteria for demonstrating Success and Aptitude for Research plus at least one of the key criteria demonstrating Academic Preparation. These criteria are as follows:

1. Success and Aptitude for Research:
- Undergraduate research-based thesis in a relevant field*.
- Post-graduate research experience in a relevant field*.
- Extensive (at least 4 months) relevant research or laboratory experience related to the applicant's graduate training goals.
- Co-authored research paper published in a peer-reviewed scientific journal.
- Extensive (at least 4 months) relevant employment related to the applicant's graduate training goals.

   > *Examples of relevant fields include neuroscience, cellular and molecular biology, biochemistry, chemistry, genetics, and/or psychology.*

By waiving the GRE for students who meet one or more of the bulleted criteria above for Success and Aptitude for Research, we can identify superior and experienced applicants who have already demonstrated their ability to be successful in a research environment, and who thus are likely to excel in our research-focused doctoral program.

2. Academic Preparation.
- Upper division undergraduate GPA of 3.2 (on a 4.0 scale) or higher from any nationally or internationally accredited college or university.
- Graduate GPA of 3.5 (on a 4.0 scale) or higher from any nationally or internationally accredited college or university.

By requiring either an undergraduate GPA that is higher than required by FSU or an outstanding graduate GPA (as outlined above), we will be able to identify superior applicants who have demonstrated a high level of academic rigor and preparation for graduate school.

Published studies have demonstrated that both research experience and upper-division GPA are better predictors of success in graduate school than the GRE, particularly in Neuroscience and other STEM-

related fields (Hall et al, 2017; Langin, 2019; Kuncel et al, 2001; Moneta-Koehler et al, 2017). *By waiving the GRE for select students who meet BOTH of our criteria (i.e., Success and Aptitude for Research AND Academic Preparation), we can identify and recruit those students who are most likely to be successful in our doctoral Program in Neuroscience.*

References

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