Thesis Proposal

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Flexible Grading and Student Behavior at Duke University

Background and Motivation

In the wake of the COVID-19 pandemic, the Trinity College of Arts and Sciences at Duke University introduced academic policy changes. During the Spring 2020 semester, all courses were switched to Satisfactory/Unsatisfactory (S/U) grading as opposed to the traditional graded (A-F) scale. While this was the only semester where all courses were allowed to be S/U and count for all requirements, other policy changes during the pandemic regarding S/U still remain.

Referencing Duke University Undergraduate Bulletins, prior to Spring 2020, S/U grading was only permitted to count towards total graduation credits. After Spring 2020, S/U grading has additionally been permitted to count towards general education requirements (commonly known as "T-reqs").

Several faculty members have expressed an increase in student usage of S/U and departments are assigning courses to be graded (A-F) only. With the rollback of most pandemic-era policies such as masking and social distancing long gone, this raises the question of whether the S/U policy should return to its pre-pandemic form. Rather than examining the difficult to determine effect on student learning, this thesis seeks to determine how the change in S/U policy has impacted student's choices in grading type with the goal of informing specific departments and administrative staff.

Research Question

How has the change in S/U policy influenced student behavior? What is the likelihood that a student will choose to take a course S/U, and how does that vary by department, course level, and major?

Methodology

Data

All data used in this thesis is sourced from Duke University's Assessment Office. In line with the analysis from Mostafa et al. (2023), I plan to use course-level data obtained from transcripts and student-level data obtained from administrative records.

Accessing Policy Change

In order to measure the impact the S/U policy shift had on students, I will label my observations based on the era they represent. Data from semesters Fall 2015 to Spring 2018 represent the pre-pandemic era in which S/U did not count towards general education requirements (besides credit towards graduation). Data from semesters Fall 2022 to Spring 2025 represent the post-pandemic era in which S/U is permitted to count towards general education requirements.

Learning during the pandemic is not the focus of this thesis. Data from Spring 2020 through Spring 2022 is omitted due to the confounding impact of other COVID-19 policies. Through reports from Duke's Coronavirus Response, no periods of mandatory remote learning due to COVID-19 occurred in Fall 2022 or beyond. Similarly, remote learning and study abroad will be omitted by only analyzing courses taught in-person on Duke's campus in Durham.

Modeling

I intend to use logistic regression (Hosmer et al., 2013) to model the likelihood of a student choosing S/U grading. In addition to policy era, I plan to use course-level variables such as course number (e.g. 199) to identify course level (e.g. 100s), course subject (e.g. MATH) to determine departmental trends, allowed grading types (graded only, S/U only, choice given), final grade (A-F, S/U, incomplete, withdrawal, audit), and semester (term and year). Student-specific variables such as intended major will be used to note trends among student groups. Standardized test scores (if available) will be used to control for general academic preparation, which may correlate with grading preferences. Interaction terms and additional covariates will be accessed and may be added to the model.

Data Access and Technology Needs

My data will be provided by Duke's Assessment Office. In order to access the data, I will follow all necessary precautions including but not limited to: being on campus, using Duke's VPN, using a virtual machine/container, and completing any necessary training.

In terms of technology, I will be using R for most tasks such as data cleaning and statistical modeling.

Ethical Implications

While I am accessing sensitive student data, it will be de-identified using id numbers instead of names. I also do not intend to use socio-demographic data such as sex, race/ethnicity, and income. I have completed modules in the CITI Undergraduate RCR Training and will complete additional training if requested by the Assessment Office. Additionally, due to restrictions on this data, my results will be kept private and internal to Duke unless special permission is given to further reduce any privacy concerns.

Timeline

Since I plan to graduate in December 2025, my proposed timeline is as follows. By the end of May, I will submit my thesis proposal. Due to limitations for accessing my data, I will spend the summer continuing to refine my methodology and attempt to find practice data. In August, I will have access to my data such that I can get to know the dataset and perform preliminary data analysis. Additionally, I hope to submit a progress report in late August/early September. By September, I will begin implementing and evaluating my models. The focus of October will be on writing my paper, and I will present my thesis in late November or early December.

Target Conference or Publication

Due to the private nature of my data, it is difficult to determine if I will be able to present or publish my work outside of Duke University. One preliminary idea is to present at the December Arts & Sciences Council meeting. I will work with the Assessment Office and the Statistical Science department to determine possibilities for presentation.

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