2020-2021 AccessLex Institute/AIR
Research Grant Proposal

Submittal ID: 2738
Proposal Title: The Role Financial Factors in Graduate, Professional, and Law Students' Mental Health, Time to Degree, and Career Interests

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1. Project Description

1a. Statement of the research problem and national importance (limit 1,000 words).

Address the following questions in your response:

- What is the research problem this proposal intends to address?
- How does this topic relate to the research priorities areas of access, affordability, and value of **graduate/professional or legal education**?
- Why is this topic of national importance?
- If single institution proposal, will proposed research yield findings that are scalable and replicable?
- Why is it timely to conduct this research at this time?

In this study, we seek to better understand the roles of financial factors (e.g., funding sources, debt, financial stress, and food and housing insecurity) in graduate, professional, and law students' mental health, time to degree completion, and career interests. We will examine a variety of financial factors, including students' 1) funding sources, such as assistantships, personal savings, and employer assistance; 2) financial stress (e.g., lack of affordable childcare, paying bills); 3) advisors' support in locating financial assistance; 4) student loan debt burden; and, 5) financial insecurity measured through housing and food insecurity. Additionally, our outcomes include students' 1) mental health (i.e., risk for generalized anxiety disorder and major depressive disorder); 2) projected length of degree completion; and, 3) career interests, with a focus on underrepresented graduate/professional students' interest in working in teaching/research colleges or universities.

The proposed research is timely for a number of reasons. First, one of our outcomes is graduate, professional, and law students' mental health, as measured by their risk for generalized anxiety disorder and major depressive disorder. Graduate, professional, and law students' mental health has become the focal point of recent research, policy, and institutional initiatives, with some noting there is a mental health "crisis" that demands urgent attention in graduate education (El-Ghoroury, Galpber, Sawaqdeh, & Bufka, 2012; Evans, Bira, Gastelum, & Vanderford, 2018).

Our data suggest that close to 15% of graduate, professional, and law students are at risk for major depressive disorder and 26% are at risk for major anxiety disorder—and that only about 30% of those students who are at-risk for anxiety and depression are receiving treatment, indicating the large scope and severity of the problem.

Furthermore, we are also interested in examining not only the prevalence of graduate, professional, and law students' food insecurity, which experts suggest may impact up to 20% of students (Soldavini, Berner, & Da Silva, 2019), but also the impact of food insecurity on students' outcomes. Similarly, we are also interested in exploring the prevalence of students' housing insecurity. While researchers have examined housing insecurity among undergraduate students (Goldrick-Rab, Richardson, Schneider, Hernandez, & Cady, 2018), there is limited information about housing insecurity in graduate and professional students, although our survey data suggest 35% of graduate and professional students sometimes or often worry they would not have the money to cover the cost of their housing.

Additionally, we are exploring students' career interests, including their interests in pursuing careers in research or teaching universities and whether their interest in working in those areas has changed since entering their program. We are particularly interested in discovering whether financial factors may change students' aspirations to work in research or teaching universities—especially the aspirations of students of color and those from other marginalized backgrounds who are underrepresented among college faculty. While diversity, equity, and inclusion have become more widely promoted at colleges and universities across the U.S., people of color are still significantly underrepresented in faculty positions relative to U.S. demographics: only 6% of faculty in the U.S. are Hispanic, 6% are Black, 11% are Asian or Native Hawaiian/Pacific Islander, less than 1% are American Indian or Alaska Native, and 1%

are two or more races (U.S. Department of Education, 2019). It is imperative that we understand the role that finances may play in underrepresented and marginalized students' career aspirations at research or teaching colleges and universities.

Finally, we are interested in exploring students' projected time to degree. Analyzing whether different types of financial aid, funding sources, or financial stressors contribute to students' time to degree is important for a number of reasons. For one, students who are enrolled longer in their degree programs may incur significantly higher overall costs of their degree related to extended living expenses, increased debt, and lack of income they may have earned from being employed full-time. Recent data suggest there is significant variation in the time to degree for students within different academic disciplines, ranging from 6.3 years for students in physical and earth sciences to 11.9 years for students in education (National Center for Science and Engineering Statistics, 2018). In fact, there appears to be a relationship between time to degree and debt incurred; for instance, education students--who take the longest to graduate--have the greatest debt of all students (36.4% have debt higher than $30,000) and they are least likely to have no debt (only 44.8% have no debt). Among physical and earth sciences students, who on average take the least time to graduate, only 5.7% have debt higher than $30,000 and 82.2% have no debt (National Center for Science and Engineering Statistics, 2018). Examining the impact of finances on students' time to degree by students' discipline may yield important insights for policymakers and administrators, who can work to change students' funding and decrease their time to degree.

We draw our data from a multi-institutional survey of graduate and professional students—the gradSERU survey, which was administered at 10 large, public, research extensive universities from 2017 to 2019 (n = 29,230 students). The universities are located in several

regions across the U.S. (West Coast, East Coast, and Midwest). Our sample includes respondents enrolled in 32 different graduate and professional disciplines as categorized by their 2-digit CIP code. The respondents include 12,176 master's students, 13,898 doctoral research students (PhD), and 3,156 professional doctorate students (e.g., DVM, DDS). Our data also includes over 300 students pursuing law degrees (e.g., JD, LLM). Along with traditional measures of race/ethnicity, age, sex, and international student status, the data contains several demographic variables that are not generally captured by institutions, including students' preferred gender identity, sexual orientation, parental education, social class, and whether students are parents or guardians to children. With our robust set of data, we are able to analyze students' outcomes by demographic characteristics and by broad disciplinary categories. Thus, we feel as though our study offers a strong contribution to higher education research, institutions, and graduate education about the affordability of graduate, professional, and legal education.

1b. Review the literature and establish the theoretical grounding for the research (limit 1,000 words).

Address the following questions in your response:

What has prior research found about this problem?

What is the theoretical/conceptual grounding for this research?

As a part of our study, we are exploring the effects of different types of financial aid, financial stress, financial support from advisors, and sources of funding on students' outcomes (mental health, career interests, and time to degree). In the gradSERU survey, we ask students to report 1) their estimated amount of student loans before and after graduate/professional education; 2) whether they had ever received different types of financial support (e.g., university or department fellowship/scholarship, teaching or research assistantship, grant, internships or clinical residency, employment, loans, personal savings, employer reimbursement, etc.); 3)

which of the aforementioned sources of financial support has been their primary source of support since they began their graduate/professional degree; 4) whether students have been satisfied with their financial aid from all sources since they began their graduate/professional degree; 5) whether students are concerned about paying for their graduate/professional education next year; 6) their financial and housing insecurity; 7) extent to which paying bills, finding affordable childcare, and the costs of housing have been stressful; 8) extent to which paying for school has been an obstacle to degree completion; and, 9) how helpful their advisors have been in helping them to receive financial support. We will also include measures of climate (institutional and departmental), academic discipline, degree type, demographic variables, and advising relationships in our models.

In our analyses, we use the conceptual framework developed by Mendoza, Villarreal III and Gunderson (2014), who drew from St. John and Andreiu's (1995) graduate student retention model, Weidman, Twale, and Stein's (2001) graduate student socialization framework, and DesJardins and McCall's (2010) human capital theory in their analysis of the effects of different types of funding sources on doctoral students' retention. Mendoza et al. (2014) conceptualized that demographic variables (e.g., age, gender, race/ethnicity, socioeconomic status); price subsidies (e.g., grants, scholarships, loans) and assistantships; and socialization experiences such as institutional climate and culture (Gardner, 2009; Gardner & Barnes, 2007), the role of the advisor (Lovitts, 2011), and departmental experiences (Weidman et al., 2001) matter not only in students' persistence but also in socializing students to learn about their profession, become members of a scholarly community of practice, and engage in careers (Mendoza et al., 2014).

There is some literature about the effects of different types of financial funding sources on graduate, professional, and law students' outcomes. Baum and Steele (2018) provided recent

data about the various ways in which graduate and professional students pay for their education, finding that master's and research doctorate students were more likely to pay for their education using a combination of loans or earnings from employment (i.e., assistantships) while professional degree students were more likely to borrow loans while receiving little institutional grant aid or assistantship funding. In particular, given the rapid increase in debt among graduate degree holders, increasing attention has been paid to the effects of student loan debt on graduate students. While graduate programs enroll only 15% of all students in higher education, graduate students account for 40% of all federal student loans issued each year (Miller, 2020). Student loans can be useful in helping to increase the graduation rates of graduate and professional students (Gururaj, Heilig, & Somers, 2010); yet, one negative outcome associated with graduate student borrowing is continued social class stratification and racial inequality: students from low-income backgrounds, first-generation students, and students of color—in particular, Black and Hispanic students—are more likely to graduate with significantly higher student loan debt compared to their peers (Miller, 2020; Pyne & Grodsky, 2020).

There is also some evidence to suggest research assistantships, fellowships, and teaching assistantships may be positively associated with doctoral students' retention in their degree programs (Mendoza et al., 2014); however, the research is relatively inconsistent with regards to the impact of different types of financial aid, financial stress, and funding sources on graduate and professional students' outcomes, especially when thinking about additional outcomes such as mental health and career aspirations. Additionally, researchers suggest that financial stress can lead to increases in generalized anxiety disorder and depressive disorder (Jones-White, Soria, Horner, & Tower, 2019) and that educational debt burden can influence students' career choices (Field, 2009; Rohlfing, Navarro, Maniya, Hughes, & Rogalsky, 2014; Phillips, Petterson,

Bazemore, & Phillips, 2014). However, our study provides a unique and important contribution to the literature for several reasons: 1) we have drawn our sample from a multi-institutional survey (many financial aid studies are from single institutions; 2) our sample include students from several academic disciplines, allowing us to examine and compare different disciplines at once (most studies feature only single disciplines, such as medicine or law); 3) we can analyze the effects of several finance-related variables (debt, funding sources, stress, advising support, food/housing insecurity) at once as we explore their effects on differential outcomes; and, 4) given our example size, we can explore differential outcomes by students' demographic and social identities.

1c. Describe the research method that will be used (limit 1,000 words).

Address the following questions in your response:

What are the research questions to be addressed?
What is the proposed research methodology?
What is the statistical model to be used? (please include equations if appropriate)

The broad research questions guiding this study are as follows:

1. Controlling for demographic and environmental variables, is there a relationship between graduate, professional, and law students' financial factors (stress, debt, funding sources, advisor support, and financial insecurity) and their risk for generalized anxiety disorder and major depressive disorder controlling for additional environmental and climate factors?
2. Controlling for demographic and environmental variables, is there a relationship between graduate, professional, and law students' financial factors (stress, debt, funding sources, advisor support, and financial insecurity) and their projected time to degree controlling for additional environmental and climate factors?

3. Controlling for demographic and environmental variables, is there a relationship between graduate, professional, and law students' financial factors (stress, debt, funding sources, advisor support, and financial insecurity) and their career interests (or change in career interests) controlling for additional environmental and climate factors?

We intend to run separate analyses for the law students given the focus of the AIR/AccessLex Institute grant. The variables we will use in our analyses are listed in Table One (see Appendix). The gradSERU survey data are nested within institutions; therefore, before we begin our analyses, we intend to run tests to establish the intraclass correlation coefficients (the amount of variance in our outcome variables attributed to the observations clustered within the institutions). Additionally, we will conduct tests to discover whether missing data are random and, if appropriate for our smaller sample groups, we may substitute missing data. We intend to use exploratory factor analysis to reveal latent variables that explain correlations between the variables. We will use linear regression to analyze the relationships between students' financial variables, their time to degree, and career interests (including whether their interests have changed). We will use logistic regression for students' risk for generalized anxiety disorder and major depressive disorder. Given the potentially larger sample sizes of our subgroups by demographics or discipline, we will use more conservative *p*-values.

1d. References cited (no word limit).

Baum, S., & Steele, P. (2018). *Financing graduate and professional education: How students pay*. Washington, DC: AccessLex Institute and Urban Institute.

DesJardins, S. L., & McCall, B. P. (2010). Simulating the effects of financial aid packages on college student stop out, reenrollment spells, and graduation chances. *Review of Higher*

Education, 33(4), 513–541.

El-Ghoroury, N. H., Galpber, D. I., Sawaqdeh, A., & Bufka, L. F. (2012). Stress, coping, and barriers to wellness among psychology graduate students. *Training and Education in Professional Psychology, 6*(2),122-134.

Evans, T. M., Bira, L., Gastelum, J. B., & Vanderford, N. L. (2018). Evidence for a mental health crisis in graduate education. *Nature Biotechnology, 36*(3), 282-284.

Field, E. (2009). Educational debt burden and career choice: Evidence from a financial aid experiment at NYU Law School. *American Economic Journal, 1*(1), 1-21.

Garcia-Campayo, J., Zamorano, E., Ruiz, M. A., Perez-Paramo, M., Lopez-Gomez, V., & Rejas, J. (2012). The assessment of generalized anxiety disorder: Psychometric validation of the Spanish version of the self-administered GAD-2 scale in daily medical practice. *Health Quality Life Outcomes, 10*, 114.

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Goldrick-Rab, S., Richardson, J., Schneider, J., Hernandez, A., Cady, C. (2018). *Still hungry and homeless in college*. Madison, WI: University of Wisconsin-Madison, Wisconsin Hope Lab.

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Lovitts, B. E. (2001). *Leaving the ivory tower: The causes and consequences of departure from doctoral study*. Lanham: Rowman & Littlefield

Miller, B. (2020). Graduate student debt: Ideas for reducing the $37 billion in annual student loans that no one is talking about. Washington, DC: Center for American Progress. Retrieved from https://www.americanprogress.org/issues/education-postsecondary/reports/2020/01/13/479220/graduate-school-debt/

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Soldavini, J., Berner, M., & Da Silva, J. (2019). Rates of and characteristics associated with food

insecurity differ among undergraduate and graduate students at a large public university in the Southeast United States. *Preventive Medicine Reports, 14*, Published Online First.

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Weidman, J. C., Twale, D. J., & Stein, E. L. (2001). *Socialization of graduate and professional students in higher education: A perilous passage?* San Francisco, CA: Jossey-Bass

1e. List the datasets that will be used and explain why they best serve this research. Applicant should also provide a statement indicating whether the proposed research will require use of restricted datasets. If restricted datasets will be used, the plan for acquiring the appropriate license should be described (limit 750 words).

We will use data from the gradSERU survey, which was administered at ten large, public, research-extensive universities. We already have access to the 2017-2019 gradSERU survey results, so the data are not restricted. The 2017-2019 gradSERU is the best survey to use for this research given that it includes comprehensive items related to students' funding, debt, financial stress, and food/housing insecurity. Additionally, the gradSERU survey incorporates outcomes data including intended career pathways, career interests, self-reported time to degree, and psychometrically validated measures of risk for generalized anxiety disorder and major depressive disorder.

1f. Timeline of key project activities (no word limit).

Timeline

	2020							2021						
	Jun	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**
Cleaning data														
RQ1 analysis (A), writing (W), submit for publication (P)	**A**	**W**	**W**	**P**										
RQ2			**A**	**W**	**W**	**W**	**P**							
RQ3							**A**	**W**	**W**	**P**				
Policy reports		**1**		**2**		**3**		**4**		**5**				
ASHE conference prepare proposal (P—due in March 2020), submit (S—due in March 2020), create presentation (CP), deliver (D)				**CP**	**CP**	**D**								
AIR conference prepare proposal (P), submit (S), create presentation (CP), deliver (D)			**P**	**S**							**CP**	**D**		
AERA conference prepare proposal (P), submit (S), create presentation (CP), deliver (D)	**P**	**S**							**CP**	**D**				
AccessLex/AIR research symposium prepare proposal (P), submit (S), create presentation (CP), deliver (D)	**P**	**S?**		**CP**	**CP**	**D**								
SERU research symposium prepare proposal (P), submit (S), create presentation (CP), deliver (D)	**P**	**S**			**CP**	**D**								
Progress report writing (W), submission (S)						**W**	**W**	**S**						
Final report writing (W), submission(S)												**W**	**W**	**S**

June 1, 2020:

- Receive notification of funding
- Begin cleaning data (and conducting analyses where needed to prepare proposals for conferences)
- Initiate inferential data analysis for first research question
- Write conference proposal to the AERA conference
- Write conference proposal to the AccessLex Legal Education Research Symposium (if required)
- Write conference proposal to SERU research symposium conference

July 1, 2020:

- Write first policy report
- Submit proposal to the AERA conference
- Submit proposal to the SERU research symposium
- Submit proposal to the AccessLex Legal Education Research Symposium (if required)
- Write up results for the first research question

August 1, 2020:

- Initiate inferential data analysis for second research question
- Write up results for the first research question
- Write proposal to AIR conference

September 1, 2020:

- Write the second policy report
- Submit a proposal to the AIR conference
- Submit progress report
- Write up results for the second research question
- Submit paper from the first research question to a peer-reviewed academic journal
- Prepare ASHE presentation
- Prepare AccessLex Legal Education Research Symposium presentation

October 1, 2020:

- Prepare presentations for the AccessLex Legal Education Research Symposium, SERU conference, and ASHE conference
- Write up results for the second research question
- Prepare ASHE presentation
- Prepare AccessLex Legal Education Research Symposium presentation
- Prepare SERU research symposium presentation

November 1, 2020:

- Deliver presentation at the AccessLex Legal Education Research Symposium
- Deliver presentation at the ASHE conference
- Deliver presentation at the SERU research symposium
- Write up results for the second research question
- Write the progress report
- Write third policy report

December 1, 2020:

- Write and submit paper from the second research question to a peer-reviewed academic journal
- Initiate inferential data analysis for third research question
- Write the progress report

January 1, 2021:

- Submit progress report
- Write the fourth policy report
- Write up results for the third research question

February 1, 2021:

- Write up results for the third research question
- Prepare AERA conference presentation

March 1, 2021:

- Prepare conference presentation for AIR conference
- Deliver AERA conference presentation
- Write and submit paper from the third research question to a peer-reviewed academic journal
- Write fifth policy report

April 1, 2021:

- Prepare AIR conference presentation

May 1, 2021:

- Deliver AIR conference presentation
- Write the final report

June 1, 2021:

- Write the final report

July 31, 2021:

- Submit the final report

1g. List deliverables such as research reports, books, and presentations that will be developed from this research initiative (no word limit).

We intend to produce five policy reports, which we will house on the gradseru.org website, distribute through social media channels, and announce via press releases to *Inside Higher Ed* and *The Chronicle of Higher Education*. Although these policy briefs contain both descriptive and inferential analyses, the policy reports are intended to be 3-4 pages, easier to read, and more accessible for general audiences. As examples, we refer readers to the types of policy briefs and infographics published by the Higher Education Research Institute (HERI) out of the University of California Los Angeles (e.g., Romo, E., & Jacobo, S. (2019). *Research in Brief: 2019 Your First Year College Survey*. Los Angeles, CA: University of California Higher Education Research Institute or Wood, J. L., & Harris III, F. (2018). Experiences with "acute" food insecurity among college students. *Educational Researcher*, *47*(2), 142-145.). We do not believe the five policy briefs will constitute more than 10% of the overall deliverable products associated with this grant (if deliverables are measured in terms of the time it takes to create policy briefs, full-length papers, presentations and amount of pages/content produced). We feel as though the policy briefs are important to the overall grant project because we can quickly publish them online, allowing a wider variety of readers to access important content without waiting for the sometimes lengthy journal publication cycles or conference proposal submission/acceptance/presentation cycles. We intend to write five policy briefs below:

1. Descriptive and inferential analysis of graduate, professional, and law students' financial stress by discipline and demographics
2. Descriptive and inferential analysis of graduate, professional, and law students' primary sources of funding by discipline and demographics

3. Descriptive and inferential analysis of graduate, professional, and law students' debt by discipline and demographics
4. Descriptive and inferential analysis of graduate, professional, and law students' food insecurity by discipline and demographics
5. Descriptive and inferential analysis of graduate, professional, and law students' housing insecurity by discipline and demographics

We will also produce a minimum of three to six peer-reviewed publications (at least one for each research question and hopefully, sample size permitting, one for each research question as it can be answered only for law students). Our goal is to submit to journals including *Educational Researcher*, *Research in Higher Education*, *Journal of Higher Education*, and the *Journal of Student Financial Aid*.

Additionally, we will prepare a minimum of five presentations at the following conferences: AccessLex Legal Education Research Symposium, Association for Institutional Research (AIR) Forum, Student Experience in the Research University (SERU) Research Symposium, American Educational Research Association (AERA) conference, and Association for the Study of Higher Education (ASHE) conference.

1h. How will you disseminate the results of this research (limit 250 words)?

We intend to disseminate the results of our research via the gradseru.org website, gradSERU social media accounts, gradSERU and SERU newsletters (which include institutional stakeholders within the SERU consortium), and through the Center for Studies in Higher Education at the University of California, Berkeley newsletter and website. In addition, we plan to send press releases to major higher education news outlets, such as *Inside Higher Ed* and the *Chronicle of Higher Education*. Our graduate communications and marketing assistant, Bonnie

Horgos, will dedicate 20% of her time to disseminating the research. Finally, we intend to present our research at several large national conferences that draw the attention of higher education researchers, practitioners, and policymakers, including the AccessLex Legal Education Research Symposium, Association for Institutional Research (AIR) Forum, Student Experience in the Research University (SERU) Research Symposium, American Educational Research Association (AERA) conference, and Association for the Study of Higher Education (ASHE) conferences.

2. Statement of Institutional Review Board Approval or Exemption

As part of the online application, a statement outlining a plan for Institutional Review Board (IRB) approval is required. The statement should outline the applicant's timeline and plan for submitting the proposal to an IRB *or* explain why IRB approval is not necessary. Final IRB action is *not* necessary prior to submitting the application (limit 250 words).

Each SERU partner institution has submitted a separate IRB to their local institutional review boards to cover survey administration and have received appropriate IRB approval at their local institution (documentation available upon request). Research for the SERU Project (including data from the gradSERU survey) has been reviewed by the University of Minnesota's Institutional Review Board (STUDY00005519) and was determined to "not research involving human subjects as defined by DHHS and FDA regulations" on January 29, 2019.

3. Biographical Sketch

A biographical sketch should include prior degrees earned, relevant professional work experiences, skills necessary for completion of the proposed study, and prior research experiences with national datasets (limit 750 words).

Note: Include a biographical sketch for each person listed on the grant proposal.

Dr. Krista M. Soria works as the Director for Student Affairs Assessment at the University of Minnesota, Twin Cities and is the Assistant Director for Research for the Student Experience in the Research University (SERU) Consortium at the University of California,

Berkeley. Dr. Soria received a Ph.D. in educational policy and administration (higher education emphasis) from the University of Minnesota. Dr. Soria has published over 70 peer-reviewed journal articles using many different national datasets (e.g., SERU survey, Multi-Institutional Study of Leadership, gradSERU) in top-tier student affairs and higher education journals, including *Research in Higher Education*, the *Journal of College Student Development*, and the *Journal of Student Affairs Research and Practice*. She has also edited five books, delivered over 60 presentations at national and regional conferences, and authored a volume on social class in higher education.

Dr. Soria has extensive experience working with national multi-institutional datasets, primarily from the Student Experience in the Research University (SERU) survey, the gradSERU survey, and the Multi-Institutional Study of Leadership (MSL) survey. She is currently a Principal Investigator on an ACUHO-I/NACURH grant to investigate the impact of leadership in residence halls for socioeconomically disadvantaged students and a former Principal Investigator on a federal FIPSE grant to investigate the impact of community service on underrepresented students' outcomes. Dr. Soria possesses significant working knowledge of the gradSERU survey and will analyze the data, write up the results for publication, create the policy reports, and assist with delivering the presentations.

Dr. Daniel Jones-White works as the Managing Director of the SERU Consortium and is the Assistant Director of Institutional Research at the University of Minnesota. Dr. Jones-White is also the Director of Research and Development of the gradSERU Survey, where he leads a team of researchers who create and modify the gradSERU survey, analyze the psychometric properties of the instrument, and produce peer-reviewed research from the data. Dr. Soria received a Ph.D. in educational policy and administration (higher education emphasis)

from the University of Minnesota. Dr. Jones-White has published in several top-tier higher education journals, including *Research in Higher Education*, and has extensive experience analyzing complex multi-institutional data, presenting at national and international conferences, and leading large-scale initiatives (including the creation of the gradSERU survey). Dr. Jones-White will contribute to the grant initiative by managing tasks, providing guidance on data analyses, writing up results for publication, and presenting the results at conferences.

Bonnie Horgos works as the Graduate Research Assistant for Marketing & Communications of the SERU Consortium and is currently pursuing her Master's Degree in Social Work at the University of Minnesota. Ms. Horgos studied journalism at Mills College and has worked in communications for over a decade. Her past experiences include working as a newspaper reporter for the *Santa Cruz Sentinel*, managing communications and marketing for several nonprofit organizations, and freelance writing and marketing. Ms. Horgos brings significant working knowledge of developing and implementing communications efforts through press releases, graphic design, web content, newsletters, and social media. Using her background in communications and social work, Ms. Horgos intends to use the data to create compelling content that delves into the lived experiences of graduate and professional students.

4. Statement of Prior, Current, and Pending Funding

A statement of prior, current, and pending funding for the proposed research from all sources is required. The statement should also include a history of prior funding (past 10 years) from AIR to any of the PIs. Funding from other sources will not disqualify the application but may be considered in the funding decision (limit 250 words).

Dr. Daniel Jones-White and Dr. Krista Soria have received previous AIR funding to attend the National Summer Data Policy Institute in 2010 and 2011. The current sources of funding to pursue this research include the SERU Consortium, which assists by funding a portion

of Bonnie Horgos's graduate student salary associated with communications (e.g., social media promotions, assistance with creating presentation). The University of Minnesota will fund professional members to academic associations (e.g., AERA, ASHE, AIR) to mitigate the costs of conference attendance.

Appendix

Please include charts, graphs, or other images referenced in earlier sections of this document.

Table One

Variables Used in Analysis

Dependent Variables	**Item**	**Scale**
Time to degree	How long do you expect it will take to complete your degree from start to finish?	1 to 7 years, 8 years or more, I do not expect to complete my current degree
Mental health	Students' risk for generalized anxiety disorder (Garcia et al., 2012) or major depressive disorder (Kroenke, Spitzer, & Williams, 2003)	1 = at risk, 0 = not at risk
Career interests	How likely do you believe you will be in obtaining a faculty position in a research university upon completion of your degree?	1 = not at all likely to 5 = extremely likely, 6 = I am not interested in a faculty position
Career interests	To what extent do you view the possibility of working in the following employment sectors after completing your degree? ● University/college with an emphasis on research ● University/college with an emphasis on teaching	1 = not at all to 5 = to a very large extent
Change in career interests	How has that changed since starting your degree program? ● University/college with an emphasis on research ● University/college with an emphasis on teaching	1 = decreased, 2 = no change, 3 = increased
Financial Variables	**Item**	**Scale**
Student loan debt	How much did you owe on all educational loans at the time you started your current graduate/professional degree?	1 = none, 2 = $1-20,000, up to 7 = more than $100,000

	What do you estimate you will owe on all educational loans at the time you complete your current graduate/professional degree?	
Funding sources	Has this been a source of financial support since you began your program (either current year or in past years): ● University or department fellowship or scholarship ● Teaching assistantship ● Research assistantship ● Teaching or instructional position at this institution ● Other research position at this institution ● Other employment at this institution ● Non-university, nationally competitive fellowship or scholarship ● Grant(s) ● Traineeship ● Internship, clinical residency ● Teaching or instructional position at other institution ● Other off-campus employment ● Loans ● Personal savings ● Spouse's, partner's, or family's earnings or savings ● Employer reimbursement/assistance ● Military benefits/assistance	1 = checked, 2 = not checked
Financial stress	How concerned are you about paying for your graduate/professional education next year?	1 = not at all concerned to 5 = extremely concerned, 99 = not applicable
Financial stress	Over the course of the last academic year, how stressful has each of the following been? ● Paying for school ● Paying my bills ● Accessing affordable healthcare ● Accessing affordable childcare	1 = not at all stressful to 5 = extremely stressful, 99 = not applicable
Financial stress	Rate the extent to which the following factors have been an obstacle to your degree progress ● Inadequate financial support	1 = not at all to 5 = to a very large extent, 99 = not applicable

Advisor support	To what extent do you agree or disagree with the following statements concerning your current, primary advisor? My advisor helps me get financial support.	1 = strongly disagree to 4 = strongly agree, 99 = not applicable
Food insecurity	For the following statements, please indicate whether the statement was often true, sometimes true, or never true for you during the current academic year: ● I was worried whether my food would run out before I got money to buy more. ● The food that I bought just didn't last, and I didn't have money to get more	1 = never true, 2 = sometimes true, 3 = often true
Housing Insecurity	For the following statements, please indicate whether the statement was often true, sometimes true, or never true for you during the current academic year: ● I was unable to pay all of the cost of my housing on time ● I worried I would not have enough money to cover the cost of my housing	1 = never true, 2 = sometimes true, 3 = often true
Housing Insecurity	Since the start of the academic year, did you do any of the following because you did not have enough money? ● Not pay, underpay, or delay paying your portion of rent, mortgage, or on-campus housing costs ● Not pay, underpay, or delay paying your portion of a gas, water, or electricity bill ● Live with others beyond the expected capacity of the house or apartment ● Move from one temporary housing arrangement to another, such as couch surfing ● Spend one or more nights in a shelter, car, public space, or structure not meant for long-term human habitation	1 = checked, 2 = not checked

Budget

Total

The total requested budget is $41,737 for personnel salary and $8,057 for travel expenses ($49,794).

Personnel

There are two Principal Investigators on the project (Dr. Krista Soria and Dr. Daniel Jones-White) and one graduate student (Bonnie Horgos). Dr. Soria will dedicate 20% of her time, Dr. Jones-White will dedicate 5% of his time, and Bonnie Horgos will dedicate 20% of her half-time position to this grant.

Dr. Soria is the Principal Investigator and Project Director (.20 FTE), paid $28,942 (salary and fringe). Dr. Soria is the lead researcher responsible for supervising the graduate student, ensuring data sets are merged correctly, following through on research questions and completing analyses, submitting proposals for academic conferences, and writing results for publications.

Dr. Daniel Jones-White is also a Co-Principal Investigator (.05 FTE), paid $8,176 (salary and fringe). Dr. Jones-White will contribute by conceptualizing analyses, running data analyses, submitting proposals for academic conferences, and writing results for publication.

Bonnie Horgos (.20 FTE) is paid $4,619 (salary and fringe) and will contribute to the project by assisting with developing presentations and disseminating all research results.

Travel

The travel budget for this year is $8,057. Bonnie Horgos will attend the AccessLex Legal Research Symposium, Dr. Soria will attend the ASHE conference, AERA conference, and

AccessLex Legal Research Symposium, and Dr. Jones-White will attend the AIR conference and SERU research symposium.

AccessLex Legal Research Symposium (Dr. Soria and Bonnie Horgos)

The total costs for this conference ($2,194) located in Nashville, TN include airfare (2 flights x $500), lodging (4 nights x $200/night), on-ground transportation ($150), and per diem (4 days x $61).

AIR Conference (Dr. Jones-White)

The costs for this conference ($1,804) located in Washington, DC include airfare (1 flight x $500), lodging (3 nights x $200/night), registration ($300), on-ground transportation ($100), and per diem (4 days x $76).

ASHE Conference (Dr. Soria)

The costs for this conference ($1,413) located in New Orleans, LA include airfare (1 flight x $500), lodging (2 nights x $150/night), registration ($300), on-ground transportation ($100), and per diem (3 days x $71).

SERU Research Symposium (Dr. Jones-White)

The costs for this conference ($1,078) located in Berkeley, CA include airfare (1 flight x $400), lodging (2 nights x $190/night), on-ground transportation ($100), and per diem (3 days x $66).

AERA Conference (Dr. Soria)

The costs for this conference ($1,568) located in Orlando, FL include airfare (1 flight x $400), lodging (3 nights x $190/night), registration ($300), on-ground transportation ($100), and per diem (3 days x $66).

Research Question One

Controlling for demographic and environmental variables, is there a relationship between graduate, professional, and law students' financial factors (stress, debt, funding sources, advisor support, and financial insecurity) and their risk for generalized anxiety disorder and major depressive disorder controlling for additional environmental and climate factors?

Risk for generalized anxiety disorder and major depressive disorder is a dichotomous variable (0 = not at risk, 1 = at risk). Thus, we will use two logistic regressions for these analyses.

$$P(Y_1) = \frac{1}{1 + e^{-(b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + \cdots + b_{25}x_{25})}}$$

$$P(Y_2) = \frac{1}{1 + e^{-(b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + \cdots + b_{25}x_{25})}}$$

Where Y_1 = risk for generalized anxiety disorder, Y_2 = risk for major depressive disorder, b_o = intercept, x_1 = student loan debt, x_2 = primary source of funding, x_3 = concern paying for education next year, x_4 = stress paying for school, x_5 = stress paying bills, x_6 = stress accessing affordable healthcare, x_7 = stress accessing affordable childcare, x_8 = inadequate financial support as an obstacle to degree progress, x_{10} = advisor support locating financial assistance, x_{11} = food insecurity, x_{12} = housing insecurity, x_{13} = gender, x_{14} = race/ethnicity, x_{15} = sexual orientation, x_{16} = social class, x_{17} = parental status, x_{18} = age, x_{19} = parental education, x_{20} = degree program, x_{21} = degree type, x_{22} = length of time in degree program, x_{23} = satisfaction with advisor, x_{24} = campus climate for diversity, and x_{25}= sense of belonging.

Research Question Two

Controlling for demographic and environmental variables, is there a relationship between graduate, professional, and law students' financial factors (stress, debt, funding sources, advisor support, and financial insecurity) and their projected time to degree controlling for additional environmental and climate factors?

Time to degree is a variable we can consider in multiple ways. First, we will treat the variable as continuous, treat students who selected the option "I do not expect to complete my degree program" as missing, and use a linear regression for the analysis.

$Y_1 = (b_0 + b_1x_1 + b_2x_2 + \cdots b_{25}x_{25}) + \varepsilon_1$

Where Y_1 = time to degree, b_o = intercept, x_1 = student loan debt, x_2 = primary source of funding, x_3 = concern paying for education next year, x_4 = stress paying for school, x_5 = stress paying bills, x_6 = stress accessing affordable healthcare, x_7 = stress accessing affordable childcare, x_8 = inadequate financial support as an obstacle to degree progress, x_{10} = advisor support locating financial assistance, x_{11} = food insecurity, x_{12} = housing insecurity, x_{13} = gender, x_{14} = race/ethnicity, x_{15} = sexual orientation, x_{16} = social class, x_{17} = parental status, x_{18} = age, x_{19} = parental education, x_{20} = degree program, x_{21} = degree type, x_{22} = length of time in degree program, x_{23} = satisfaction with advisor, x_{24} = campus climate for diversity, and x_{25}= sense of belonging.

Second, we will examine the original variable as a categorical variable in three groups: graduation in 0-4 years, 4-6 years, 6-8 years, and over eight years. We will use multinomial logistic regression with "over eight years" as the baseline category:

$$P(Y = 1) = \frac{1}{1 + e^{(x_1\beta_2 + \cdots x_{25}\beta_2)} + e^{(x_1\beta_3 + \cdots x_{25}\beta_3)} + e^{(x_1\beta_4 + \cdots x_{25}\beta_4)}}$$

$$P(Y=2) = \frac{e^{(x_1\beta_2+\cdots x_{25}\beta_2)}}{1 + e^{(x_1\beta_2+\cdots x_{25}\beta_2)} + e^{(x_1\beta_3+\cdots x_{25}\beta_3)} + e^{(x_1\beta_4+\cdots x_{25}\beta_4)}}$$

$$P(Y=3) = \frac{e^{(x_1\beta_3+\cdots x_{25}\beta_3)}}{1 + e^{(x_1\beta_2+\cdots x_{25}\beta_2)} + e^{(x_1\beta_3+\cdots x_{25}\beta_3)} + e^{(x_1\beta_4+\cdots x_{25}\beta_4)}}$$

$$P(Y=4) = \frac{e^{(x_1\beta_4+\cdots x_{25}\beta_4)}}{1 + e^{(x_1\beta_2+\cdots x_{25}\beta_2)} + e^{(x_1\beta_3+\cdots x_{25}\beta_3)} + e^{(x_1\beta_4+\cdots x_{25}\beta_4)}}$$

For instance, the relative probability of 0-4 years to graduate compared to over eight years to graduate is calculated by $\frac{P(Y=2)}{P(Y=1)}$ and so on for each group, where 1 = over eight years to graduate (baseline category), 2 = 0-4 years to graduate, 3 = 4-6 years to graduate, x_1 = student loan debt, x_2 = primary source of funding, x_3 = concern paying for education next year, x_4 = stress paying for school, x_5 = stress paying bills, x_6 = stress accessing affordable healthcare, x_7 = stress accessing affordable childcare, x_8 = inadequate financial support as an obstacle to degree progress, x_{10} = advisor support locating financial assistance, x_{11} = food insecurity, x_{12} = housing insecurity, x_{13} = gender, x_{14} = race/ethnicity, x_{15} = sexual orientation, x_{16} = social class, x_{17} = parental status, x_{18} = age, x_{19} = parental education, x_{20} = degree program, x_{21} = degree type, x_{22} = length of time in degree program, x_{23} = satisfaction with advisor, x_{24} = campus climate for diversity, and x_{25}= sense of belonging.

Research Question Three

Controlling for demographic and environmental variables, is there a relationship between graduate, professional, and law students' financial factors (stress, debt, funding sources, advisor support, and financial insecurity) and their career interests (or change in career interests) controlling for additional environmental and climate factors?

Students' career interests are measured three ways: 1) likelihood of obtaining a faculty position in a research university (1 = not at all likely to 5 = extremely likely, 6 = I am not interested in a faculty position); 2) possibility of working in a university with either a teacher or research emphasis (1 = not at all to 5 = to a very large extent); 3) change in career interest (1 = decreased, 2 = no change, 3 = increased).

For the first measure, we will use a linear regression (treating the "not interested" students as missing).

$Y_1 = (b_0 + b_1x_1 + b_2x_2 + \cdots b_{25}x_{25}) + \varepsilon_1$

Where Y_1 = likelihood in obtaining a faculty position, b_o = intercept, x_1 = student loan debt, x_2 = primary source of funding, x_3 = concern paying for education next year, x_4 = stress paying for school, x_5 = stress paying bills, x_6 = stress accessing affordable healthcare, x_7 = stress accessing affordable childcare, x_8 = inadequate financial support as an obstacle to degree progress, x_{10} = advisor support locating financial assistance, x_{11} = food insecurity, x_{12} = housing insecurity, x_{13} = gender, x_{14} = race/ethnicity, x_{15} = sexual orientation, x_{16} = social class, x_{17} = parental status, x_{18} = age, x_{19} = parental education, x_{20} = degree program, x_{21} = degree type, x_{22} = length of time in degree program, x_{23} = satisfaction with advisor, x_{24} = campus climate for diversity, and x_{25}= sense of belonging.

For the second measure, we will use two linear regressions:

$Y_1 = (b_0 + b_1x_1 + b_2x_2 + \cdots b_{25}x_{25}) + \varepsilon_1$

Where Y_1 = possibility of working in a university/college with an emphasis on research, b_o = intercept, x_1 = student loan debt, x_2 = primary source of funding, x_3 = concern paying for education next year, x_4 = stress paying for school, x_5 = stress paying bills, x_6 = stress accessing

affordable healthcare, x_7 = stress accessing affordable childcare, x_8 = inadequate financial support as an obstacle to degree progress, x_{10} = advisor support locating financial assistance, x_{11} = food insecurity, x_{12} = housing insecurity, x_{13} = gender, x_{14} = race/ethnicity, x_{15} = sexual orientation, x_{16} = social class, x_{17} = parental status, x_{18} = age, x_{19} = parental education, x_{20} = degree program, x_{21} = degree type, x_{22} = length of time in degree program, x_{23} = satisfaction with advisor, x_{24} = campus climate for diversity, and x_{25}= sense of belonging.

$$Y_1 = (b_0 + b_1x_1 + b_2x_2 + \cdots b_{25}x_{25}) + \varepsilon_1$$

Where Y_1 = possibility of working in a university/college with an emphasis on teaching, b_o = intercept, x_1 = student loan debt, x_2 = primary source of funding, x_3 = concern paying for education next year, x_4 = stress paying for school, x_5 = stress paying bills, x_6 = stress accessing affordable healthcare, x_7 = stress accessing affordable childcare, x_8 = inadequate financial support as an obstacle to degree progress, x_{10} = advisor support locating financial assistance, x_{11} = food insecurity, x_{12} = housing insecurity, x_{13} = gender, x_{14} = race/ethnicity, x_{15} = sexual orientation, x_{16} = social class, x_{17} = parental status, x_{18} = age, x_{19} = parental education, x_{20} = degree program, x_{21} = degree type, x_{22} = length of time in degree program, x_{23} = satisfaction with advisor, x_{24} = campus climate for diversity, and x_{25}= sense of belonging.

For the third measure, we will use a multinomial logistic regression. We will use multinomial logistic regression with “no change” as the baseline category:

$$P(Y = 1) = \frac{1}{1 + e^{(x_1\beta_2 + \cdots x_{25}\beta_2)} + e^{(x_1\beta_3 + \cdots x_{25}\beta_3)}}$$

$$P(Y = 2) = \frac{e^{(x_1\beta_2 + \cdots x_{25}\beta_2)}}{1 + e^{(x_1\beta_2 + \cdots x_{25}\beta_2)} + e^{(x_1\beta_3 + \cdots x_{25}\beta_3)}}$$

$$P(Y=3) = \frac{e^{(x_1\beta_3+\cdots x_{25}\beta_3)}}{1 + e^{(x_1\beta_2+\cdots x_{25}\beta_2)} + e^{(x_1\beta_3+\cdots x_{25}\beta_3)}}$$

For instance, the relative probability of decreased interest compared to no change is calculated by $\frac{P(Y=2)}{P(Y=1)}$ and so on for both groups, where 1 = no change (baseline category), 2 = decreased interest, and 3 = increased interest, x_1 = student loan debt, x_2 = primary source of funding, x_3 = concern paying for education next year, x_4 = stress paying for school, x_5 = stress paying bills, x_6 = stress accessing affordable healthcare, x_7 = stress accessing affordable childcare, x_8 = inadequate financial support as an obstacle to degree progress, x_{10} = advisor support locating financial assistance, x_{11} = food insecurity, x_{12} = housing insecurity, x_{13} = gender, x_{14} = race/ethnicity, x_{15} = sexual orientation, x_{16} = social class, x_{17} = parental status, x_{18} = age, x_{19} = parental education, x_{20} = degree program, x_{21} = degree type, x_{22} = length of time in degree program, x_{23} = satisfaction with advisor, x_{24} = campus climate for diversity, and x_{25}= sense of belonging.

Research Grant Proposal Budget Form

Personnel - Salary

Principal Investigator	$	28,942.00
Second Principal Investigator	$	8,176.00
Third Principal Investigator	$	0.00
Graduate Research Assistant	$	4,619.00

Travel

2020 AccessLex Institute Legal Education Research Symposium: Principal Investigator	$	1,097.00
2020 AccessLex Institute Legal Education Research Symposium: Second Principal Investigator	$	
2020 AccessLex Institute Legal Education Research Symposium: Third Principal Investigator	$	0.00
2020 AccessLex Institute Legal Education Research Symposium: Graduate Research Assistant*	$	1,097.00
Other research related travel: (***Note***: Other planned travel should be listed in the "Timelines and Deliverables" section)	$	5,863.00

Other research expenses

Please provide a breakdown of expenses below and add the total value in the box to the right. Allowable expenses include: materials, such as software, books, supplies, etc.; consultant services, such as transcription, analysis, external researchers, etc.; and costs for publishing articles in journals. The purchase of computer hardware, overhead or indirect costs, and living expenses are not allowable. If you have questions about specific expenditures, please contact AIR.

$ 0.00

TOTAL REQUESTED – Maximum Allowable is $50,000	$	49,794.00

**Note: The AccessLex Institute believes graduate student professional development and mentoring opportunities are important aspects of the Research Grant Program. Therefore, Research Grant recipients are strongly encouraged to designate funds for graduate student travel for the AccessLex Institute Legal Education Research Symposium Presentation.*