

**Platform on Office to Multifamily Conversion Projects for Freddie Mac Internship**

**The Culture of Busyness: Examining the Mental Health Impact on STEM Students and Professionals**

A Thesis Prospectus

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By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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## **Introduction**

School and work can be high-pressure places that bring stress, especially for those in STEM. With STEM degrees and jobs in STEM comes a busy workload, time pressure, and excessive amounts of stress, which can lead to negative effects on a student's or employee's mental health. As a college student majoring in a STEM degree, I have experienced this first-hand. Throughout my time pursuing a computer science degree at the University of Virginia, I have experienced the stress and busyness of college, whether that be balancing classes, homework, exams, extracurriculars, time with friends, or school events. College is a time to be independent and grow, and it is also a learning experience to navigate what to do with your time and responsibilities.

Looking back to high school, life felt more structured. It was composed of going to school, unwinding after school, doing homework, attending sports practice, eating dinner with my family, and going to sleep when my family went to sleep. My schedule in high school was very dependent on my family's schedule. In college there is the freedom to plan out your entire schedule including classes, meals, exercise, friends, sleep, homework, and times to attend clubs. It can be difficult for young adults in the transition to college; studies show that half of college students experience stress when transitioning to college (Zhao et al., 2023).

The independence of college is exciting, but the pressure to be busy all the time is very present. At the beginning of the year, there is often a club fair that advertises all the different ways students can fill up their time with clubs that fit their interests. Students receive daily emails about career development opportunities and events. Libraries are open until late at night—sometimes all night—and classes can be scheduled from 8 a.m. to 8 p.m. Noticing this

pressure to be busy all the time has made me more aware of my mental health since being in college. I can feel anxious about how I am managing my time, and I can feel like I am falling behind compared to the people around me. From talking with others at UVA, they feel similarly about this pressure to be busy and perfectly productive all the time. For my STS project, I want to research how students in STEM are trained to value busyness, even at the expense of their own mental health. I am also interested in investigating how this carries over into STEM jobs after graduation.

I was first inspired to research how busyness is strongly valued in STEM majors and jobs after my internship this past summer. I worked at Freddie Mac as a Product Analyst Intern, and I will be talking more about my experience working there for my technical project. Working in a corporate job was my first experience having my work hours be 9am to 5pm on Monday through Friday. College is not laid out in the same way with set hours to do schoolwork. When I came back to UVA in the fall, I noticed that I felt busier with the pressure to do schoolwork all the time, when over the summer I did not have that pressure. Therefore, I was interested in pursuing my research question of how college students in STEM degrees are trained to value busyness at the expense of their mental health, and how that can carry into STEM jobs after graduation.

### **Technical Project**

My technical project involves my internship at Freddie Mac in the summer of 2024. Freddie Mac is a company that engages in the secondary mortgage market. Freddie Mac buys the loans that banks give out to people buying houses or companies buying apartment buildings. This allows banks to be able to give out more loans, and Freddie Mac makes money by selling these loans to investors. I worked as a Product Analyst Intern within the technology department

of their division that handles loans for apartment buildings. I was interested in working at this company because I appreciate that they help provide housing to homebuyers by allowing banks to give out more loans as well as investing in affordable housing projects. I was interested in working in this role because it was an overlap of computer science and business, which I had not experienced before.

During this internship, I worked on two different teams in the technology department. The teams were developing a website for internal users at the company so that they could move away from older systems. The first team I worked on was the Loan Lifecycle Management team. This team worked on adding features to the website to track the progress of a loan. They also worked on a specific page that had to display the sources and uses of a loan. The other team that I worked with was the Digital Loan Submission team. This team worked on the loan submission page where the user enters all the necessary information of a loan. I gained experience in executing the agile development process, writing user stories for developers, organizing user stories to complete a sprint, communicating with other team members, and learning about the secondary mortgage market.

The project that I worked on with the other Product Analyst interns was proposing a platform that helped commercial real estate companies look at different opportunities to turn office space into multifamily housing. We learned about the step-by-step process of developing a project proposal. The process began with curating a vision statement and business plan. Then, we conducted user interviews and composed a visualization to summarize our findings from the interviews. From there we had to create a Jira board, and Jira is a web application for agile project management. We added the features of the platform onto Jira, and we added user stories for those features. Next, we had to design the user interface for our project using Figma, which is

a collaborative web application for interface design. Finally, we had to include an overview of our business architecture and our product roll-out plan. Throughout this project, I learned a lot about the business at Freddie Mac, the process of product development, and the roles of different jobs at the company. Again, I will be reflecting on this experience more extensively in my capstone project.

## **STS Project**

For my research question, I am looking at how college students in STEM are trained to value busyness, even at the expense of their own mental health, and how this carries over into STEM jobs after graduation. Mental health is a relevant topic in the United States right now, especially among college students. The University of Michigan School of Public Health mentions that anxiety, depression, and thoughts of suicide are at record rates for college students (Heinze, 2023). The National Education Association writes that emotional stress could be due to overwhelming coursework while also balancing caregiving or a job (Flannery, n.d.). Some of the risk factors contributing to anxiety disorders are the indoor environment design of college, peer relationships, student satisfaction with college culture, and school functional levels according to an article from NIH (Liu, et al., 2023). Research on mental health among college students is abundant. It is also something I have experienced firsthand, which is why I am interested in looking into the mental health of college students for part of my STS project.

I am specifically interested in looking at mental health among college students in STEM degrees. Over the years, Students majoring in STEM has increased (Dickler, 2023), and, with that, they are concerned about passing challenging classes, balancing social obligations, feelings of failure and overwhelm, imposter syndrome, and overcoming test anxiety (Wu et al., 2023).

Jensen et al. (2023) interviewed STEM students and found that the engineering workload is a defining stressor, there are specific barriers that prevent engineering students from seeking help for mental health concerns, and students rely on peers to cope with stress and mental health distress. STEM students are at risk for poor mental health, and I want to look into how STEM students are trained to value busyness, at the expense of their mental health. Once college students enter the workforce, they are still impacted by mental health and substance abuse disorders. In fact, “common mental health and substance abuse disorders affect at least 1 in 5 workers” (Attridge, 2019). Therefore, I am also interested in looking into how the value of busyness translates to those in STEM jobs.

To conduct research on this topic, I plan to create a survey to send out to STEM students at the University of Virginia. This survey will gather quantitative and qualitative data about their experience as a STEM student at UVA and ask specific questions about how they are trained to value busyness. One of the target demographics of my research question is STEM students, so I believe this survey will provide helpful insight and perspectives on the mental health and busyness of STEM students. I also plan to do a meta-review of existing papers and data on how STEM students are trained to value busyness and the impact of that on their mental health since there is existing research on this topic. To look further into how the value of busyness translates to those in the STEM workforce, I will also do a meta-review on existing papers and data and investigate how this impacts their mental health as well.

## **Conclusion**

The demand and appeal of STEM careers has led many to pursue degrees and jobs in STEM. However, the normalization of busyness among STEM students and employees has

negative effects on their mental health. In 2023, 4 in 10 college students were considering dropping out of college due to emotional stress (Flannery). There is an unaddressed problem of hustle culture among those in STEM that has grown in scale and concern. Having experienced life as a STEM student at a prestigious university, I believe that the value of busyness becomes deeply engrained in college. It is important to look into how STEM students are trained to value busyness at the expense of their mental health and how that continues to influence those that go into working STEM jobs.

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