GRADE REPLACEMENT POLICY AND ITS IMPACT ON UNDERGRADUATE STUDENTS ADMITTED TO A SELECTIVE COLLEGE PROGRAM: A CASE STUDY OF AN INTRODUCTORY ACCOUNTING COURSE

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Dedication

To Mom, Dad, Grandma, Jiji, and Troy.

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Abstract

The purposes of previous studies involving repeat coursework ranged from identifying traits of students likely to repeat to impact on time-to-degree. This quantitative study examined the impact of a course repeat policy on enrollment and student success in a required gateway course. Prior to the Grade Replacement Policy (GRP), all non-passing grades were factored into grade point averages (GPAs), which made it difficult for repeating students to raise their GPAs to meet the minimum requirements for admission to selective and competitive majors; after GRP's implementation, GPAs only included the most recent attempt's grade, thereby excluding the earlier non-passing attempts from calculation. This study used chi-square one-way and two-way tests to measure GRP's impact in the 10 fall and spring admission terms pre- and post-policy implementation for students enrolled in Accounting 201, a required course for admission to the institution's Business School, which has selective admission and requires a minimum 2.50 GPA. The findings indicate that the availability of GRP had an impact on the number of students who repeated the course and were subsequently admitted to the Business School. The findings also suggest that the availability of GRP did not significantly affect residency status, gender, and class standing status among repeat students. The results of this study contribute to the literature of higher education policy analysis, course enrollment, and student success in selective admission majors.

Keywords: enrollment, Grade Replacement Policy, pre- and post-policy implementation analysis, repeat course, selective admission

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Chapter I. Introduction

Due to the broad range of educational policies' impacts, it is important to provide some brief initial context about them prior to focusing upon the narrow scope of this study. This dissertation examined an academic forgiveness policy employed at one institution of higher education; more specifically, a course repeat policy that recalculates students' institutional grade point averages (GPAs). This chapter introduces the policy, its history at the institution, and the study's design. The two policy analysis frameworks that guided this study are also discussed.

The purposes of educational policies are to provide a consistent and quality learning experience, uphold the values, integrity, and prestige of the institution, and ensure that institutional learning outcomes are being met. Institutions of higher education must maintain high levels of rigor and academic standards while preparing students with the knowledge and skills to contribute meaningfully to society. Viennet and Pont (2017) stated that "educational policy implementation is a complex, evolving process that involves many stakeholders and can result in failure if not well targeted" (p. 8). An institution's policies, as well as its graduates, are indicators of the quality and value of the degrees that are earned.

Although a policy may meet its intended objectives upon implementation, it may also cause other unintended outcomes. To determine the policy's impact and continued relevance, assessment[1] must follow policy implementation (Cheng & Cheung, 1995; Jann & Wegrich, 2007). Similar to curricula revisions, policy review is especially important to keep pace with the needs of student populations, the changing views of administrations and external stakeholders, and be reflective of the current campus culture and values (Lattuca & Stark, 2009; Shen & Tian, 2012). Policies that are not revised or terminated risk harming not only students' learning, but

[1] In this dissertation, the terms "assessment" and "evaluation" are used interchangeably.

also the institution's image and reputation (Cheng & Cheung, 1995; Roberts, 2009; Viennet & Pont, 2017). This study further highlights these important policy considerations.

Purpose of the Study

The purpose of this study was to examine the effects of a course repeat policy on a select population of undergraduate students who took a required gateway course at a single institution. In the local institutional context, prior research on course repetition and its effects on course enrollment had not been conducted. By focusing on a subset of the institution's population and a specific course that was a requirement for this subpopulation, this study was within a scope appropriate for a dissertation. This study contributes to the research on educational policies, enrollment, and student success by examining where those categories overlap in repeating coursework, impacts on GPAs, and impacts of repeat policies.

The course repeat policy examined in this study recalculates students' GPAs, which may impact students seeking to declare a major that has a minimum GPA admission requirement. Previous similar empirical studies primarily focused on why students chose to repeat courses (Xiang & Hinchliffe, 2018), whether students were successful upon repeating, which characteristics were more indicative of success (Armstrong & Biktimirov, 2013, 2014; Baldwin et al., 1989; Biktimirov & Armstrong, 2015; Counts et al., 1974; Snead et al., 2022), and impacts on persistence to graduation and time-to-degree completion (Nasser & Nauffal, 2012; Smith & Laws, 1998). While it is useful for institutions to understand, among many things, which students are likely to repeat courses and how doing so may delay graduation in order to offer appropriate support services, it is also important for institutions to have the data to properly plan for enrollment to offer enough seats and course sections to accommodate repeating students in addition to first-time enrollees, especially in gateway and prerequisite courses. This dissertation

sought to contribute to a gap in the literature by examining a repeat policy and its use in a gateway course that was required for admission to a selective major that has a minimum GPA requirement for declaration.

In 2011, the institution featured as the case study site for this empirical study approved the Grade Replacement Policy (GRP) which allowed students to repeat any course that they had previously taken at the institution. The policy stipulated that the highest grade among the course attempts would be used in the calculation of students' GPAs and that the lesser grades would be excluded from calculation (Mānoa Faculty Senate, 2011b). Prior to the GRP, all non-passing attempts resulting in grades of "C-" or below were factored into students' GPAs and once students successfully passed with a grade of "C" or higher, any subsequent attempts were excluded (Mānoa Catalog Office, 2010). In 2012, GRP's applicability was revised to only include courses with an originally earned grade of "C-" or lower, and the GPA calculation was revised to only include the most recent attempt's grade (Mānoa Faculty Senate, 2012b). The 2012 GRP[2] has been operating for the past 12 years without any further evaluation or revision.

Weimer and Vining (2005) suggested that policies be designed with sunset provisions, or expiration dates, in conjunction "with evaluation requirements that provide evidence on effectiveness during the consideration of renewal" (p. 288); an important point for this study. The 2011 GRP had a stipulation of "a five-year trial period" (Mānoa Faculty Senate, 2011c, p. 2), was revised in 2012, and was issued a one-year extension in 2018 (Mānoa Faculty Senate, 2011b, 2012b, 2018b). The policy memorandums did not mention conducting assessment of the GRP, and the policy is still operating at the time of this dissertation's writing. While students are

[2] Unless otherwise stated, subsequent mentions of GRP without a corresponding year imply the GRP that was revised in 2012.

able to continue utilizing GRP, faculty and administrative stakeholders are not fully aware of the policy's continued impacts on enrollment, registration, retention, and graduation.

Background

With a concise reference to the field, and in recent decades coinciding with the increased need for university degrees in the workforce, institutions began to reconsider how GPAs are calculated by changing university policies governing withdrawal deadlines, grading scales, and repeat coursework (Marx & Meeler, 2013a). Institutional policies promoting academic forgiveness may result in prior grades being converted to withdrawal grades, being fully removed from the transcript, or being notated that they are no longer included in GPA calculations; these processes include retroactive withdrawals, academic bankruptcy, and course repeats (Browne, 1986; Marx & Meeler, 2013b; Masat, 1984). Marx and Meeler (2013b) referred to these policies that allow GPA recalculations as "manipulative [paths] to greater retention and graduation rates" (para. 2). Such administrative adjustments to GPAs may mask students' true academic performance, making it challenging to compare students on reported GPA alone (Marx & Meeler, 2013a).

Academic forgiveness policies are created within institutions, based on institutional needs and self-imposed limitations. For example, regarding the development of post-dismissal readmission policies, Masat (1984) reported that three common stipulations addressed "(1) time absent from the institution; (2) the recasting of the student record following readmittance, and (3) conditions or constraints affecting the GPA and credits needed for graduation" (p. 8), but institutions varied in determining the length of time, recalculation, and which restrictions were allowed that were appropriate for their student populations. Thus, it is difficult to compare policy impacts across institutions as well as find one institution's policy being implemented in the exact

same way at another institution, even if the campuses belong to the same educational system. Institutional research may only be generalizable to a certain extent, such as similar populations, policy limitations, or other specific facets of a policy.

The institution featured in this study confers bachelor's, master's, doctoral, and professional degrees and is the flagship campus of the state's[3] single public university system (Mānoa Catalog Office, 2023). It has a Carnegie Classification of "R1: Doctoral Universities—Very high research activity" (American Council on Education, 2020). The institution ranks within the top two percent of postsecondary institutions internationally (Mānoa Institutional Research Office, 2023a).

This study's time frame focused on the 17 fall, spring, and summer terms pre-policy and the 15 fall, spring, and summer terms post-policy implementation for students enrolled in a gateway course that was needed for admission to the institution's Business School. This enrollment period spanned Spring 2007 through Summer 2017 for students who were admitted to the Business School in the 10 semesters pre-policy and 10 semesters post-policy implementation, from Spring 2008 through Fall 2017. In order to gain admission to the Business School, students need to have junior class standing (Mānoa Catalog Office, 2005), which implies that Spring 2008 Business School admits would have entered the institution two years earlier in Spring 2006, during the 2005–2006 academic year.[4] The institution generates freshmen cohort data in fall semesters only, as most students begin their post-secondary studies in fall semesters rather than spring semesters. The earliest publicly available data for the institution's freshmen cohorts is from the 2006 cohort (Mānoa Institutional Research Office, 2023b). The Fall 2006 first-time

[3] The 103rd Congress of the United States of America acknowledged and apologized for the roles that government actors played in the overthrow of the sovereign government from which the state originated (S.J.Res.19, 1993).
[4] The academic year spans fall, spring, and summer terms.

freshmen cohort had a retention rate of 78.5% at the end of their first year; corresponding first-year retention rates for key years in this study include 77.9% for the 2012 cohort, and 76.6% for the 2015 cohort. Corresponding graduation rates after six years were 55.7% for the 2006 cohort, 58.7% for the 2012 cohort, and 58.9% for the 2015 cohort (Mānoa Institutional Research Office, 2023b).

The study's population consisted of 1,522 students who were admitted to the institution's Business School between Spring 2008 and Fall 2017. Students who were admitted from Spring 2008 through Fall 2012 did not have access to GRP; students who were admitted from Spring 2013 through Fall 2017 were able to utilize the current GRP that was implemented in Fall 2012. Further explanations regarding the study's time frame and population are included in Chapter Three.

Institutional History of the Grade Replacement Policy

GRP was initially introduced to the Institutional Faculty Senate (IFS) in 2010 by a subcommittee that investigated the institution's existing repeat policy, which "[appeared] to be confusing and cumbersome and should be simplified to bring clarity on the matter" (Mānoa Faculty Senate, 2010, p. 9). The original GRP[5] that was approved for Fall 2011 was a significant change from the previously enacted repeat policy, but it was ultimately not implemented due the inability of Ellucian Banner Student (Banner), the database system utilized by the institution to organize institutional records, to be programmed to the approved policy stipulations (Mānoa Faculty Senate, 2012a). A revised GRP was implemented in Fall 2012 and IFS stated that the revision was only to be in effect until Banner could be programmed to meet the 2011 policy stipulations (Mānoa Faculty Senate, 2012b). One of the main differences between the two

[5] A comparison of the 2011 and 2012 GRP stipulations may be found in Appendix A.

policies is that the 2011 version limits students to three repeat courses, whereas the 2012 version does not—and technologically cannot—impose a limit (Mānoa Faculty Senate, 2011c; Mānoa Faculty Senate, 2012a).

In 2018, IFS passed a resolution to extend the 2012 GRP by one additional year because Banner had still not been programmed to limit repeat coursework (Mānoa Faculty Senate, 2018a, 2018b). A search of the public IFS archive did not return any mention of GRP in IFS meetings from Summer 2018 through Spring 2024 (Mānoa Faculty Senate, n.d.). As of Fall 2024, students were still able to repeat courses an unlimited number of times. GRP's development and implementation will be discussed in greater context in the "Conceptual Frameworks" section of this chapter.

Catalog Language

Although the 2011 GRP was approved for Fall 2011, it was not included in the 2011–2012 University Catalog (Mānoa Catalog Office, 2011b). Since the 2011 GRP could not be implemented, the pre-GRP repeat policy remained in effect for the 2011–2012 academic year. The stipulations of the 2012 GRP were included in the 2012–2013 University Catalog, but the policy was not mentioned by name (Mānoa Catalog Office, 2012a). Rather, the existing section of "Repeating Failed Courses" was revised, and the "Repeating Passed Courses" section was revised and renamed "Repeating Courses with Grades of C-, D+, D, or D-" to explicitly indicate that GRP was limited to courses in which non-passing grades were earned. Figure 1.1 compares the original repeat policy prior to the 2011 GRP to the 2012 GRP in the University Catalog.

Figure 1.1

Comparison of the Institution's Catalog Language

Pre-Policy: 2010–2011 University Catalog [a]	Post-Policy: 2012–2013 University Catalog [b]
Repeating Passed Courses Students may only repeat a course in which they received a grade of C-, D+, D, D-, F, or an NC. Degree credit for a course is given only once. The grade assigned for each repeated course is permanently recorded on the transcript. Grades for all repeated courses will be included in the GPA. **Repeating Failed Courses** Students may repeat, for a letter grade only, any course in which an F was received. If this is done at [the institution], credit hours and grade points for each attempt are included in the GPA. Students may repeat (but not for a letter grade) CR/NC courses in which they received a grade of NC.	**Repeating Failed Courses** Students who receive an F or NC earn no credits. Students may repeat any course in which they received an F or NC for that semester. Starting with Fall 2012, for courses taken as a repeat, the last grade received for the course shall be included in the student's cumulative GPA. The grade from the previous attempt shall be excluded from the GPA. Grades for each attempt are permanently recorded on the transcript. **Repeating Courses with Grades of C-, D+, D, or D-** Students who receive grades of C-, D+, D, or D- earn the credits for that course. Students may repeat any course in which they received a grade of C-, D+, D, or D-. Starting with Fall 2012, for courses taken as a repeat, the last grade received for the course shall be included in the student's cumulative GPA for that semester. The grade from the previous attempt shall be excluded from the GPA. Grades for each attempt are permanently recorded on the transcript. Only one set of credits (i.e., 1 credit for a 1-credit course; 3 credits for a 3-credit course, etc.) can count toward degree requirements. Students should check with their academic advisor on repeating courses that they have already received a minimal passing grade.

[a] (Mānoa Catalog Office, 2010). [b] (Mānoa Catalog Office, 2012a).

These sections of the University Catalog remained consistent through the end of the study's time frame, with the only changes being the removal of the "Starting with Fall 2012" phrase from both sections (Mānoa Catalog Office, 2016b). Students who applied for Fall 2017 admission to the Business School—which is the final semester included in this study's time frame—submitted their applications during Spring 2017, which falls under the jurisdiction of the 2016–2017 academic year. However, there were no changes to these sections of the University Catalog for the 2017–2018 academic year when the Fall 2017 admitted students began their Business School coursework (Mānoa Catalog Office, 2017b).

The Business School

The Business School is one of more than a dozen colleges and schools at the institution and offers bachelor's degrees in seven primary majors: accounting, entrepreneurship, finance, human resource management, management, management information systems, and marketing (Mānoa Catalog Office, 2015c). The Business School is accredited by the Association to Advance Collegiate Schools of Business (AACSB; Mānoa Catalog Office, 2015c) and was selected for this study due to its common curriculum of prerequisites, henceforth referred to as the "Pre-Business Core." One of these courses was monitored for GRP usage in this study. Admission to the Business School is selective, meaning that students must meet minimum requirements in order to be admitted, but there is no limit on the number of students that may be admitted in a given semester. The Business School's admission requirements may be found in Appendix B.

Accounting 201: Introduction to Financial Accounting

The Pre-Business Core course of Accounting (ACC) 201 was selected for this study because it was the first required course offered by the Business School that students enrolled in

during their pursuit of admission. While some of the Pre-Business Core categories have multiple courses that students may use to fulfill the requirement, such as public speaking, there was only one course in the financial accounting category; thus, all students seeking admission to the Business School needed to pass this course with a grade of "C" or higher. Failure to successfully pass ACC 201 represents one way that students were not able to declare a business major. For students who needed to repeat ACC 201 prior to GRP, doing so had an impact on both their Pre-Business Core GPA and cumulative GPA, as the course and its repeat attempts were calculated into both GPAs.

In order to register for ACC 201, students needed to have sophomore standing (Mānoa Catalog Office, 2016a). Unlike the other Pre-Business Core courses aside from ACC 202, freshmen were not able to register for ACC 201. It was assumed that by the time the students in this study enrolled in ACC 201, they would have been familiar with the institution, its registration processes and policies, and available campus services.

ACC 201 was the prerequisite to ACC 202, another Pre-Business Core requirement with no alternative courses in its category (Mānoa Catalog Office, 2006a, 2006d). Students needed to pass both ACC courses with minimum grades of "C" in order to be considered for Business School admission (Mānoa Catalog Office, 2006d). ACC 201 was chosen over ACC 202 for this study due to students needing to complete this gateway course first before progressing in the accounting course sequence and maintaining eligibility for admission. Literature pertaining to gateway courses like ACC 201 is included in Chapter Two. Future studies into GRP, persistence, graduation, and time-to-degree, which may consider ACC 202 enrollment, are discussed in Chapter Five.

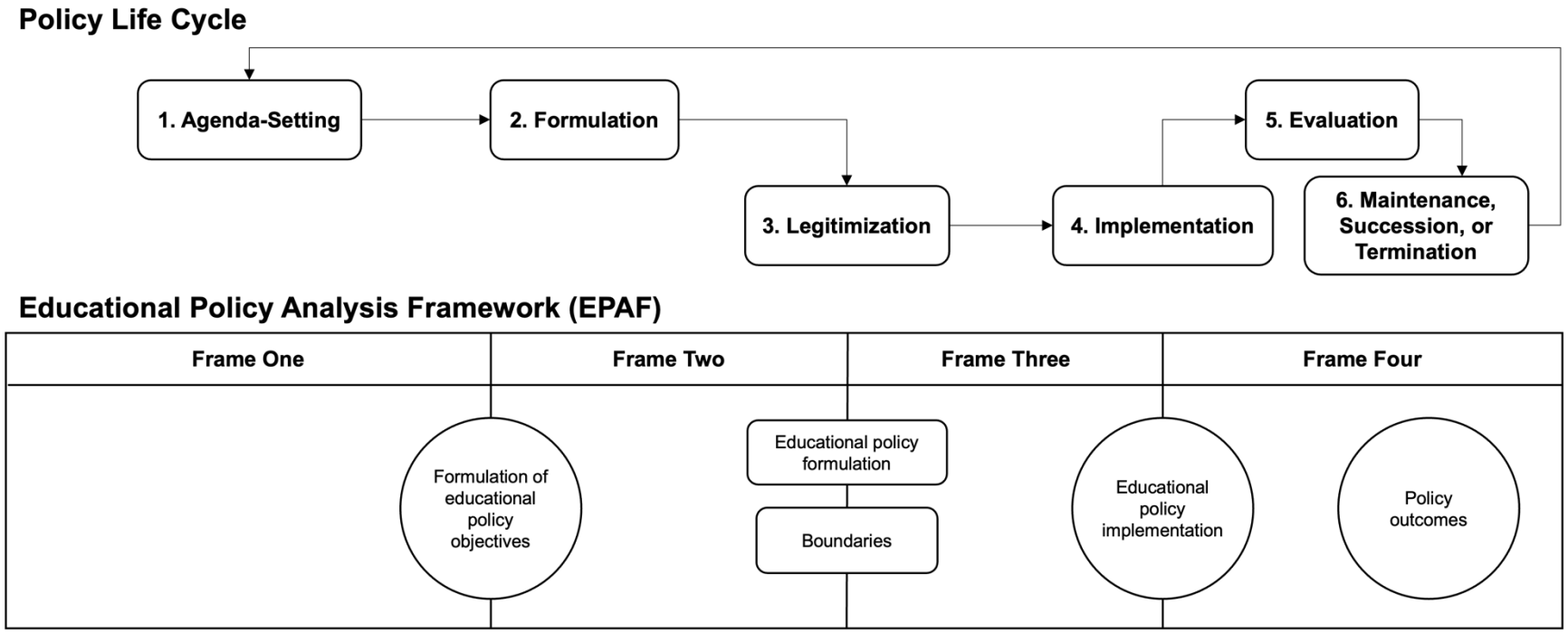
Conceptual Frameworks

This study was guided by the Policy Life Cycle and the Educational Policy Analysis Framework (EPAF). Both the Policy Life Cycle and the EPAF outline the steps of policy creation, implementation, and analysis; however, while the Policy Life Cycle may be applied to any policy regardless of discipline, the EPAF was designed specifically for policies within educational settings (Cheng & Cheung, 1995). The Policy Life Cycle provides a broad overview of the policy making process, and Viennet and Pont (2017) cited Cairney (2013) in that "it is considered the most straight-forward way to present an analysis and recommendations to policy makers" (p. 22). The EPAF was introduced almost forty years after the Policy Life Cycle, but is not universally well-known, which may be due to its development focusing on the education system in Hong Kong (Cheng & Cheung, 1995; Jann & Wegrich, 2007). When used concurrently in policy analysis, the Policy Life Cycle and the EPAF create a synergistic approach that focuses on the actual policy, its goals, and its impacts in educational and societal settings, rather than the motives of the policy makers and their collaboration with affiliated stakeholders. In this section, GRP will be discussed within the context of each framework.

Figure 1.2 aligns the corresponding stages and frames of the Policy Life Cycle and the EPAF, respectively. This figure was adapted from Viennet and Pont (2017), who adapted their Policy Life Cycle figure from Jann and Wegrich (2007) and Cairney (2013); the EPAF portion of the figure was adapted from Cheng and Cheung's (1995) figure that was included in their article.

Figure 1.2

The Policy Life Cycle and the Educational Policy Analysis Framework



Adapted from *Educational Policy Implementation: A Literature Review and Proposed Framework* (p. 21), by R. Viennet and B. Pont, 2017, Organisation for Economic Cooperation and Development (https://doi.org/10.1787/fc467a64-en); "Theories of the Policy Cycle," by W. Jann and K. Wegrich, in F. Fischer, G. J. Miller, and M. S. Sidney (Eds.), *Handbook of Public Policy Analysis: Theory, Politics, and Methods* (pp. 43–62), 2007, Taylor and Francis (https://doi.org/10.4324/9781315093192); *Policy Concepts in 1000 Words: The Policy Cycle and Its Stages*, by P. Cairney, 2013, Paul Cairney: Politics & Public Policy (https://paulcairney.wordpress.com/tag/stages-heuristic/); "A Framework for the Analysis of Educational Policies," by Y. C. Cheng and W. M. Cheung, 1995, *International Journal of Educational Management*, *9*(6), p. 11 (https://doi.org/10.1108/09513549510147538). Copyright 2017 by the Organisation for Economic Cooperation and Development; 2007 by Informa UK Limited; 2013 by Paul Cairney; and 1995 by MCB UP Limited, respectively.

The Policy Life Cycle

The Policy Life Cycle was originally designed as a multi-stage process by Lasswell and expanded upon by Easton to become a cyclical process (Jann & Wegrich, 2007). This process establishes the recurring nature of policy formulation, implementation, and revision. After implementation, educational policies should continue to be evaluated and revised to ensure that they are meeting the current and future needs of the institution and its stakeholders, otherwise policies should be retired or terminated once they have served their purpose or are no longer needed.

The first stage of the Policy Life Cycle is agenda-setting in which the problem is identified, defined, and discussed (Cairney, 2013; Jann & Wegrich, 2007). Prior to GRP, the institution's explanations of calculating GPAs for repeat coursework stemmed from the two subsections of the institution's University Catalog, included in Figure 1.1: "Repeating Passed Courses" and "Repeating Failed Courses" (Mānoa Catalog Office, 2010). In IFS's minutes for their December 2010 meeting, these repeat options were called "rather confusing" due to the

inclusion of the originally earned non-passed[6] grades in GPAs after the courses were repeated (Mānoa Faculty Senate, 2010, p. 9). The inclusion of all grades negatively impacted students by diluting students' GPAs, especially for those who needed reach a minimum GPA of 2.00 to be removed from probation, and those who needed to meet minimum GPAs to declare or graduate from certain majors that required GPAs that exceeded 2.00 (Mānoa Faculty Senate, 2011b). IFS charged a subcommittee to investigate, and the subcommittee recommended a new policy that would replace, rather than average, grades in GPAs (Rai, 2011).

The second stage is policy formulation in which research is conducted and solutions are drafted (Jann & Wegrich, 2007). In their research, the IFS subcommittee stated that their proposed GRP was "student centered and . . . designed to help students who are floundering in their first year in college" (Rai, 2011, p. 17). The subcommittee included a spreadsheet in their presentation to the IFS which contained a table of Fall 2009 grades that were "C-" and below; of the 6,999 instances of non-passed grades, 1,564 were repeated in Spring 2010, Summer 2010, and Fall 2010, which equated to 22.35% of non-passed grades being repeated[7] (Committee on Academic Policy and Planning, 2011a).

The third stage is legitimization in which the policy is formally adopted by the appropriate governing body (Jann & Wegrich, 2007). The original GRP proposal was presented to IFS in April 2011 and after an initial deferral, IFS voted to adopt the proposal in May 2011

[6] The institution featured in this study uses a plus and minus grading scale. For the purposes of this study, "non-passed" grades included those of "C-" and below. Withdrawal ("W") grades were not considered as non-passed because withdrawn courses were not viewed as attempted courses, meaning, they were not factored into GPAs.

[7] While the subcommittee included withdrawal and incomplete grades in their data, I excluded those grades because they are not factored into GPAs. Incomplete grades also typically convert to a final grade after a designated amount of time unless the instructor purposely does not include a predetermined conversion grade; it is unclear if the Fall 2009 incomplete grades were indicative of pre-conversion, post-conversion, or outstanding grades (incompletes without a predetermined conversion grade). The subcommittee stated that 21.5% of the Fall 2009 grades, which stemmed from 6,510 students and included withdrawal and incomplete grades, were repeated (Committee on Academic Policy and Planning, 2011a).

with a requested effective date of Fall 2011 (Mānoa Faculty Senate, 2011a, 2011b). In Spring 2012, IFS voted to revise the policy with an effective date of Fall 2012 (Mānoa Faculty Senate, 2012a).

The fourth stage is implementation of the policy (Jann & Wegrich, 2007). Cairney (2013) added that this stage involves "making sure that policy decisions are carried out as planned" (para. 2, bullet 4). Jann and Wegrich (2007) warned that "the adoption of a program does not guarantee that the action on the ground will strictly follow policy makers' aims and objectives" (p. 51). The 2011 GRP was ultimately not implemented because its operating stipulations could not be programmed as envisioned by IFS; as a result, GRP was revised and implemented in Fall 2012 (Mānoa Faculty Senate, 2012a).

The fifth stage is evaluation of the policy's implementation, in which the policy is measured to determine if it is meeting its objectives (Jann & Wegrich, 2007). Jann and Wegrich (2007) stated that "Under real-world conditions, policies are, e.g., more frequently not the subject of comprehensive evaluations that lead to either termination or reformulation of a policy" (p. 44). Heck (2004) stated that "less attention is directed toward policy impact, because the impact often takes a longer time frame to unfold" (p. 23), implying that evaluation may not be a priority in the policy's life cycle. In GRP's case, a review of IFS documents from the 2011–2012 academic year did not disclose the number of students who repeated coursework during the year that the 2011 GRP was approved, but not implemented. Even after twelve years of the 2012 GRP, there is no publicly available data that shows how many students have used GRP or how many courses have been repeated for GRP.

The sixth stage is policy maintenance, which involves continuing, adjusting, or terminating a policy based on the findings of the preceding stage (Cairney, 2013; Jann &

Wegrich, 2007). By 2012, Banner had not been programmed to the 2011 GRP's approved stipulations (Mānoa Faculty Senate, 2012a). IFS approved the amended GRP in February 2012 to take effect in Fall 2012 on the basis of the observed technological shortcomings that prevented the 2011 version from being fully implemented as approved (Mānoa Faculty Senate, 2012b). Although the 2012 GRP was extended for one additional year in 2018, it is still in full operation due to Banner still not being programmed to the 2011 GRP stipulations.

The Policy Life Cycle clearly illustrates each step of implementing and reviewing a policy. The cyclical basis implies that a policy is continuously developed, evaluated, and revised until the problem it was proposed to address is solved and the policy is ultimately terminated or replaced. However, in the case of GRP's 2012 iteration, it has not yet reached the fifth stage (evaluation) of its own policy life cycle.

The Educational Policy Analysis Framework

Noticing a lack of policy analysis frameworks available to specifically evaluate educational policies, Cheng and Cheung (1995) developed a four-part framework to analyze each step of policy development. The authors did not name their framework; in this dissertation, it will henceforth be referred to as the "Educational Policy Analysis Framework" (EPAF). The frames mirror stages of the Policy Life Cycle, but the framework itself is not cyclical and each frame analyzes a specific stage of the policy's background, formulation, implementation, and results. Additionally, the Policy Life Cycle has distinctive stages, whereas the EPAF also details steps that occur between the frames.

In Frame One, the problem is identified and analyzed at different levels: the educational system, society, and outside of society (Cheng & Cheung, 1995). The authors stated that "Problems at the societal level may arise from that society's economic development, political

instability and related factors; while problems outside the society derive mainly from external competition and global trends" (Cheng & Cheung, 1995, p. 11). With GRP, the main issue at the institutional-level was the existing repeat policy, as well as students repeating courses and continuing to have low GPAs. The societal-level issue was the economic impact of students repeating courses and institutional attrition, and the outside of society issue was students choosing to persist elsewhere.

The intermediary step between Frames One and Two is setting the policy's goals (Cheng & Cheung, 1995). The EPAF, up to this point, aligns with the first stage of the Policy Life Cycle (agenda-setting). GRP's objectives were not explicitly bound by a specific time; rather, its immediate short-term goal was to clarify the institution's repeat policy. Its long-term goal, which was not stated in the policy itself, but implied in IFS meeting minutes, was to improve student retention (Mānoa Faculty Senate, 2011b).

Frame Two focuses on analyzing how the policy is formed, including policy makers, available resources, and managerial support (Cheng & Cheung, 1995). The authors endorsed the inclusion of policy makers with expertise in the policy's area, fair representation of affected parties, and the ability to gather public input (Cheng & Cheung, 1995). They also called for analyzing "how resources are allocated, the expected supply and demand of the human and other related resources required and the cost effectiveness of the policy" (Cheng & Cheung, 1995, p. 15). Managerial support involves identifying who will monitor the policy and how it will be implemented (Cheng & Cheung, 1995). These analyses should appear after the second stage, formulation, of the Policy Life Cycle. GRP was introduced by a subcommittee of IFS and presented to IFS senators, but the IFS minutes did not mention whether any wider input was solicited outside of IFS and the institution's academic advising council (Mānoa Faculty Senate,

2011a). The IFS minutes also did not indicate research on the policy's potential impact on resources, such as class enrollment, which could have resulted in an increase in demand for seats, additional sections of courses needing to be offered to meet the increase in demand, as well as hiring additional personnel or increasing workloads to accommodate the additional sections. While the IFS did provide stipulations for GRP to operate under, they did not indicate who would monitor the policy; since its implementation, GRP has been applied at the end of each semester by the registrar's office, who updates students' GPAs and transcripts.

The intermediary step between Frames Two and Three focuses on formulating the policy and building awareness of the constraints that limit the policy (Cheng & Cheung, 1995). These constraints include available resources, technology, and time limitations. This corresponds to the third stage of the Policy Life Cycle (legitimization), as the constraints of the policy are controlled by the governing body that adopts the policy. It appears that Banner's technological limitations and inability to restrict repeat attempts, as well as requiring students to acknowledge use of GRP, were not realized until after the 2011 policy was approved. Since the 2011 GRP was approved in May 2011, Banner staff only had the summer months to program the stipulations before GRP was scheduled to be implemented in the upcoming semester, and they were unable to produce the technology within that amount of time. The only other time constraint that was explicitly stated in the 2011 policy was that GRP would be reassessed in five years (Mānoa Faculty Senate, 2011c).

Frame Three analyzes the "gaps between implementation and planning" (Cheng & Cheung, 1995, p. 16). The authors suggested analyzing preparation and impact, which includes readiness, timeliness, and levels of impact (Cheng & Cheung, 1995). Ideally, this would take place before the fourth stage of the Policy Life Cycle (implementation) in order to lessen the side

effects of the policy. For GRP, IFS minutes did not mention assessment of Banner's capabilities, potential impacts GRP would have on classroom enrollment, campus enrollment, or the views of graduate programs and employers who would see the modified GPAs. Cheng and Cheung (1995) also mentioned considering "cost effectiveness and a balanced allocation of resources" (p. 18) when analyzing the levels of impact, but IFS minutes did not mention GRP's cost of development, implementation, or upkeep, nor did it mention potential tuition revenue that would be generated from repeat enrollment at the institution.

Between Frames Three and Four, the policy is implemented, which is the fourth stage of the Policy Life Cycle. Frame Four, the final frame, involves analyzing the policy after implementation and determining not only if the policy met its objectives, but also what other educational impacts the policy produced, both positive and negative (Cheng & Cheung, 1995). Cheng and Cheung (1995) stated that "Educational policies may not always induce all the desirable policy or educational outcomes without any serious pay-offs or adverse effects. Obviously, the level of pay-offs affects directly the effectiveness and efficiency of the policy" (p. 19). This fourth frame corresponds with the fifth stage of the Policy Life Cycle (evaluation). As previously stated, GRP has not been analyzed for its effectiveness, nor has it been analyzed for its impacts on enrollment, GPAs, and student persistence.

Study Design

This study was designed to answer the following research question: "What are the effects of the Grade Replacement Policy at the institution on students enrolled in a Pre-Business course who are subsequently admitted to the Business School?" In examining ACC 201, a course that is mandatory for students to take if they wish to pursue a business major, this study compared the

rates at which students who were admitted to the Business School repeated the course both pre-GRP and post-GRP implementation. This study tested four null hypotheses:

H_{0A}: There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy.

H_{0B}: There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their residency status.

H_{0C}: There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their gender.

H_{0D}: There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their class standing status.

H_{0A} focused solely on repeat status as the dependent variable with the availability of GRP as the independent variable. H_{0B}, H_{0C}, and H_{0D} tested the study's additional dependent variables of residency status, gender, and class standing status, respectively. One-way and two-way chi-square tests were used to analyze the data to measure the impact of GRP.

This study utilized an exploratory, quantitative, single case study design to examine a policy's impact on the students of a single school within an institution. An exploratory case study seeks to "develop pertinent hypotheses and propositions for further inquiry" (Yin, 2003, p. 6). By focusing on this one case site—the Business School—this study measured the impact of GRP on students seeking to declare one of the Business School's selective admission majors. Future study may be conducted on other aspects of GRP, including students who use the policy for

general education courses and enrollment implications for the entire institution; explanations for future studies are expanded upon in Chapter Five.

Chapter Summary

This chapter introduced GRP and provided a background of its development, initial implementation, and revision. It also provided a brief overview of the study and reasoning for specifically focusing on the ACC 201 course for students admitted to the Business School. The study was informed by the Policy Life Cycle and Cheng and Cheung's (1995) EPAF, with emphasis on the analysis of GRP's impacts.

Chapter Two provides a literature review on the subject of repeating courses in higher education, as well as related topics of educational policies, enrollment, and student success. Chapter Three explains this study's methods for determining the population and analyses of collected data; Chapter Four states the results of the study. Chapter Five discusses the results, explains implications for theory and practice, and provides suggestions for further research of GRP.

Chapter II. Literature Review

This chapter provides brief background information on the repeat policies established at the institution's peer, benchmark, and system institutions, and an overview of previously conducted research on repeat coursework. Due to an existing gap in the literature specifically surrounding repeat policies that recalculate grade point averages (GPAs), gateway courses, and admission to selective majors, the literature review and central portion of this chapter introduces existing literature connected to one or more of the following categories: educational policies, enrollment, and student success. These three categories overlap into three respective subtopics: repeating coursework, impacts on GPA, impacts of repeat policies.

Background and Context

In 2012, the year during which the revised Grade Replacement Policy (GRP) was implemented, a report by the System Research Office (SRO) established nine peer and nine benchmark institutions for the campus featured in this study (Institutional Research Office, 2012). The institution's own institutional research office (IRO) described peer institutions as those that are "similar [in] role, scope, and mission" to the institution; whereas benchmark institutions are those that "are considered to be stronger in some measures, and may be of assistance in various planning and target-setting exercises" (Mānoa Institutional Research Office, n.d., para. 1). A review of peer and benchmark university catalogs[8] for the academic year spanning 2011 and 2012, or the earliest online archived university catalog that was available, indicated that all nine peer institutions had a course repeat policy that recalculated students' cumulative GPAs. At the same time, only six of the benchmark institutions had a comparable

[8] Although alternative names to "catalog" may have been used at various institutions, the term "catalog" is consistently used in this dissertation to represent the formal institutional document that includes policies and courses for a given academic year or specified amount of time.

policy. This indicated that the peer institutions were likely useful for comparing policies (Straney, 2012), as all peer institutions were using a form of GRP; meanwhile, the benchmark institutions were slower to implement a repeat and GPA recalculation policy.

Policy variations also exist across campuses that belong to the same educational system. The institution featured in this dissertation lists three University of California System campuses as benchmark institutions whose own policy stipulations varied in the grades that were eligible for repeat and GPA recalculation (Office of the Registrar, 2011b; Office of the University Registrar, 2010; University Registrar, 2011). Similarly, a variation among course repeat forgiveness policies also exists within the institution's own ten-campus system; a review of three campuses—two four-year and one two-year—revealed differences in quantity limitations and which attempt would be factored into GPAs (Kapi‘olani Community College, 2011; University of Hawai‘i-West O‘ahu, 2012; University of Hawai‘i at Hilo, 2011).

The review of the peer, benchmark, and system campuses showed that while most institutions had a repeat policy included in their university catalog, the policies were institution-specific. The differences in naming conventions as well as qualifications for repeating courses were also demonstrated in existing literature, which made drawing comparisons between individual campus studies as well as multi-campus studies challenging. Studies also varied in their own definitions of repeat coursework, such as whether or not to include courses that were dropped, withdrawn, or incomplete. The literature review in the next section describes and analyzes previously conducted studies; however, no study directly focused on the implementation of a repeat policy, its impact on enrollment in a gateway course, and its impact on admission to a major with prerequisite requirements.

Literature Review

Prior research conducted on students who repeated courses predominantly focused on student traits to identify those who are more likely to repeat coursework and those who are more likely to succeed on a repeat attempt (Armstrong & Biktimirov, 2013; Xiang & Gruber, 2012). While this information is useful to institutions in anticipating and planning support services for students, the research lacks examination of the repeat policies themselves and how institutions may properly plan for efforts such as enrollment to accommodate the number of students who either need to repeat or choose to repeat coursework. Further, and as described in the preceding section, repeat policies differ significantly between institutions, making institutional comparisons problematic due to the lack of consistency in the definition of a repeated course, eligibility, and limitations, as well as differences in grading methods.

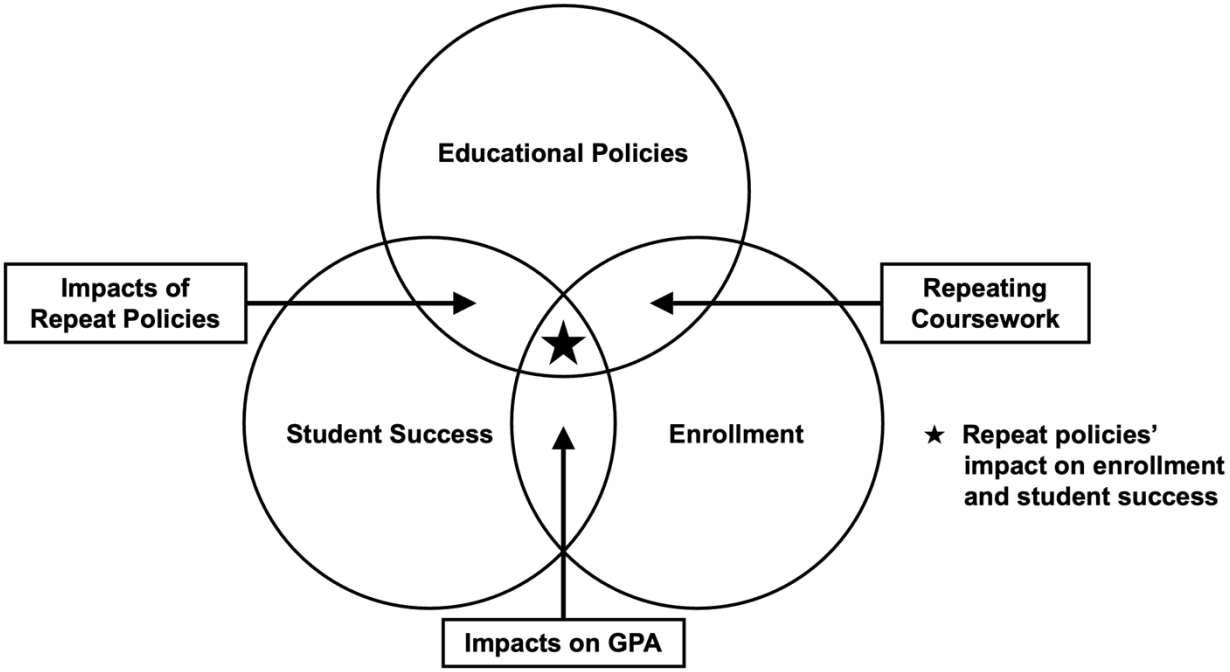
To address the gap in the literature surrounding repeat policies, their impact on course enrollment, and their impact on students' GPAs, this literature review consists of three broad categories: educational policies, enrollment, and student success. In the educational policies category, academic forgiveness policies, such as renewal programs and repeat policies, are examined. The category of enrollment includes methods to control enrollment, such as gateway courses and minimum grade requirements. The student success category includes characteristics of student achievement, such as GPA, persistence, and declaring a major of study.

As shown in the Venn diagram in Figure 2.1, each category overlaps with the other categories. The area between educational policies and enrollment focuses on repeating coursework, inclusive of reasons for repeating, variables for successful course completion, and performance in repeated coursework. Impacts on GPA, which overlaps the enrollment and student success categories, include grade inflation and GPA inflation. The area that overlaps

student success and educational policies includes the impacts of repeat policies on persistence, retention, and graduation, and potential future consequences. The area in the middle of the Venn diagram that encompasses all three categories represents the main focus of this dissertation: repeat policies' impact on enrollment and student success.

Figure 2.1

Overlapping Topics of Research for the Literature Review



Each subsection below addresses a category in the Venn diagram or an area of overlap between categories. Relevant studies, articles, and surveys are included and discussed. Due to the limited search results in the categories and areas of overlap, the literature review was not limited to a specific publication time frame. Although some literature could only be included in a single subsection due to the specificity of their content, other sources are mentioned in multiple subsections due to overlapping topics, such as Xiang and Hinchliffe's (2018) study. Literature was collected through the institution's library search engine, which consists of many online

databases to which the institution subscribes, documents collected through inter-library loans, and Google Scholar. Studies on the course subject of accounting and other business-related subjects were primarily sought, but other subjects were included if related to one of the aforementioned categories or the areas between them.

This dissertation's study included students who had access to the institution's GRP. Since a stipulation of GRP is that it cannot be used for transferred coursework, this literature review did not focus on the transfer student population or studies in which students repeated coursework for which prior credit was granted via exam, such as Advanced Placement, International Baccalaureate, and the College Level Examination Program. Less emphasis was placed on studies that included data that was either not accessible or irrelevant for this dissertation, such as classroom attendance, homework and exam scores, standardized test scores, prior experience with the subject, nationality, age, and socioeconomic status. Studies that relied on self-reported surveys are notated to indicate that the data did not originate from verified institutional sources (e.g., self-reported grades compared to actual grades earned). Since this dissertation did not focus on equitable access to higher education or the demographics of students who can afford to repeat coursework, studies that focused on these topics were not included in this literature review.

Educational Policies

The main educational policies researched for this literature review focused on academic forgiveness policies. "Academic forgiveness" is one of multiple terms used for institutional policies that allow students to more easily overcome their previous academic shortcomings (Ek, 2010) and dates back to the 1970s (Masat, 1984). Other terminology with similar meanings include pairing "academic" with various synonyms for forgiveness, including "bankruptcy" (Browne, 1986), "amnesty" (Office of Human Resources, 2023), and "renewal" (Office of the

Registrar, n.d.-a), among others. Policy guidelines and implementation varied by institution, but commonly allowed students to exclude prior coursework from GPA calculation, thus allowing students to resume their studies like a transfer student (Masat, 1984). Institutions may set policy stipulations that require students to be unenrolled for a minimum specified amount of time (University of Nevada, Las Vegas, 2024), to reach a minimum GPA upon return (Office of Human Resources, 2023), or submit an appeal in order to fully benefit from the policy (Office of the Registrar, n.d.-a). Although grades are excluded from GPA calculation, most institutions explicitly state that previously earned grades are not removed from students' transcripts and that transcripts are notated to indicate that the student has utilized a forgiveness policy ("Benchmark your institution's," 2012). Masat (1984) stated that while transcripts and the grades earned therein are viewed as permanent records, institutions may interpret those records differently, implying that GPA recalculation is within the jurisdiction of the institution.

Forgiveness policies that invite students to return to campuses and complete their degrees target adult learners (Moltz, 2010). Such students are returning in a different phase of life, but their previously earned GPAs remain and dilute any GPA achievement they may earn upon return (Masat, 1984). Other types of forgiveness policies target students who wish to reset their GPAs after several semesters of poor performance without requiring students to spend a specified amount of time unenrolled from the institution, as well as allowing students to repeat courses to improve their GPAs (Ek, 2010). All of these practices ultimately result in GPAs being recalculated due to students utilizing one or more established institutional policies.

Similarly to GRP, academic forgiveness policies not only varied in name at different institutions, but also in implementation and eligibility criteria. Masat's (1984) research of nine public colleges and universities in New Jersey demonstrated that the differences in calculating

GPAs for students readmitted after academic dismissal were institution-specific; at the time, only two of those institutions had established formal forgiveness policies. Some institutions supported students who previously dropped out or were academically dismissed by allowing administrators to retroactively change poor grades to withdrawals or pass/fail, treating previously completed coursework as transfer credit that was not factored into GPAs, or allowing students to repeat courses. Eight of the nine institutions allowed students to repeat courses: four institutions allowed the higher grade to be used in GPA calculation and four factored all grades into GPAs (Masat, 1984).

Masat (1984) wrote that "[a] literature review was done but with meager results" (p. 11) for academic forgiveness, thus implying difficulty, even then, in finding research on the subject. Surveys conducted in the last fifteen years by publications and associations provide some insight into the broad similarities and differences in repeat policies across the nation and in other countries. More than three hundred institutions in the United States, Canada, and the Caribbean responded to a survey conducted by *The Successful Registrar* with 59% stating that their institution allowed a single course to be repeated unlimited times and 75% did not have a maximum limit on the number of courses that could be repeated ("Benchmark your institution's," 2012). A survey conducted by the American Association of Collegiate Registrars and Admissions Officers (AACRAO; 2015) found that 73% of the nearly eight hundred responses pertaining to undergraduate study allowed a course to be repeated more than once and 79% allowed unlimited course repeats.

Regarding GPA calculation for repeated coursework, 53% of *The Successful Registrar* respondents and 54% of AACRAO respondents stated that their institutions used the most recent attempt's grade ("Benchmark your institution's," 2012; AACRAO, 2015). *The Successful*

Registrar stated that respondents also explained institution-specific considerations, such as original grade earned, number of repeat attempts, and appeal processes, but the publication did not provide a percentage by which commonality could be ascertained ("Benchmark your institution's," 2012). AACRAO (2015) reported that 67% of respondents stated that a course could be repeated if the original grade fell below a certain threshold. Of the nearly seven hundred undergraduate institutions that responded to AACRAO's 2017 survey, 87% answered "No" to the question, "Must a student submit a petition for a course grade to be replaced after the repeated course is successfully completed?" (Kilgore, 2017, p. 45). These three surveys indicated that the 2012 GRP utilized by the institution featured in this dissertation is among the majority of respondents who allow unlimited repeat attempts, use the most recent grade earned in GPA calculations, and do not require students to request or indicate usage of the repeat policy to recalculate their GPAs; conversely, the 2011 GRP's maximum repeat count, highest grade in GPA calculation, and requirement to indicate use of the policy were not in accordance with the majority of the surveyed institutions.

Enrollment

Institutions may limit student enrollment in certain courses or majors by using gateway courses to restrict advancement. Koch (2017), citing Koch and Rodner (2014), defined gateway courses as foundational, high enrollment courses with high non-passing rates of "D" and "F" grades, as well as withdrawal and incomplete grades. Other terms include "gatekeeper" (Cohen & Kelly, 2019) and, less eloquently, "weed-out" (Mervis, 2011) courses. The names suggest that a singular course serves as a sentry that restricts future enrollment by only allowing select students—specifically those with satisfactory grades—to pass through and access subsequent courses. Gateway courses introduce students to a subject area and "often shape a student's

continued success in major/minor programs and college" (Center for Teaching and Learning, n.d., Redesign a Gateway Course section); these courses are used across a variety of majors, such as chemistry for science, technology, engineering, and math-related (STEM) majors, human anatomy and physiology for healthcare majors, and accounting for business majors. Students who do not successfully complete a gateway course will essentially be barred from pursuing any major or subject area that requires that particular course.

While Davis and DiGregorio (2016) stated that "People that either can't or won't do the work required would probably be better served by changing majors or doing something else" (p. 72) in relation to accounting coursework, the same sentiment can be stated for other gateway courses that students must take to declare a particular major. A study of four cohort years at a public New York community college found that among STEM majors who did not pass or withdrew from chemistry, 49% of students changed their majors; specifically, 82% of those who changed majors did so to majors that were not STEM (Cohen & Kelly, 2019). Students who change majors may need to take additional classes that are required for their new majors, thus delaying graduation and incurring additional tuition costs for prolonged enrollment (Clayborn, 2022). Students who are denied admission to a major and pivot immediately to a new major may still graduate in a timely manner, but students who repeat gateway courses, either a few or an unlimited number of times, are more likely to delay graduation due to the additional time spent on retaking a sequenced course, especially for courses that are not offered every semester (Smith & Laws, 1998).

Two other strategies to control enrollment include implementing minimum requirements for declaration and raising the minimum grade threshold. Due to an increase in the number of students declaring an economics major without a corresponding increase in resources to teach

additional course sections, the institution in Schmidt's (2021) study implemented minimum grade requirements for three required courses. The institution's repeat policy only allowed students to repeat a course once; thus, students who did not pass with the required minimum grade on the repeat attempt were ineligible to declare the economics major. Schmidt (2021) found that the policy reduced enrollment in the economics major by six students annually (a decrease of six percent), that two-thirds of students who needed to retake a required course chose not to, and that of the one-third that did repeat, more than seventy percent successfully passed the course on the repeat attempt. However, Phillips (2021) argued against raising the minimum grade for introductory accounting courses, stating that student grades did not increase after the policy was implemented, but conceded that only 16.7% of the study's population were categorized in the "after implementation" time frame.

Instead of implementing a policy at the course-level, institutions could opt to control enrollment at the class standing-level. Following decades of increased enrollment due to a federal mandate requiring admittance of all Swiss nationals, the University of St. Gallen in Switzerland instituted a grade retention policy in 2001 that required students to repeat their first-year courses if they did not pass enough courses to progress to the second year (Tafreschi & Thiemann, 2016). In a study encompassing the seven years after the policy was implemented, Tafreschi and Thiemann (2016) discovered that students who were forced to repeat their first year were five times more likely to drop out than students who passed their first year. Of the approximately thirty percent of students who were retained and among those who repeated their first year, 80% passed on their second attempt; however, the 20% of students who did not pass on their second attempt were not permitted to persist at the institution (Tafreschi & Thiemann, 2016).

Student Success

Myriad factors may be classified under student success and measurement varies by the interested party; for example, students may use performance- and outcome-based academic measures, such as GPA and graduation, while institutions may use retention, persistence,[9] and time-to-degree to measure success. Successful declaration of a major may also be considered a component of student success in relation to retention and persistence. This dissertation uses the aforementioned academic-related factors in its definition of student success. Other factors, such as co-curricular engagement, are beyond the design of this study.

In a recent survey, students were asked to identify how they measured success: GPA was the most selected answer with 59%, followed by knowledge gained with 54%, and graduation with 53% of responses (Mowreader, 2024). Given the emphasis on GPAs by both students and institutions, researchers must determine if GPAs, and the grades from which they are derived, are in fact reliable indicators of student success. Bacon and Bean (2006) used students in a Master's of Business Administration degree program to ascertain the reliability and validity of GPAs and recommended using cumulative GPAs rather than major-specific GPAs due to their higher validity. The authors acknowledged that GPAs for graduate studies have lower reliability than GPAs for undergraduate studies and also noted a higher percentage of "A" grades among students, which was higher than the campus' "A-" average GPA (Bacon & Bean, 2006). Since the study did not mention whether or not the studied institution utilized a GPA recalculation policy, it is unclear whether recalculated GPAs maintain similar levels of reliability and validity when compared to non-recalculated GPAs.

[9] "Retention" is viewed as an institutional measure of student enrollment, whereas "persistence" implies a student's choice to continue (NACADA, 2024). Mentions of "retention" and "persistence" in this dissertation are used interchangeably or collectively because in the absence of students' expressed opinions, I assume that their ongoing enrollment serves as their choice to continue at their current institution.

Murtaugh et al.'s (1999) study of student retention at Oregon State University, which is a peer institution of the institution featured in this dissertation, revealed that students with GPAs below 2.00 in their first quarter were the least retained after their first year; only 57% of these students completed their first year, with the rate falling to 33% at the end of four years. Comparatively, students with GPAs in ranges above 2.00 had a retention rate of over 81% after their first year. The authors also found that first-year retention was 82% among resident students, 75% for non-resident students, and 82% for international students (Murtaugh et al., 1999). At this dissertation's institution, low retention for students in poor academic standing was cited as a reason to implement GRP (Mānoa Faculty Senate, 2011b). As of 2023, this dissertation's institution consists of 58% resident, 36% non-resident, and 6% international students (Mānoa Institutional Research Office, 2023a). This dissertation did not focus directly on retention, but did analyze residency status in enrollment in a gateway accounting course in both the pre- and post-implementation time frames of GRP for the study's second null hypothesis (H_{0B}).

Student persistence may also be impacted by chosen major and vary based on gender (Leppel, 2001). To measure the correlation between persistence and chosen major, Leppel (2001) analyzed a survey of nearly five thousand college freshmen and categorized their majors into six areas: business, engineering, education, health, arts and sciences, and undecided. Leppel (2001) found that after their first year, men who were business majors were more likely to persist than men in the other major categories, but women who were business majors were more likely to not persist than women in the other major categories. For both genders, students categorized as undecided were among the least likely to persist. The author clarified that "This study does not examine changes in major from year to year" (Leppel, 2001, p. 340), implying that if students changed majors during or after their first year, they were viewed as not persisting. Leppel's

(2001) study is important to consider because at this dissertation's institution, students do not encounter the gateway accounting course until their second year in college; in freshman year, students are only able to enroll in the Pre-Business Core courses of English composition, public speaking, calculus, microeconomics, and macroeconomics. Thus, according to Leppel's (2001) findings, less female students intending to major in business will enroll in the gateway accounting course compared to the female freshmen who initially planned to pursue a business major. However, at this dissertation's campus, females were the majority undergraduate population, although males were the majority undergraduate population of the business school for most of the study's time frame (Institutional Research, Analysis and Planning Office, 2024a, 2024b, 2024c). Comparisons by gender were also considered in this dissertation in the third null hypothesis (H_{0C}) for students who repeated the gateway accounting course before and after GRP implementation.

Institutions are also interested in student characteristics that predict success. In the introductory financial accounting course, Xiang and Gruber (2012) found that students who took an accounting course in high school were more likely to earn grades of "A" and "B" and less likely to earn grades of "C" and below than students who did not take accounting in high school. The authors also did not find a statistically significant correlation between gender and prior accounting experience (Xiang & Gruber, 2012). For intermediate accounting, a required course for accounting majors and the next course after the two-course introductory accounting sequence, Turner et al. (1997) found a correlation between where the first introductory accounting course was taken and performance in the intermediate accounting course. Students who transferred in credit for introductory accounting had lower grades in intermediate accounting than students who took introductory accounting at the same institution that offered

intermediate accounting (Turner et al., 1997). The institution in this dissertation similarly allows students to transfer in Accounting (ACC) 201; however, this dissertation did not include any transfer students in its population or any transfer credit for introductory accounting in its data analyses because transfer courses are ineligible for GRP.

Educational Policies and Enrollment: Repeating Coursework

This section focuses on repeating coursework, which is an area of overlap between the educational policies and enrollment categories. Institutions are interested in learning which student characteristics are indicators of needing to repeat coursework and how students perform on repeat attempts. Previous studies vary from those conducted at a single institution or multiple institutions, as well as for a single course or multiple courses. Not all studies explicitly indicated whether or not the researched institutions employed a repeat forgiveness policy.

Students may choose to repeat coursework to improve their grades—which may allow them to improve their GPAs—as well as declare a specific major, if the course in question is a gateway course (Armstrong & Biktimirov, 2013). Xiang and Hinchliffe (2018) surveyed students repeating the introductory accounting course at a single institution during a five-year period and discovered that 78% repeated the course in order to pursue a business major. An academic forgiveness repeat policy allows students a second chance at pursuing their desired major, but passing on a repeat attempt is not guaranteed and depends on measurable student characteristics, such as GPA, and unmeasurable student characteristics, such as study habits. In a single institution study of multiple business courses, Armstrong and Biktimirov (2013) discovered a correlation that students who had strong GPAs overall earned a higher grade on a repeat attempt, whereas those who had low GPAs "need to realize that repeating is not guaranteed to be successful, and in fact may be a waste of their time" (p. 344). Snead et al. (2022) found that

students who repeated a first-year mathematics course for engineers at an Australian institution were less likely to complete homework, attempt the final, and ultimately pass the course than first-time enrollees.

The results of students repeating coursework varied by study, with some studies reporting that students did better on the repeat attempt, while others reported that students still did not pass. The factors that contributed to the variation could be due to student effort, course subject, and institutional factors. Baldwin et al.'s (1989) study focused on students repeating the introductory accounting course at four institutions of varying size and type in a single semester; these institutions also varied in which grades were eligible to be repeated. Of the nearly two thousand students enrolled in the course, 15.16% were repeating the course and the authors concluded that on average, repeating students' performances improved by 1.18, which was slightly more than a whole letter grade, but the average improvement across the different institutions ranged from 0.87 to 1.89 (Baldwin et al., 1989). In a study of students repeating introductory finance courses, the students who previously failed had an average grade increase of 22.29 points out of 100 and students who previously passed with a grade of "D" or "C" had an average increase of 15 points; repeating students also earned higher grades on average than students who were only on their first attempt of the courses (Biktimirov & Armstrong, 2015).

Armstrong and Biktimirov (2014) also conducted a similar study with introductory microeconomics and macroeconomics courses, but found that repeating students—which included those who previously passed, failed, or withdrew—performed worse than first-time students. The authors attributed the outcome "to the weaker academic ability of the repeating students, rather than the act of repeating itself" (Armstrong & Biktimirov, 2014, p. 93). The timing of the repeat attempt may also impact students' performance. Armstrong and Biktimirov

(2014) disclosed that students typically take the economics courses in their first year, whereas the finance courses are typically taken in the second year (Biktimirov & Armstrong, 2015); thus, differences in performance could also be due to study habits, which the authors encouraged students to improve upon before repeating courses. Counts et al. (1974) discovered that sophomores performed better on repeat coursework than students of other class standings, but conceded that it could be due to freshmen primarily repeating only failed courses and upperclassmen repeating upper division coursework. However, the engineering mathematics course in Snead et al.'s (2022) multi-semester study was often taken in students' first year, but less than half of repeating students passed the course, even though these repeat students were on average more than a year and a half older than students taking the course for the first time. In this dissertation, the class standings of students who repeated ACC 201 was analyzed in the fourth null hypothesis (H_{0D}).

Enrollment and Student Success: Impacts on GPAs

The subcategory of impacts on GPAs is comprised of grade inflation and GPA inflation. Kamber (2008) defined grade inflation as the "reduction in the capacity of grades to provide true and useful information about student performance as a result of upward shifts in grading patterns" (p. 47), but also clarified that it is possible for grading patterns to shift downward if more lower grades are assigned. This definition could similarly be applied to GPAs when GPAs fail to provide accurate information due to recalculations allowed by forgiveness policies, as argued by Marx and Meeler (2013a). Kamber (2008) also noted that the issue was reported in the 1960s under various names, but the term "grade inflation" did not become the phenomenon's common name until the 1970s.

Although grade inflation affects campuses nationally, factors influencing and mitigating it are institution-specific. Jewell et al.'s (2013) single-institution study found that over the span of 21 academic years at the University of North Texas, GPAs increased by 0.363 on average, with departments that offered doctoral programs having higher levels of grade inflation than departments without doctoral programs. Cheong (2000) conducted a study at the same institution as this dissertation and reported that between Spring 1987 and Spring 1999 in the departments that belonged to the then-Colleges of Arts and Sciences, undergraduate grades increased by 0.15, with 300- and 400-level coursework grades having increased by 0.19, and 100- and 200-level coursework having increased by 0.14. Cheong (2000) also noted that spring semesters experienced higher grades than fall semesters, despite spring semesters having lower enrollment; the author used the term "Spring effect" to describe the "the phenomenon of higher grades in Spring semesters" (Cheong, 2000, p. 6).

Bar et al. (2009) stated that Cornell University's Faculty Senate implemented its median grade policy after they "had a number of discussions about grade inflation and what might be done about it" (p. 93). The authors noted that the policy,[10] which listed the median grades for courses in an online report and on students' transcripts to inform stakeholders how students compared to others enrolled in the same course in a given semester, did not directly mention grade inflation (Bar et al, 2009), similar to how GRP does not directly mention retention. Bar et al.'s (2009) study of pre- and post-policy enrollment and grades awarded revealed that after the

[10] The policy was adopted in Spring 1996 and the median grade reports were posted online beginning in Spring 1998 and on transcripts in Fall 2008 (Bar et al., 2009; Office of the University Registrar, n.d.). Bar et al. (2009) stated that after the Faculty Senate reviewed a draft of their article, the Faculty Senate "[proposed a resolution] to remove the median grades reports from Cornell's website" (p. 108). In Spring 2009, the resolution was tabled for a later date (Bar et al., 2009) and the policy was ultimately terminated in Fall 2023 and median grades were not reported from that semester onward (Office of the University Registrar, n.d.).

median grades reports were published, courses with high median grades experienced higher enrollment.

Students, institutions, and stakeholders rely on grades to demonstrate both students' and institutions' successes. However, "Grade inflation and grade compression depreciate the information content of grades and undermine their usefulness" (Bar et al., 2009, p. 93) and by extension, GPAs are also undermined when grades no longer accurately reflect academic achievement. Corresponding with grade inflation is change in GPAs. Birnbaum (1977) used the phrase "grade point average inflation" (p. 522) to make the distinction that educational policies were the cause of GPA increases, since the policies give students additional attempts to successfully complete their courses. Marx and Meeler (2013b) also referred to recalculated GPAs as "grade-point-average distortion" (para. 2).

To address concerns with GPA recalculation, Marx and Meeler (2013a, 2013b) suggested reporting an additional measurement alongside GPAs, called the "earned attempted ratio (EAR)," which would compare earned credits to attempted credits. Since academic forgiveness policies allow repeated and excluded coursework to mask GPAs by not including all attempts and "without careful transcript analysis, we cannot readily differentiate between candidates with the same degree or GPA" (Marx & Meeler, 2013b, para. 7), the EAR would function to inform what percentage of attempted credits students actually earned (Marx & Meeler, 2013a). For example, a student with a low EAR would imply that the student has a higher number of withdrawn, failed, incomplete, or repeated courses. In studying graduating seniors at their institution, Marx and Meeler (2013a) discovered that the students with the lowest EARs were more likely, on average, to extend graduation by one to two semesters, while some students had repeated two years' worth of coursework.

Student Success and Educational Policies: Impacts of Repeat Policies

Institutional policies that allow students to repeat courses have effects that not only impact GPAs, but also persistence, retention, and graduation. Additionally, repeating coursework may be an indicator of future academic difficulty (Hansen et al., 2015) and have costly impacts for students, institutions, and societies (Lewis, 2020). Policy outcomes—both intended and unintended—should be considered by policy makers during policy analysis.

The quantity of courses a student repeats could impact persistence to graduation and time-to-degree. Nasser and Nauffal (2012) studied the correlation between repeating coursework and graduation across four academic years at a Lebanese institution. Among repeat students, students who only repeated a course once were more likely to graduate than those who repeated a single course twice (Nasser & Nauffal, 2012). Also demonstrating a similar outcome, Smith and Laws (1998) conducted a ten-year study of three geoscience major programs at the University of North Carolina Wilmington, an institution at which students were allowed to repeat an unlimited number of courses and only the first five repeats used the most recently earned grade in GPA calculation. The authors emphasized that this policy allowed an entire semester's worth of courses—15 credits—to be retaken to improve GPAs and that "withdrawal and repeat policies contribute directly to lengthening student residency" (Smith & Laws, 1998, p. 316). This conclusion was drawn from half of the study's non-transfer student population having 14 or more credits attempted than actually earned (Smith & Laws, 1998).

Repeating coursework could negatively affect students, institutions, and societies, both academically and financially. Hansen et al.'s (2015) study that focused specifically on students admitted to a doctor of pharmacy program found that students who repeated pre-pharmacy coursework prior to entering the program were three times more likely to have GPAs in the

bottom 25% of their cohort after three semesters in the program, implying that these students had academic difficulty with the doctoral curriculum. In cohorted nursing programs, students who need to repeat coursework have delayed graduations; as a result of repeating, these students experience lost wages due to their later graduation date and society continues to suffer from a shortage of qualified nurses (Lewis, 2020). Lewis (2020) also mentioned the costs that institutions incur for implementing intervention and tutoring, as well as the associated lost revenue if students drop out of the nursing program. This dissertation did not examine students' financial burdens of repeating coursework, but Marx and Meeler (2013b) stated that repeat policies favor students who can afford both the time and the cost to retake courses.

Repeat Policies' Impacts on Enrollment and Student Success

The intersection of academic forgiveness policies, restrictive enrollment, and measures of student success has been minimally studied in regard to course repeat policies that recalculate GPAs for students seeking admission to selective majors. Since existing studies only briefly touched upon the intersection and it was not the primary focus of the studies themselves (Xiang & Hinchliffe, 2018; Schmidt, 2021), there was minimal discussion on policies' impacts for institutions. The studies in this section included enrollment data, but due to institutional differences, such as the maximum grade allowed to repeat a course and course subject, the studies' parameters did not align with those of this dissertation's study, which are discussed in Chapter Three.

The purpose of Xiang and Hinchliffe's (2018) study focused on why students repeated the introductory financial accounting course, not the enrollment impact of repeat students. Despite having data from five years' worth of enrollment, only 28 of the 638 students (4.39%) in their study were repeating the course; this small population may have been due to the

institution's limit on repeat coursework, which was a single time per course, with no more than two overall during undergraduate study. The authors also mentioned that students may repeat the course even though they earned a grade of "C" (Xiang & Hinchliffe, 2018), a grade that is considered passing at this dissertation's institution and is not eligible for GPA recalculation under the 2012 GRP.

Students who repeat courses occupy seats that could be filled by first-time enrollees (Kattner, 2013). If there is an increase in demand for additional course sections with more seats without a corresponding increase in funding to supply the additional seats, students will face difficulties in registering for courses that they need to fulfill requirements (Schmidt, 2021). To allow first-time students access to courses, California State University, Northridge (CSUN), instituted a policy that prevented repeat students from registering for a repeat course until half a week before the semester began (Kattner, 2013). Over the course of the three years since the repeat registration policy and other initiatives were introduced, CSUN reduced repeat enrollment by three thousand seats per semester (Kattner, 2013). Relatedly, Schmidt (2021) estimated that the implementation of a minimum grade policy for economics majors reduced one faculty member's courseload by a third per academic year.

Chapter Summary

This chapter included an overview that compared existing repeat policies at the institution's peer, benchmark, and system institutions in 2011 or within a reasonable number of years surrounding that time. Notably, the UC System, of which multiple campuses are considered benchmark institutions, similarly had differences in policy stipulations across campuses within the same educational system.

A review of available literature revealed a lack of research focusing collectively on repeat policies, impacts on enrollment, and impacts on students' GPAs for admission to selective majors. This literature review instead examined individual facets of this dissertation's topics, including educational policies, enrollment, and student success. Three overlapping subtopics were also examined: repeated coursework, impacts on GPAs, and impacts of repeat policies.

Previous studies predominantly focused on aspects of student success for students who repeated courses, with less emphasis on enrollment. Studies that did mention the quantity of students who repeated coursework did so as a description of the population, with the purposes of the studies being the examination of reasons for repeating coursework, characteristics of successful repeat students, and whether GPAs improved. For this dissertation, drawing comparisons to previously conducted studies was done selectively due to the institution-specific stipulations of repeat policies. Differences between the repeat policies of the institution in this dissertation and other institutions not only included policy names, but also which grades were eligible for repeat, which attempt was included in GPAs, which grading scale was used, and whether withdrawal and incomplete grades were considered repeat attempts. This dissertation contributes to existing literature by placing more emphasis on enrollment impacts than on student success.

The next chapter describes the research methods of this dissertation's study, including explanations of the study's population and time frame. Detailed descriptions of data sources and analyses are also included.

Chapter III. Methods

This chapter identifies the variables and states the hypotheses that were tested to answer this quantitative study's research question: "What are the effects of the Grade Replacement Policy at the institution on students enrolled in a Pre-Business course who are subsequently admitted to the Business School?" It also establishes the study's quasi-experimental design, time frame, and population, describes how data was gathered, and explains how data was analyzed.

Variables

The independent variable was the availability, or not, of the Grade Replacement Policy (GRP) for Accounting (ACC) 201 attempts at the institution. Students in Phase I of the study were unable to use the 2012 GRP to assist them in being admitted to the Business School because the policy was not yet implemented. Without GRP, every grade earned in students' attempts to pass ACC 201 with a grade of "C" or higher was factored into their Pre-Business Core grade point averages (GPAs) as well as their cumulative GPAs. Students in Phase II of the study had access to GRP to improve their GPAs to meet the minimum requirements to be admitted to the Business School. With GRP, only the most recent attempt of ACC 201 was factored into students' Pre-Business Core and cumulative GPAs; since this study only includes students who were admitted to the Business School, the most recent attempt of ACC 201 for students who repeated the course was also the attempt in which they passed the course if they earned a grade of "C" or higher on the most recent attempt. While GRP can be applied to many courses within and outside the Pre-Business Core, the scope of its use in this study is limited to the ACC 201 course.

The main dependent variable in this study was students' repeat statuses; specifically, whether they passed ACC 201 on their initial attempt or on a repeat attempt. The study's first

null hypothesis (H_{0A}) was tested to determine if the number of students who repeated ACC 201 and were admitted to the Business School changed after GRP was implemented.

Additional dependent variables were measured with and without the availability of GRP, and each dependent variable was tested against its own null hypothesis. List et al. (2019) stated that multiple null hypotheses may occur in studies in which "the effect of a treatment may be heterogeneous in that it varies across subgroups defined by observed characteristics (e.g., gender or age) and it is desired to determine for which of these subgroups a treatment has an effect" (p. 774). This study included the following dependent variables, explained in subsequent paragraphs: students' residency status, gender, and class standing status. These dependent variables specifically tested the subpopulation of students who repeated ACC 201.

"Residency" is an attribute that is assigned to students at the time of their application to the institution by the Office of Admissions and determines the tuition rate students are assessed. Residency status does not change from the time of admission to the institution unless documentation of a change in domicile is filed with a residency counselor (Office of Admissions, n.d.-b). Residency status at the time of successful completion of ACC 201 was gathered from the REG_1000 Enrollment Extract list to determine if there was a statistically significant correlation between residency status and repeat status. The use of GRP to improve GPA may allow students concerned about tuition cost to repeat a course, gain admission to the Business School, and still graduate within the six-year time frame used for reporting graduation and retention. At this dissertation's institution, non-resident students pay almost triple the amount of tuition of resident students: the tuition per credit hour in Spring 2024 was $471.00 for resident students and $1,389.00 for non-resident students (Office of the Registrar, n.d.-c). A three-credit course, such as ACC 201, would cost $1,413 for resident students and $4,167 for non-resident students. The

study's second null hypothesis (H_{0B}) was devised to compare the admission rates of students from different residency statuses who repeated ACC 201.

"Gender" is an attribute that students self-report on their application to the institution. This attribute remains constant throughout students' academic careers unless a change is filed with the institution's registrar (Office of the Registrar, n.d.-b). Gender at the time of successful completion of ACC 201 was recorded from the REG_1000 Enrollment Extract list to determine if a statistically significant correlation existed between gender and repeat status. The study's third null hypothesis (H_{0C}) tests whether the repeat population's gender groups were quantifiably the same both pre- and post-GRP implementation.

"Class standing" is an attribute with an assigned value based on earned credits at the time of enrollment. Students applying to the Business School must have junior standing (see Footnote 16 in Appendix B) at the time of admission. The institution encourages students to declare a major by the start of junior year (Mānoa Catalog Office, 2015a); however, students who repeat Pre-Business Core courses may declare at a later time, such as the second semester of junior year or as seniors. Students' class standing at the time of their initial attempt of ACC 201 was recorded to test the study's fourth null hypothesis (H_{0D}).

Hypotheses

The hypotheses for this study were stated as null hypotheses and were designed to be non-directional in order to remain neutral toward the study's tested variables. The four null hypotheses and their corresponding alternative hypotheses are listed below:

H_{0A}: There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy.

H_{1A}: There are differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy.

H_{0B}: There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their residency status.

H_{1B}: There are differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their residency status.

H_{0C}: There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their gender.

H_{1C}: There are differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their gender.

H_{0D}: There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their class standing status.

H_{1D}: There are differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their class standing status.

Time Frame of the Study and Definition of Phases

This study consisted of two time frames: the primary time frame was based on enrollment in the ACC 201 course; the secondary time frame was based on the semester of admission to the Business School. GRP mainly impacted the ACC 201 time frame due to the timing of when students enrolled in and—if necessary—repeated the course. The study's time limit of at least five years for both pre- and post-policy implementation of GRP was selected to allow for a comparable number of semesters in both phases.

"Phase I" was the pre-GRP phase during which students enrolled in ACC 201 did not have access to GRP if they repeated the course. This included students who passed ACC 201 with a grade of "C" or higher between Spring 2007 and Summer 2012. "Phase II" was the post-GRP phase during which students who repeated ACC 201 were able to use the policy to improve their GPAs. This phase included students who passed ACC 201 with a grade of "C" or higher between Fall 2012 and Summer 2017. Figure 3.1 lists the ACC 201 enrollment semesters that were included for both phases of this study.

Figure 3.1

ACC 201 Enrollment Semesters Included in the Study

Phase I: Pre-GRP Semesters	Phase II: Post-GRP Semesters
Spring 2007	Fall 2012
Summer 2007	Spring 2013
Fall 2007	Summer 2013
Spring 2008	Fall 2013
Summer 2008	Spring 2014
Fall 2008	Summer 2014
Spring 2009	Fall 2014
Summer 2009	Spring 2015
Fall 2009	Summer 2015
Spring 2010	Fall 2015
Summer 2010	Spring 2016
Fall 2010	Summer 2016

Phase I: Pre-GRP Semesters	Phase II: Post-GRP Semesters
Spring 2011	Fall 2016
Summer 2011	Spring 2017
Fall 2011	Summer 2017
Spring 2012	
Summer 2012	

As shown in Figure 3.1, Phase I included two more enrollment semesters than Phase II. This was due to the timing in which ACC 201 was typically taken a year prior to admission to the Business School. Since ACC 201 was an admission requirement, it was not possible for students to enroll in ACC 201 and be admitted to the Business School in the same semester; meaning, for example, students enrolling in ACC 201, for the first time or as a repeat, in Fall 2012 would not have been eligible for Fall 2012 admission to the Business School. Figure 3.2 visualizes the three-semester sequence between enrollment in ACC 201 and admission to the Business School. The first box represents students enrolled in ACC 201 for the first time; they are not yet eligible to apply for admission to the Business School because they do not yet have ACC 202, a subsequent course, completed. Students in the second box would apply for admission for the upcoming semester because they anticipate meeting all admission requirements by the end of the current semester. At the end of the semester, applicants who met all admission requirements were admitted for the upcoming semester. The third and final box represents students who enroll in the Business (BUS) 310 course in their first semester of Business School.

Figure 3.2

ACC Course Sequence and Admission Timing

Only students who were admitted to the Business School were included in this study. The Business School admits students twice per academic year in fall and spring semesters. To allow for five years of data both pre- and post-GRP, this study included students who were admitted to the Business School between Spring 2008 through Fall 2017; this resulted in 10 admission semesters pre- and post-GRP implementation. Students who were admitted to the Business School prior to Spring 2008 or after Fall 2017 were excluded. Figure 3.3 lists the included semesters in the pre-GRP and post-GRP admission categories.

Figure 3.3

Business School Admission Semesters Included in the Study

Pre-GRP Admission Semesters	Post-GRP Admission Semesters
Spring 2008	Spring 2013
Fall 2008	Fall 2013
Spring 2009	Spring 2014
Fall 2009	Fall 2014
Spring 2010	Spring 2015
Fall 2010	Fall 2015
Spring 2011	Spring 2016
Fall 2011	Fall 2016
Spring 2012	Spring 2017
Fall 2012	Fall 2017

The study's time frame ends in Fall 2017 because in Fall 2019, changes in the Accounting curriculum ultimately altered the Pre-Business Core courses for admission. The time frame of the study was not extended to Fall 2019 because doing so would have required the pre-GRP admission semesters to be extended earlier than Spring 2008 in order to keep a comparable number of semesters pre- and post-GRP implementation. These changes to the Accounting curriculum, outlined in Figure 3.4, would have altered the data in a manner that would have made comparisons difficult due to the combination of new, renumbered,[11] and retired[12] courses: ACC 200 was created to be the first course in the sequence, ACC 201 was renumbered to ACC 210, and ACC 202 was retired (Mānoa Catalog Office, 2020). Due to the recent implementation and offering of ACC 200, students who enrolled in this course have only been able to repeat this

[11] When a renumbered course is repeated, GRP is able to be applied. For example, if a student earned a grade of "D" in ACC 201 and later enrolled in ACC 210, the ACC 210 grade would replace the ACC 201 grade in GPA calculation.

[12] Retired courses are no longer offered; thus, students cannot re-enroll in the course and GRP cannot be utilized.

course through GRP; they did not have the opportunity to repeat the course during the pre-GRP period because the course did not yet exist.

Figure 3.4

Accounting Course Sequencing and Duration Offered

Sequence	Duration Offered
ACC 201 and ACC 202	Prior to Fall 2019
ACC 200 and ACC 201	Fall 2019 to Summer 2020
ACC 200 and ACC 210	Fall 2020 and after

Accounting 201: Introduction to Financial Accounting

During the time frame of this study, admission to the Business School required that students complete the seven categories in the Pre-Business Core with a minimum grade of "C." Collectively, the courses included in the Pre-Business Core must have averaged a minimum 2.50 GPA; if a student earned "C" grades in all seven categories, they were inadmissible to the Business School because they only had a 2.00 Pre-Business Core GPA. Three of these categories allowed students to choose courses from an eligible list and the other four categories did not allow any other course alternatives. One of the categories without alternatives was "Financial Accounting." To fulfill this requirement, students needed to enroll in and pass the three-credit ACC 201 course, which was entitled "Introduction to Financial Accounting." Enrollment in ACC 201 required sophomore standing and students needed a minimum grade of "C-" in order to progress to ACC 202, which was another course required for admission to the Business School. Although students were allowed to enroll in ACC 202 if they earned a "C-" in ACC 201, they still needed to repeat ACC 201 and earn a minimum grade of "C" to be eligible for Business

School admission. The cumulative and Pre-Business Core GPAs for these students were calculated according to the repeat policy that was in effect at the time the course was retaken.

Phillips (2021) described the introductory financial accounting course as "the cornerstone of any academic accounting program designed to lay the underpinning for a working knowledge of the language of business" (p. 147) and Xiang and Hinchliffe (2018) stated that it is "not a course with a reputation among students that is 'easy-to-pass'" (pp. 71–72). From Spring 2007 through Summer 2017, the course description for ACC 201 remained consistent and unchanged: "Introduction to financial accounting and methods used to record and report financial information to decision makers external to the firm. Use and limitations of financial reports. Pre: sophomore standing" (Mānoa Catalog Office, 2006a, 2016a). Prior to Fall 2015, the minimum quantity of earned credits for sophomore standing was 25 credits (Mānoa Catalog Office, 2006b); effective Fall 2015, sophomore standing required 30 earned credits (Mānoa Catalog Office, 2015b).

Business 310: Statistical Analysis for Business Decisions

To assist in determining admission to the Business School, I compiled lists of students who enrolled in BUS 310 "Statistical Analysis for Business Decisions." Newly admitted Business School students are required to enroll in and pass this three-credit course by the end of their first semester. Enrollment in this course is school-restricted during fall and spring semesters, meaning that students must have been admitted to the Business School in order to register for it; if non-Business School students attempted to register for the course, they would have encountered a registration error that prevented them from registering for the course unless an institutional employee provided a registration override. In summer semesters, enrollment in the course is not restricted, which allows students to enroll in it prior to being officially admitted.

I selected BUS 310 to measure admission to the Business School because admitted students would need to complete ACC 201 prior to enrolling in BUS 310; in other words, a vast majority of students would not have been enrolled in both courses concurrently since ACC 201 was an admission requirement.

From Fall 2006 through Fall 2017, the course description for BUS 310 remained consistent:

> Problem recognition and formulation; stress on cross-disciplinary complex problem solving and communication; computer intensive. Coverage of descriptive statistics, probability and hypothesis testing with emphasis on quality, productivity, and regression analysis. Must be taken in first semester of BBA program. Pre: MATH 241 or equivalent. (Mānoa Catalog Office, 2006c, 2017a)

The prerequisite of "MATH 241 or equivalent," which referred to the calculus admission requirement for the Business School, was removed in Fall 2009 (Mānoa Catalog Office, 2009).

BUS 310 is also taken by students who are not pursuing a Business School major; it is a course that may be taken for the business minor (Shidler College of Business, n.d.). Students who declare the business minor are not allowed to subsequently declare a business major (Mānoa Catalog Office, 2006d). There is also a non-business major—travel industry management—that allows its students to enroll in BUS 310, among other course options, to fulfill the major's statistics requirement (Mānoa Catalog Office, 2013a). Since students who were pursuing the business minor or taking BUS 310 for a non-business major were not held to the Business School's admission requirements for business majors, they were excluded from the study. These students were not declared as business majors at the time of enrollment in BUS 310.

Population

This study consisted of students who took their original and passing attempts of ACC 201 at the institution. By having the ACC 201 attempts taken solely at the institution, students could utilize the repeat policy available at the time of enrollment to assist them in their pursuit of admission to the Business School. For students who passed ACC 201 on their first attempt, the original and passed attempts were one and the same. For students who repeated ACC 201, only the original attempt, which was not passed, and the final attempt, which was passed, were used. While some students did repeat ACC 201 more than once prior to successfully passing the course, intermediary non-passed attempts were excluded from statistical evaluation; however, they were tallied to report on students' total attempts of the course.

Only students who were admitted to the Business School and enrolled in a required Business School course (BUS 310) were included in this study. Enrollment in BUS 310 ensured that the students included in this study's population were actively pursuing business majors following their admission to the Business School. Students who applied and were admitted to the Business School, but did not enroll in BUS 310, were excluded from the study. These excluded students may have changed their majors to a non-business major prior to officially beginning the Business School's major-specific coursework or did not persist at the institution.

By focusing only on students who were admitted, the analysis for H_{0A} compared the number of students who only took ACC 201 once to the number of students who repeated it in order to gain admission to the Business School in either Phase I or Phase II. The analyses for H_{0B}, H_{0C}, and H_{0D} only compared those who repeated ACC 201 in either Phase I or Phase II.

Excluded Groups

The following groups of students who attempted ACC 201 at the institution were excluded from the study:

- those who did not pass their initial attempt of ACC 201 at the institution, and retook it elsewhere; and
- those who did not pass their initial attempt of ACC 201 elsewhere, and retook it at the institution[13]

GRP is only applied to courses that are originally attempted and repeated at the institution. Students who took ACC 201 more than once, and in which only one attempt was from the institution, were not eligible for GRP. Since the attempts for these students were from different institutions, the Business School included all attempts when calculating the Pre-Business Core GPA; this resulted in lower Pre-Business Core GPAs due to the inclusion of the non-passed attempts.

Freshman Direct Admit Program. In Fall 2012, the Business School created and implemented a new program for incoming freshmen by directly admitting them to the Business School (Mānoa Catalog Office, 2013b). The Freshman Direct Admit Program (FDAP) was advertised as a "highly competitive and merit-based" admission program to the Business School (Mānoa Catalog Office, 2013b, para. 2), whereas traditional admission at junior class standing is only selective, based on meeting the admission requirements. Incoming freshmen were invited and admitted to FDAP based on high school GPA and standardized test score minimums that were higher than the institution's admission requirements. To remain in FDAP, students were

[13] The institution requires that students submit all transcripts with college-level coursework for evaluation. The admission policy states that omission and/or submission of fraudulent application materials may result in denial of admission, cancellation of enrollment, and disciplinary action from the institution's student conduct office (Office of Admissions, n.d.-a).

required to enroll in at least 15 credits every semester and have at least a 3.00 cumulative GPA at the end of their first year (P. Ching, personal communication, April 17, 2024).

Students who persisted through FDAP were granted enrollment in exclusive sections of 200-level Business courses that were only available to FDAP students, such as business writing, business law, and business calculus courses. Additionally, FDAP students were allowed to enroll in BUS 310 prior to junior year, as they were already admitted to the Business School and could bypass the school restriction on the course that prevented non-declared students from registering for it (Shidler College of Business, 2023). Since FDAP students were not admitted to the Business School in the traditional manner, these students were excluded from the population during their years of overlap with this study: Fall 2012 through Fall 2017.

Data Sources

Most of the data for this dissertation was sourced from multiple lists in Ellucian Banner Student (Banner), a database system that was purchased by the institution to maintain its student and course information. This central database allowed for reports to be created based on parameters set by the individual accessing the information. The use of reports from Banner ensured that data from admission applications, grades earned, and enrollment semesters were accurate and that I did not need to rely upon self-reported data from student subjects, which had the potential to be intentionally or unintentionally misremembered or misrepresented. This study utilized three lists from Banner that were generated by the institution's registrar's designee: REG_3010UH Course Grade Distribution Report, REG_1000 Enrollment Extract, and REG_1010 Applicant Enrollment Extract. Each list and the data contained therein are described in this section.

The Business School also provided its own internal list of applicants for the admission semesters involved in this study. This list aided in supplementing the Course Grade Distribution Report and Enrollment Extract lists to determine the population for this study, especially regarding the exact term in which students were admitted to the Business School.

Accounting 201 Enrollment

The registrar's designee generated a REG_3010UH Course Grade Distribution Report for every section of ACC 201 that was offered for every fall, spring, and summer term beginning in Fall 2005 through Summer 2017. The reports contained student identification (ID) numbers, admitted terms to the institution, grades earned in the course, and class standing and major at the time of enrollment. All sections were compiled into a single spreadsheet sorted by student ID number.

For the purposes of this study, a grade of "W," which indicated a withdrawal, was not considered as an attempt of the course because a "W" grade is not calculated in students' GPAs. ACC 201 attempts that resulted in "W" grades were removed from the compiled list of ACC 201 enrollment. Attempts that resulted in students earning a non-letter grade in ACC 201, such as pass/fail (credit or no credit) or audit, were removed because the Business School required that ACC 201 be taken for a letter grade in order to be eligible for admission.

Following the removal of attempts that resulted in "W" and non-letter grades, students whose ID numbers appeared multiple times in the compilation were indicative of multiple registrations of ACC 201 due to repeat attempts. A majority of the repeats were students who had an initial attempt that resulted in a grade of "C-" or below. Among these repeat students, those who had a final attempt of "C" or higher had the final attempt recorded on the original

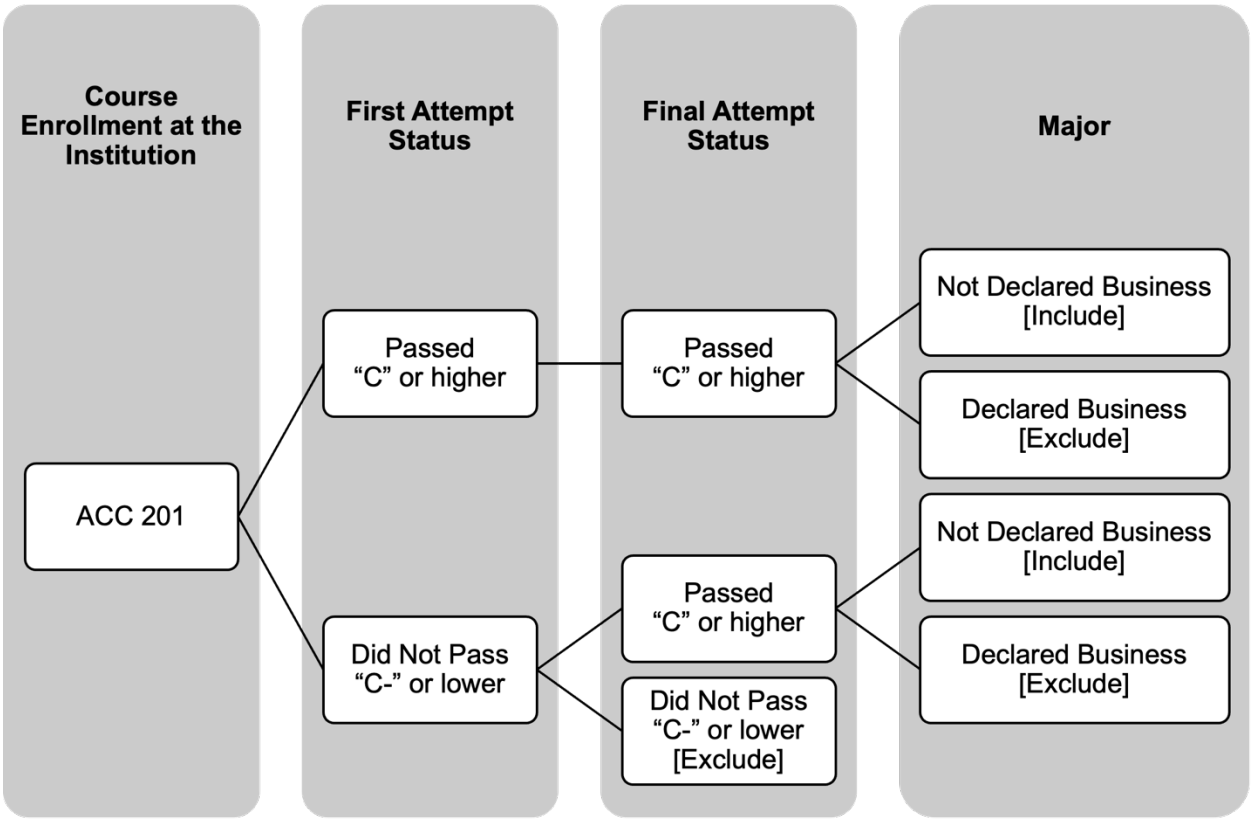
attempt's row. Additional repeat attempts were also transcribed onto the original attempt's row of the spreadsheet to track the total number of attempts of ACC 201.

Students whose initial and final attempts were "C-" or below were removed from the list because these students did not successfully pass ACC 201 at the institution, if at all. This included students who only attempted ACC 201 once, as well as students who repeated the course and still earned a grade of "C-" or below. Repeat attempts for students whose prior attempts were "C" or higher were removed because institutional policy stipulates that subsequent grades earned after a course is passed with a grade of "C" or higher are not factored into GPA calculations.

After the single list of students who passed ACC 201 was created, students were examined by their class standing during their ACC 201 enrollments. Students who were listed as "Graduate" or "Second bachelors" during any of their ACC 201 attempts were removed because this study focused on undergraduate students. Next, students were examined by the major they declared at the time of enrollment in ACC 201. If the students were in a declared Business School major (accounting, entrepreneurship, finance, general business, human resource management, management, management information systems, or marketing), they were removed. These declared Business School students were part of the FDAP and were not eligible for inclusion in the study. Figure 3.5 details how ACC 201 enrollment was filtered to determine the study's population.

Figure 3.5

ACC 201 Enrollment Filtering



The REG_1000 Enrollment Extract list was also requested and provided for the ACC 201 sections. This report included residency and gender at the time of enrollment in ACC 201. Although the columns of "Residency" and "Gender" were also included in the REG_1010 Applicant Enrollment Extract list that will be discussed in an upcoming subsection of this chapter, these data columns were only used from the REG_1000 Enrollment Extract lists because the data within these categories may have changed between the time of institutional application and ACC 201 course enrollment. Students are able to update the residency status that was assigned to them at the time of admission to the institution if they newly qualify for a different tuition rate, such as in-state tuition (Office of Admissions, n.d.-b). Students are also able to file

updates to their personal information, including address, preferred name, and gender during their academic careers (Office of the Registrar, n.d.-b). The data points of residency status and gender were added to the respective rows of the compiled ACC 201 Course Grade Distribution List.

The types of "Residency" categories utilized by the institution for tuition determination were in excess of a dozen. For the purposes of this study, I recategorized students into the following three groups: "resident," "non-resident," and "other." The "other" group consisted of students who received residency exceptions for tuition purposes, which allowed them to pay a cheaper tuition rate than non-residents. These exemptions included, but were not limited to, Western Undergraduate Exchange (WUE), Veterans Affairs (VA) benefits, and special talents. During the time frame of this study, the cost of tuition increased for both resident and non-resident students. The per credit cost of tuition at the beginning of key academic years in the study is listed in Figure 3.6.

Figure 3.6

Tuition Cost Per Credit Hour During the Study

Residency Status	AY 2006–2007 [a]	AY 2012–2013 [b]	AY 2016–2017 [c]
Resident	$180.00	$361.00	$453.00
Non-Resident	$508.00	$1,038.00	$1,371.00

[a] (Mānoa Catalog Office, 2006e). [b] (Mānoa Catalog Office, 2012b). [c] (Mānoa Catalog Office, 2016c).

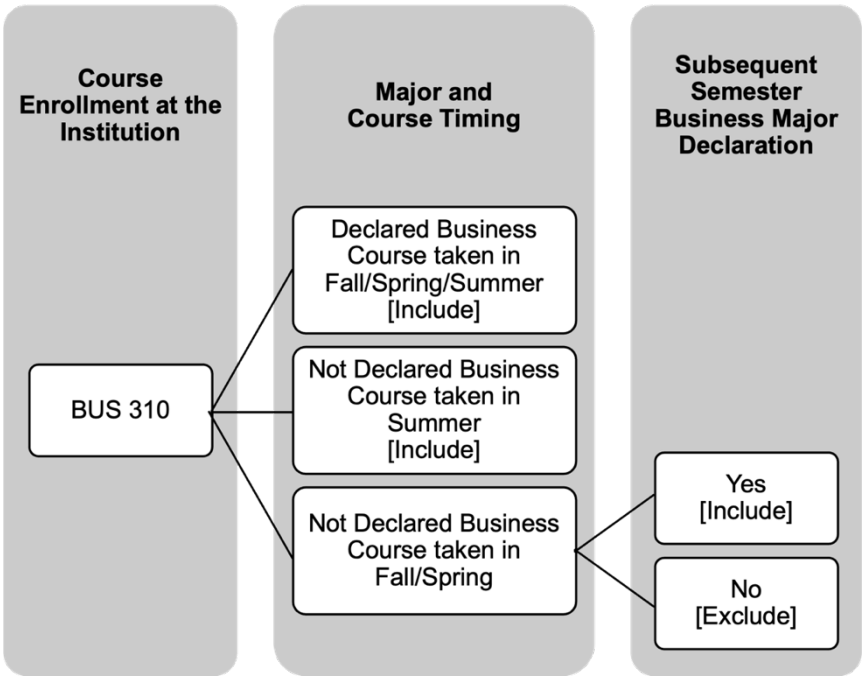
Business 310 Enrollment

Since a majority of students who were admitted to the Business School beginning in Spring 2008 would have taken BUS 310 in either their first semester of Spring 2008 or the summer prior (Summer 2007), REG_3010UH Course Grade Distribution Reports for BUS 310 sections were examined from Summer 2006 through Fall 2017. These lists were compiled by

student ID number, semester, class standing, and declared major at time of enrollment. Similar to the ACC 201 filtering process, non-undergraduate students who were classified as "Graduate" or "Second bachelors" at the time of enrollment in BUS 310 were removed. Students' declared major was used to classify students as "Declared Business" in a Business School major or "Not Declared Business." Students who enrolled in BUS 310 in a fall or spring semester while not declared as a business major were checked individually in the institution's degree audit system, which records students' declared majors for every semester of enrollment, to determine if they declared a business major in a subsequent semester. Figure 3.7 details how the semester of enrollment and major at the time of enrollment in BUS 310 was used to determine inclusion or exclusion in the study.

Figure 3.7

BUS 310 Enrollment Filtering



Business School Application List

At my request, the Business School provided a list of students who applied for admission from Fall 2007 through Fall 2017. This list included student ID numbers, application semester, and final admission status. Final admission statuses included "Admit," "Deny," and "Cancelled." A tally of Business School applications is included in Table 4.1 in the next chapter. For the purposes of this study, only students who were admitted were included.

Students across all semesters were compiled into a single list; ID numbers that appeared more than once were indicative of students who applied more than once. Such instances were due to breaks in enrollment and study away programs, such as study abroad and exchange. Students who appeared on the list multiple times were checked in the institution's degree audit system and based on the information found, the application affiliated with the closest semester of enrollment in the Business School was utilized and rows affiliated with the other applications were discarded. In instances in which students were admitted to the Business School more than once due to a break in enrollment, only the initial application's admitted semester was used.

Comparison of the Business School Application List and Business 310 Enrollment

The Business School Application List provided additional data regarding the accepted semester for the study's population. While the BUS 310 Course Grade Distribution Report provided most of the information about admitted semesters, it did not include all students, such as those who did not enroll in BUS 310 as instructed, dropped the course, were on academic leave, or were studying away during their first semester at the Business School. The joint use of both the Business School Application List and the BUS 310 Course Grade Distribution Report ensured the most complete semester admission data for this study.

Using student IDs, the Business School Application List was compared to the BUS 310 Course Grade Distribution Report to verify: 1) enrollment in a Business course after admission to the Business School; and 2) semester of admission. Students who appeared on the Business School Application List, but not the BUS 310 Course Grade Distribution Report, either received transfer credit for the course or did not enroll in the Business School. The institution's degree audit system was used to examine students' unofficial transcripts; students who transferred in BUS 310 credits remained on the compiled list, but students who did not enroll in the Business School were removed. Students who appeared on the BUS 310 Course Grade Distribution Report, but not the Business School Application List were not admitted to the Business School at the time of BUS 310 enrollment. This occurred when non-business majors enrolled in the course, either with registration overrides or during summer terms when overrides were not required; these students were already labeled as "Not declared business" on the BUS 310 Course Grade Distribution Report, as described in the "BUS 310 Enrollment" subsection earlier in this chapter. The degree audit system was used to determine whether or not these students were admitted to the Business School at a later date. Students who were not admitted to the Business School were excluded from the study. The resulting singular list will henceforth be referred to as the "Business School Admitted List."

Comparison of the Business School Admitted List and ACC 201 Enrollment

After determining Business School admission, the ID numbers of students on the Business School Admitted List were compared to the ID numbers of students on the ACC 201 Course Grade Distribution Report. Students who appeared on both lists remained eligible for inclusion in the study. The admission term data from the Business School Admitted List was

added to the corresponding rows of eligible students on the ACC 201 Course Grade Distribution Report.

The ACC 201 Course Grade Distribution Report was then sorted by students' initial attempt term of ACC 201. Only students who had an initial attempt term between Spring 2007 and Summer 2017 were eligible for the study; students who initially attempted ACC 201 prior to Spring 2007 or after Summer 2017 were excluded. The list was also sorted by students' final attempt term of ACC 201; only students who passed ACC 201 from Spring 2007 through Summer 2017 remained included and all students enrolled outside of this range were excluded. Lastly, the list was sorted by admission term to the Business School. Only students who were admitted from Spring 2008 through Fall 2017 were included; the remaining students who were admitted outside of this range were excluded.

Applicant Enrollment Extract Lists

In consultation with the institution's registrar, the registrar suggested the use of the REG_1010 Applicant Enrollment Extract to determine if students were admitted as first-time freshmen. The Applicant Enrollment Extract contained student ID numbers and student type. The "Student Type" column indicated if students were admitted as first-time freshmen, transfers, returning, or other (e.g., second-degree seeking). This study focused on students who were admitted as first-time freshmen in order to remove possible instances in which students did not pass their initial attempt of ACC 201 outside of the institution and passed a subsequent attempt at the institution, which could have been the case for transfer students.

I submitted a list of the ID numbers and institutional admit terms of the remaining students on the ACC 201 Course Grade Distribution Report to the registrar's designee to generate the Applicant Enrollment Extract for eligible students. However, the registrar's

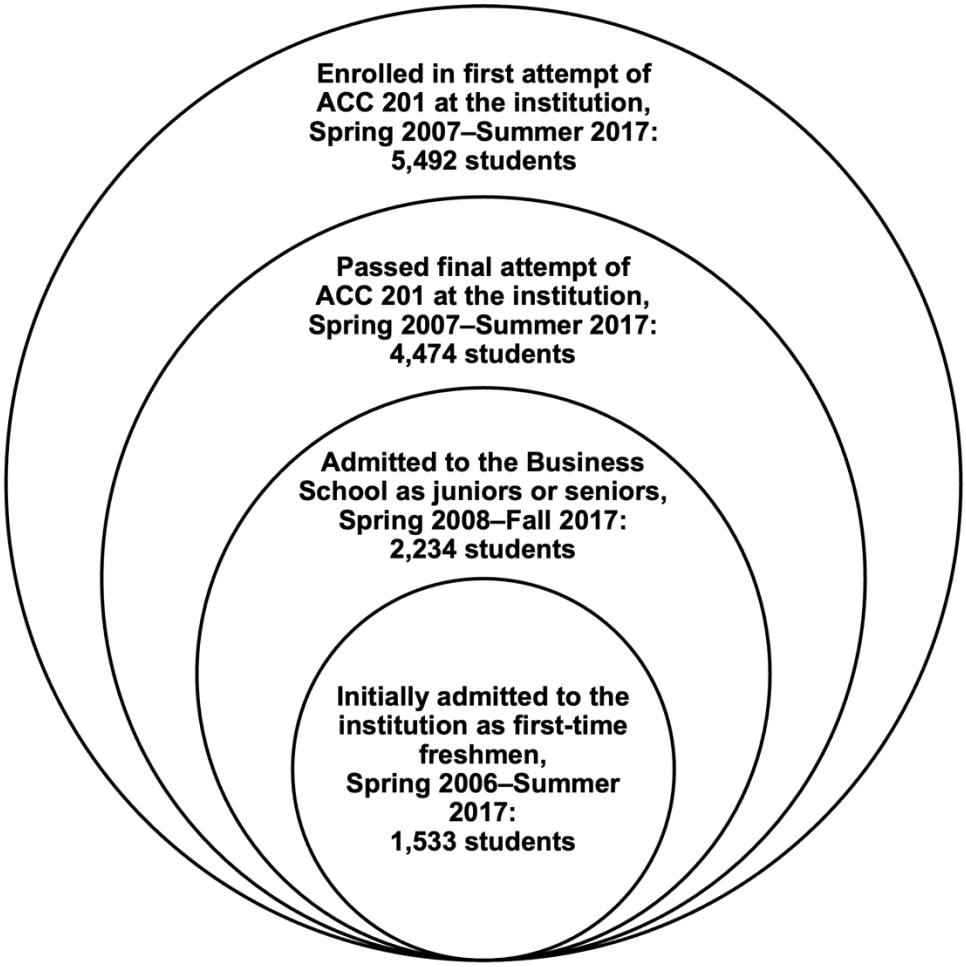
designee was unable to run an appropriate report due to some students on my list having submitted multiple applications to the institution across a number of semesters. The admitted term listed on the Course Grade Distribution Report only stated students' most recent institutional application. The registrar's designee instead created a custom report that included students' ID number, semester of application, student type, and an enrollment indicator.

I first sorted the list by enrollment indicator and students who did not enroll were discarded. The list was then sorted by student ID; students whose IDs were duplicated on the list had applied to the institution multiple times. Only students' first application was kept; all other applications were discarded. The list was next sorted by student type. Only students who were identified as first-time freshmen were allowed to remain in the study; students of all other types were excluded.

Figure 3.8 depicts how the study's population was narrowed. All students who enrolled in their first attempt of ACC 201 at the institution during the time frame of the study were included (outermost ring); students who completed ACC 201 outside of the institution were excluded. In order to remain eligible for inclusion, students must have passed ACC 201 at the institution; students who earned a grade of "C-" or below and did not repeat the course were excluded. Of these students, only those who were admitted to the Business School in the traditional manner, meaning, as juniors and seniors, were included; students admitted through FDAP, students pursuing business minors, and other non-business majors were excluded. Lastly, only students who were originally admitted to the institution as first-time freshmen were included (innermost ring). Figure 3.8 also states the number of students at each level of inclusion; these numbers are discussed in detail in Chapter Four.

Figure 3.8

Groups of Inclusion for the Study's Population



Combining Enrollment Lists and Categorizing by Pre- and Post-GRP

After excluding students who did not meet the qualifications for this study, the remaining population was sorted by the semester in which they successfully passed ACC 201 with a grade of "C" or higher. Students who passed the course in Spring 2007 through Summer 2012 were categorized into the Phase I "Pre-GRP" group. Students who passed the course in Fall 2012 through Summer 2017 were categorized into the Phase II "Post-GRP" group.

Students who were categorized into Phase II, but had initially enrolled in ACC 201 in Phase I, were individually checked in the institution's degree audit system to ensure that GRP was applied on the repeat attempt. There were some students in Phase I who were not admitted to the Business School until Spring 2013 or later, after GRP was implemented; however, these students remained classified in Phase I because at the time they completed ACC 201, GRP was not yet available.

Following the classification of the population into Phases I and II, the groups were further divided into two subgroups: "Passed on first attempt" and "Passed on repeat attempt." These groups are visually categorized in Figure 3.9.

Figure 3.9

Distribution of Population Based on Repeat Status and Phase

Phase	Passed on First Attempt	Passed on Repeat Attempt
Phase I: Pre-GRP Spring 2007–Summer 2012	Group 1A	Group 2A
Phase II: Post-GRP Fall 2012–Summer 2017	Group 1B	Group 2B

The final step in determining the population was removing the student ID column in the spreadsheet. Once all students were properly classified, I had no further use for the identifying information. Student IDs did not remain in the study's research.

Statistical Analyses

This study was analyzed using chi-square tests to determine statistical significance at an Alpha value of 0.05. Chi-square tests were appropriate for this study due to the categorical nature of the collected data. The data in this study were originally categorized as follows:

- Phase of ACC 201 completion (availability of GRP): Phase I, Phase II

- Repeat status: passed on first attempt, passed on repeat attempt
- Residency status: resident, non-resident, other
- Gender: female, male, not reported; and
- Class standing status: sophomore, junior, senior

Upon receipt and compilation of the data, some of the groups above resulted in small subpopulations. Chi-square tests should not be used when the expected frequencies of subpopulations are "[five] or less" (Wright, 1979, p. 128). In such instances, "the researcher is advised to combine adjacent rows or columns if this will not result in a distortion of the data" (Hinkle et al., 2003, p. 563). The "Residency status" and "Class standing status" categories were reclassified as follows:

- Residency status: paid resident rate, did not pay resident rate; and
- Class standing status: sophomore, not sophomore

For the "Residency status" category, the "paid resident rate" group consisted of in-state residents as well as those who received exemptions to pay the resident rate of tuition, such as, but not limited to, converted residents, active duty military and their dependents, veterans and their dependents, students of certain ethnic backgrounds, and special talents. The "did not pay resident rate" group consisted of non-residents as well as those who received exemptions to pay a rate that was more expensive than the resident rate, but less than the non-resident rate, such as, but not limited to, WUE and students from certain countries.

For the "Class standing status" category, students' class standing at the time of original enrollment in ACC 201 was used. Due to the small quantities of repeat students in the "junior" and "senior" groups, the two groups were combined and renamed "not sophomore." Since ACC 201 enrollment required sophomore standing, students who were freshmen at the time of their

initial enrollment in ACC 201 were excluded from this study. This resulted in three freshmen being excluded from the study's population: one student was a male who passed ACC 201 on his first attempt in Phase I and paid the resident tuition rate, and two were males who passed ACC 201 on their second attempts as sophomores in Phase I and both paid the resident tuition rate.

In the "Gender" category, the "not reported" group only consisted of eight students, of which only one repeated the course in Phase II. Since there was no way to definitively recategorize these students into the "female" or "male" groups, and because this group was very small in comparison to the overall population, the students who had "not reported" as their gender were ultimately excluded from the study.

The study's entire population was used to test the first null hypothesis, which stated that the number of students who repeated ACC 201 prior to GRP (Phase I) was the same as the number of students who repeated after GRP was implemented (Phase II). That is, using the groups from Figure 3.9, Group 1A was expected to be the same as Group 1B, and Group 2A was expected to be the same as Group 2B. Phase I was used to determine the expected outcomes of Phase II, whereas Groups 1B and 2B were the observed outcomes.

Since the quantity of students in the Phase I population was larger than the Phase II population, the Phase I students were calculated as a percentage to determine the expected quantity of students in Phase II. The percentage was multiplied by the overall Phase II population to determine the expected quantity of students who passed on their first attempt (Group 1C) and the expected quantity of students who passed on a repeat attempt (Group 2C) in Phase II. Figure 3.10 shows these observed and expected groups for Phase II.

Figure 3.10

Phase II Observed and Expected Groups by Repeat Status

Frequency	Passed on First Attempt	Passed on Repeat Attempt
Phase II: Observed	Group 1B	Group 2B
Phase II: Expected	Group 1C	Group 2C

The one-way chi-square goodness-of-fit test was appropriate to evaluate H_{0A} because the repeat status variable was the only variable being evaluated. To test H_{0A}, the following equation[14] was used:

$$\chi^2 = \Sigma \frac{(Observed - Expected)^2}{Expected}$$

The two-way chi-square test of independence was used to determine if a correlation existed between the phase of enrollment and each dependent variable of residency status, gender, and class standing status for students who repeated ACC 201. Figure 3.11 is a sample contingency table for residency status (columns) and phase of enrollment (rows). Similarly to H_{0A}, Phase I was viewed as the expected outcome and Phase II was the observed outcome.

Figure 3.11

Sample Contingency Table for Repeat Students by Residency Status and Phase

	Residency		
Phase	Paid Resident Rate	Did Not Pay Resident Rate	Total
Phase I	a	b	a + b
Phase II	c	d	c + d
Total	a + c	b + d	N

[14] Equations for calculating chi-square and Yates' correction for continuity were used from Kranzler (2018).

All four hypotheses were tested with one degree of freedom; at the 0.05 level of significance, the critical value was 3.841. Since all tests only had one degree of freedom, Yates' correction for continuity was also calculated for each hypothesis to reduce errors in continuity. The following equation was used to calculate Yates' correction for the one-way chi-square:

$$\chi^2_Y = \Sigma \frac{(\,|Observed - Expected| - 0.5)^2}{Expected}$$

Using the criteria from Figure 3.11, Yates' correction for the two-way chi-square was calculated with the following equation for H_{0B}, H_{0C}, and H_{0D}:

$$\chi^2_Y = \frac{N\,(\,|ad - bc| - N/2)^2}{(a+b)\,(c+d)\,(a+c)\,(b+d)}$$

Institutional Review Board and Data Governance

Prior to beginning data collection, permission to conduct a human study was sought from the Institutional Review Board (IRB) which serves the institution's system. Initially, I requested exempt status and only mentioned the three Banner lists, as I had not yet received approval from the Business School to include their Business School Application List. The Business School granted my request for their application data while I awaited IRB approval. Shortly thereafter, once my study was approved, I submitted a modification request to the IRB to detail the additional data source. Documentation of IRB approval is included in Appendix C.

Upon approval of the modified protocol, I sought approval from the institution's system Data Governance Office (DGO; Reference Number: DGP 240709-1). The request detailed the sources of data and disclosed that I had already consulted with, and received initial support from, the institution's registrar and a Business School representative regarding the requested data. Following the approval from the DGO, the registrar's designee was charged with collecting and sending me my requested data from Banner.

Assumptions and Limitations of the Study

This study was framed by assumptions about the data and scope limitations. The study assumed that the provided data accurately reflected student characteristics and enrollment during the time frame of this study. Comparability of student populations and ACC 201 instructors was also assumed. This study was limited to GRP in a single course and assumed that the changes observed were the result of GRP and no other policies or practices enforced during the time of the study. Limitations included the study's time frame, its specific focus on ACC 201, and its specific focus on the first-time freshmen population.

This quantitative study relied on lists extracted from Banner and another list provided by the Business School; students were not consulted in this study to avoid their reporting misremembered or inaccurate information of grades earned and semesters of enrollment. I assumed that the data included in these lists were accurate. While students provided their information initially when they applied to the institution, I assumed that the Office of Admissions verified the information before recording it in Banner. Additionally, I assumed that the Office of Admissions accurately assigned the attribute of student type included in the Applicant Enrollment Extract. Other attributes, such as high school GPA, were not included in the study because I was unable to determine if the high school GPA included in the Applicant Enrollment Extract was the GPA on students' final high school transcripts, the GPA from an incomplete high school transcript, or the self-reported high school GPA at the time the application was submitted to the institution.

Other student characteristics that were used in this study included residency status, gender, and class standing status. This study assumed that the distribution percentages of those characteristics at the institution remained consistent during the study's time frame. Further, it

was assumed that the distribution percentages of residency status, gender, and class standing status remained consistent among students pursuing admission to the Business School during the study's time frame.

Beyond these select characteristics, the study also assumed that the student populations in Phases I and II were comparable. Some characteristics, such as age and permanent address, while available, were not included in this study due to the wide variations in age range and residence addresses among students, as the institution has previously admitted and enrolled students of all ages, states, and numerous countries and territories. Other characteristics, such as college readiness coursework and socioeconomic status, are not recorded in Banner and therefore were not considered.

During the course of this study, more than one instructor taught ACC 201. This study assumed that ACC 201 instructors were interchangeable and graded similarly. Differences in assignments, exams, and grading were not measured or tested for consistency.

GRP was not the only policy that had the potential to impact repeat enrollment and GPAs. Marx and Meeler (2013b) noted that other policies, such as withdrawal deadlines and non-weighted grades of pass or fail, allow students to "manage" their GPAs (para. 3). This study only focused on GRP and assumed that the observed outcomes were the result of GRP alone and not due to other institutional policies that were operating during the study's time frame.

This study was limited to ACC 201 enrollment in the 17 terms prior to GRP and the 15 terms after GRP's implementation in Fall 2012 for students admitted to the Business School in the 10 semesters prior to and 10 semesters after implementation. This time frame ensured that the ACC 201 course remained consistent. In Fall 2019, the Department of Accounting implemented a change in course sequencing by introducing a new course, ACC 200, which resulted in a

change to the Business School's admission requirements. To avoid the statistical comparison complications caused by this change, the study's time frame concluded prior to the first offering of ACC 200.

This study measured the use of a repeat policy specifically for a single course. However, GRP may be applied to any course that students originally take and repeat at the institution. ACC 201 was chosen for this study because it was a gateway course that students took for admission to the Business School. For the students in this study's population, it was assumed that they chose to repeat ACC 201 in order to gain admission to the Business School. Students who were not admitted to the Business School were excluded from the study's population.

This study's population was limited to first-time freshmen. This specific characteristic was used to ensure that students had access to the institution's GRP because repeat policies and GPA recalculations are institution-specific within the institution's system. By limiting the study to first-time freshmen, I was able to exclude the students who were more likely to have ACC 201 in transfer.

Chapter Summary

This study examined the impacts of a repeat policy on admission to selective majors by comparing groups of students who passed a required course prior to and after the policy's implementation. This chapter detailed the time frame and data sources for the study, as well as how the available data was used to determine the study's population. This study utilized chi-square tests to determine if statistically significant correlations existed between the following variables: availability of GRP, repeat status, residency status, gender, and class standing status. Chapter Four will detail the findings of the study, based on the methods listed in this chapter.

Chapter IV. Results

This chapter displays the results of the study, beginning with the determination of the study's population and followed by the results of the chi-square tests conducted for each of the study's four null hypotheses. Each null hypothesis tested a dependent variable against the study's independent variable of the availability of the Grade Replacement Policy (GRP).

Population

The methods described in the previous chapter were used to compile the lists of student enrollment in the Accounting (ACC) 201 course and admission data that I received from the registrar's designee and the Business School after my request for data was approved by the Data Governance Office (DGO). The initial compilation of the lists totaled 6,411 unique first-degree seeking undergraduates enrolled in ACC 201 for a letter grade between Fall 2005 and Summer 2017, who were enrolled in 7,106 seats; 610 of these students repeated the course up to four times, meaning that they earned two to five grades in their attempts of the course. The population was then refined to those enrolled in ACC 201 for the first time between Spring 2007 and Summer 2017 (the time frame of the study), which totaled 5,492 students (the outermost ring in Figure 3.8) who enrolled in 6,110 seats; of these, 4,474 students passed their final attempt at the institution in 4,923 attempts (the second outermost ring in Figure 3.8). The number of these students who were admitted to the Business School between Spring 2008 and Fall 2017 was 2,234 students with 2,424 attempts (the second innermost ring in Figure 3.8); 176 students repeated the course. This total excluded the Freshman Direct Admit Program (FDAP) students. The first-time freshmen of this population who were admitted to the institution between Spring 2006 and Summer 2017 consisted of 1,533 students who enrolled in 1,664 seats (the innermost ring in Figure 3.8); 118 students were repeat students. Lastly, eight students who had their

gender listed as “not reported” and three students who were freshmen at the time of ACC 201 enrollment were excluded from the final population (see the “Statistical Analyses” section in Chapter Three for further explanation of these 11 excluded students).

This resulted in a population of 1,522 students for this study. For context, Table 4.1 categorizes the 8,635 applications submitted by first-degree seeking undergraduate students who applied to the Business School during this study’s time frame of Spring 2008 through Fall 2017, based on data included in the Business School Application List. Students whose applications were cancelled or denied were not admitted for the stated term; if these students were still interested in pursuing a business major, they were required to submit a new application for admission in a subsequent semester. Between Spring 2008 and Fall 2017, 4,616 students were admitted to the Business School; this number is inclusive of the study’s population as well as the study’s excluded groups of transfer and FDAP students (several of whom submitted applications), and first-time freshmen who enrolled in ACC 201 outside of the institution.

Table 4.1

Business School Applications by Application Status: Spring 2008–Fall 2017

	Application Status		
Term	Admit	Cancelled	Deny
Spring 2008	226	2	184
Fall 2008	251	5	257
Spring 2009	196	1	129
Fall 2009	267	10	261
Spring 2010	200	2	161
Fall 2010	262	7	241
Spring 2011	192	3	124
Fall 2011	248	6	247

	Application Status		
Term	Admit	Cancelled	Deny
Spring 2012	219	6	150
Fall 2012	300	4	244
Spring 2013	191	1	145
Fall 2013	276	4	255
Spring 2014	198	3	142
Fall 2014	322	6	241
Spring 2015	159	1	141
Fall 2015	266	4	235
Spring 2016	164	0	172
Fall 2016	233	3	236
Spring 2017	213	8	147
Fall 2017	233	9	222
Total	4616	85	3934

Table 4.2 lists the 5,555 undergraduate degrees awarded by the Business School between academic years 2008–2009 (earliest year with data available) and 2017–2018; the academic year spans fall, spring, and summer terms. Although this study's time frame began in Spring 2008 for admitted Business School students, the Spring 2008 and Summer 2008 graduation terms were not included in this table, as they would have been reported for the 2007–2008 academic year, for which data was not available. The Fall 2017 graduation data was reported with Spring 2018 and Summer 2018 data in academic year 2017–2018. A single student may be counted more than once in a given year due to graduating with more than one business major.

Table 4.2

Undergraduate Degrees Awarded by the Business School: Academic Years 2008–2009 to 2017–2018

Academic Year	Degrees Awarded
2008–2009 [a]	495
2009–2010 [b]	530
2010–2011 [c]	523
2011–2012 [d]	574
2012–2013 [e]	512
2013–2014 [f]	595
2014–2015 [g]	558
2015–2016 [h]	633
2016–2017 [i]	551
2017–2018 [j]	584
Total	5555

[a] (Institutional Research, Analysis and Planning Office, 2022g). [b] (Institutional Research, Analysis and Planning Office, 2022h). [c] (Institutional Research, Analysis and Planning Office, 2022d). [d] (Institutional Research, Analysis and Planning Office, 2022e). [e] (Institutional Research, Analysis and Planning Office, 2022f). [f] (Institutional Research, Analysis and Planning Office, 2022i). [g] (Institutional Research, Analysis and Planning Office, 2022j). [h] (Institutional Research, Analysis and Planning Office, 2022a). [i] (Institutional Research, Analysis and Planning Office, 2022b). [j] (Institutional Research, Analysis and Planning Office, 2022c).

Table 4.3 categorizes the study's population by ACC 201 attempt and during which phase the students attempted ACC 201 for the final time. Phase I consisted of students whose final passing attempt of ACC 201 was between Spring 2007 and Summer 2012, when GRP was not available; Phase II consisted of students whose final passing attempt of ACC 201 was between Fall 2012 and Summer 2017, when GRP was available.

Table 4.3

Study Population by ACC 201 Repeat Status and Phase

Phase	Initial Attempt	Repeat Attempt	Total
Phase I	722	49	771
Phase II	685	66	751
Total	1407	115	1522

When all repeat attempts were tallied individually, the 1,522 students were enrolled in 1,650 seats of ACC 201. Table 4.4 displays the quantity of enrollments for the students who repeated ACC 201. These 115 students, which equated to 7.56% of the study's population, enrolled in ACC 201 a total of 243 times, of which 128 seats were occupied by a repeat attempt.

Table 4.4

Repeat Subpopulation by Quantity of Repeat Attempts and Phase

Phase	Second Attempt	Third Attempt	Fourth Attempt	Fifth Attempt	Total
Phase I	48	1	0	0	49
Phase II	56	9	0	1	66
Total	104	10	0	1	115

Data Analyses

This study utilized chi-square one-way and two-way tests to evaluate the four null hypotheses. A one-way chi-square goodness-of-fit test was used to test the first null hypothesis, which included the study's entire population, and two-way chi-square tests of independence were used to test the second, third, and fourth null hypotheses, which only focused on the 115 students who passed ACC 201 on a repeat attempt. All tests used an Alpha value of 0.05 and one degree

of freedom to compare its calculated chi-square (χ^2) to the critical value of 3.841. Calculated numbers will be reported to the thousandth decimal place and percentages will be reported to the hundredth decimal place.

Null Hypothesis H_{0A}

To test the first null hypothesis (H_{0A}), which stated that "There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy," the data from Phase I in Table 4.3 was converted to percentages and used to determine the expected values for Phase II. In Phase I, 93.64% of students passed ACC 201 on their first attempt; 6.36% passed on a repeat attempt. If the percentages of students who passed ACC 201 on their first attempt or a repeat attempt were the same after GRP was implemented, then, rounded to the nearest whole number, 703 students in Phase II were expected to have passed on their first attempt and 48 were expected to have passed on a repeat attempt. The Phase II observed and expected values are listed in Table 4.5.

Table 4.5

Phase II Enrollment Frequencies

Frequency	Initial Attempt	Repeat Attempt
Observed	685	66
Expected	703.271	47.729

The comparison of the frequency values in Table 4.5 shows that less Phase II students passed ACC 201 on their first attempt and more students passed on a repeat attempt than anticipated. The calculated χ^2 was 7.469. Since this value was greater than the critical value of 3.841 with one degree of freedom, the null hypothesis was rejected. The calculated χ^2 for Yates' correction was 7.428, which still resulted in the null hypothesis being rejected. Therefore, the

alternate hypothesis, which stated that "There are differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy," failed to be rejected. The calculated χ^2 was statistically significant at $p < .05$. The implications of this result will be discussed in Chapter Five.

Multiple Repeat Attempts. In examining the repeat population specifically, there was also a notable increase in the percentage of students who repeated ACC 201 more than once. In Phase I, only 2.04% of the repeat subpopulation (one student) passed ACC 201 on their third attempt (second repeat) or more. In Phase II, this percentage was 15.15% (10 students): nine students passed on the third attempt and one student passed on their fifth attempt. This finding will be discussed in Chapter Five.

Null Hypothesis H_{0B}

The second null hypothesis (H_{0B}) focused on students' residency statuses as the dependent variable and stated that "There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their residency status." Table 4.6 categorizes the study's population by residency status, repeat status, and phase of enrollment.

Table 4.6

Population by Residency Status, Repeat Status, and Phase

	Paid Resident Rate			Did Not Pay Resident Rate		
Phase	Initial Attempt	Repeat Attempt	Total	Initial Attempt	Repeat Attempt	Total
Phase I	580	39	619	142	10	152
Phase II	530	51	581	155	15	170
Total	1110	90	1200	297	25	322

In the study's overall population of 1,522 students, 78.84% were students who paid the resident tuition rate and 21.16% were students who did not pay the resident tuition rate. In Phase I specifically, 80.29% of students paid the resident rate of tuition and 19.71% did not. In Phase II, the percentage of students who paid the resident rate of tuition fell to 77.36% and the percentage of students who did not pay the resident rate of tuition rose to 22.64%. The percentage of students who did not pay the resident rate of tuition increased by almost twelve percent from Phase I to Phase II, but they remained the minority group in both phases.

Students who paid the resident rate of tuition and passed on their initial attempt of ACC 201 consisted of 93.70% of the Phase I resident rate subpopulation. Comparatively, 93.42% of students who did not pay the resident rate in Phase I passed on their initial attempt. In Phase II, 91.22% of resident rate-paying students and 91.18% of students who did not pay the resident rate passed ACC 201 on their initial attempt.

For the 115 students in the repeat subpopulation, from Phase I to Phase II, the percentage of students who passed ACC 201 on a repeat attempt increased for both subpopulations: 6.30% to 8.78% for students who paid the resident rate of tuition, and 6.58% to 8.82% for students who did not pay the resident rate of tuition. This equated to a Phase II growth of 30.77% for students who paid the resident rate and 50.00% for the students who did not pay the resident rate. Table 4.7 categorizes the repeat students by repeat attempt, residency status, and phase of enrollment.

Table 4.7

Repeat Students by Attempt, Residency Status, and Phase

Residency Status	Second Attempt	Third Attempt	Fourth Attempt	Fifth Attempt	Total
Paid Resident Rate					
Phase I	38	1	0	0	39
Phase II	44	6	0	1	51
Total	82	7	0	1	90
Did Not Pay Resident Rate					
Phase I	10	0	0	0	10
Phase II	12	3	0	0	15
Total	22	3	0	0	25

Among the resident rate-paying students who repeated the course, only one student (2.56%) in Phase I completed ACC 201 on a third attempt (second repeat) or later. This quantity increased to seven students (13.73%) in Phase II. In Phase I for the subpopulation of repeat students who did not pay the resident rate, all 10 repeat attempts were completed on the second attempt (first repeat); this subpopulation did not have an overall attempt higher than the first repeat. In Phase II, three students (20.00%) of the repeat students who did not pay the resident rate passed ACC 201 on their third attempt (second repeat). Only one student passed ACC 201 on an attempt higher than the third: this student paid the resident rate of tuition and passed their fifth attempt of ACC 201 in Phase II.

The calculated frequency expectations for residency status and phase for repeat students are listed in Table 4.8. The information in this table was used to calculate the χ^2 of 0.089. Since this value was lower than the critical value, the null hypothesis failed to be rejected. This result

was checked using Yates' correction, which had a calculated χ^2 of 0.005, which was still below the critical value of 3.841. The alternate hypothesis, which stated "There are differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their residency status," was rejected.

Table 4.8

Expected Frequencies for Repeat Students by Residency Status and Phase

Phase	Paid Resident Rate	Did Not Pay Resident Rate
Phase I	38.348	10.652
Phase II	51.562	14.348

Null Hypothesis H_{0C}

The third null hypothesis (H_{0C}) stated that "There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their gender." The dependent variable for H_{0C} was students' genders at the time of successful ACC 201 completion. Table 4.9 categorizes the study's population by gender, repeat status, and phase of enrollment.

Table 4.9

Population by Gender, Repeat Status, and Phase

	Female			Male		
Phase	Initial Attempt	Repeat Attempt	Total	Initial Attempt	Repeat Attempt	Total
Phase I	326	24	350	396	25	421
Phase II	327	34	361	358	32	390
Total	653	58	711	754	57	811

The overall population consisted of 46.71% female students and 53.29% male students. In Phase I, 45.40% of students were classified as female and 54.60% were male. In Phase II, the female population increased to 48.07% and the male population decreased to 51.93%.

On average, 8.16% of females and 7.03% of males repeated ACC 201. These percentages, when examined by phase, showed an increase for both genders: 6.86% of females in Phase I and 9.42% of females in Phase II passed ACC 201 on a repeat attempt; for males, those percentages were 5.94% in Phase I and 8.21% in Phase II. Table 4.10 categorizes specifically the repeat students by repeat attempt, gender, and phase of enrollment.

Table 4.10

Repeat Students by Attempt, Gender, and Phase

Gender	Second Attempt	Third Attempt	Fourth Attempt	Fifth Attempt	Total
Female					
Phase I	23	1	0	0	24
Phase II	31	3	0	0	34
Total	54	4	0	0	58
Male					
Phase I	25	0	0	0	25
Phase II	25	6	0	1	32
Total	50	6	0	1	57

Among the repeat population alone, females were the slight majority of the subpopulation, with 50.43%. In Phase I, male students consisted of 51.02% of the repeat population; in Phase II, female students were the majority with 51.52%. From Phase I to Phase

II, the quantity of female students who repeated the course grew by 41.67% and the quantity of male students grew by 28.00%.

In Phase II, 8.82% of females who repeated the course (three students) completed ACC 201 on their third attempt, which was greater than the 4.17% (one student) in Phase I; no female student attempted ACC 201 more than three times in either phase. As for males who repeated ACC 201 in Phase II, 21.88% (seven students) attempted the course three or five times before passing the course; in Phase I, all male repeat students (25 students) completed ACC 201 on their second attempt.

The calculated χ^2 for the repeat students by gender was 0.072. The calculated χ^2 for Yates' correction was 0.006. Since both values were lower than the critical value, the null hypothesis failed to be rejected; the alternate hypothesis, which stated that "There are differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their gender," was rejected. Table 4.11 lists the expected gender frequencies used to calculate the χ^2.

Table 4.11

Expected Frequencies for Repeat Students by Gender and Phase

Phase	Female	Male
Phase I	24.713	24.287
Phase II	33.287	32.713

Null Hypothesis H_{0D}

The fourth and final null hypothesis (H_{0D}) for this study stated that "There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their class standing status." This

hypothesis used class standing status as its dependent variable. Table 4.12 displays the study's population by repeat status, class standing at the time of initial enrollment in ACC 201, and phase of enrollment.

Table 4.12

Population by Repeat Status, Initial Class Standing, and Phase

Initial Class Standing	Initial Attempt	Repeat Attempt	Total
Sophomore			
Phase I	530	41	571
Phase II	508	60	568
Total	1038	101	1139
Junior			
Phase I	175	8	183
Phase II	157	4	161
Total	332	12	344
Senior			
Phase I	17	0	17
Phase II	20	2	22
Total	37	2	39

Students who were sophomores during their first attempt of ACC 201 consisted of 74.84% of the study's population; juniors were 22.60%, and seniors were 2.56%. In Phase I, 92.82% of sophomores, 95.63% of juniors, and 100.00% of seniors passed ACC 201 on their first attempt. In Phase II, those percentages were 89.44%, 97.52%, and 90.91%, respectively. Notably, the percentage of students who passed ACC 201 on their first attempt decreased for students who were sophomores or seniors during their initial enrollment, while the percentage of

juniors increased, from Phase I to Phase II. Specifically for seniors, all 17 students who attempted ACC 201 in Phase I passed it on their first attempt; in Phase II, 20 passed on their first attempt and two passed on a repeat attempt.

Table 4.13 displays repeat students by attempt, their class standing at the time of their initial ACC 201 attempt, and phase of enrollment. Among the 115 students in the repeat population, 87.83% were students who were sophomores when they registered for ACC 201 for the first time.

Table 4.13

Repeat Students by Attempt, Initial Class Standing, and Phase

Initial Class Standing	Second Attempt	Third Attempt	Fourth Attempt	Fifth Attempt	Total
Sophomore					
Phase I	40	1	0	0	41
Phase II	50	9	0	1	60
Total	90	10	0	1	101
Junior					
Phase I	8	0	0	0	8
Phase II	4	0	0	0	4
Total	12	0	0	0	12
Senior					
Phase I	0	0	0	0	0
Phase II	2	0	0	0	2
Total	2	0	0	0	2

As described in Chapter Three, the students in the junior and senior groups were combined to establish the "not sophomore" group to test H_{0D}. Table 4.14 displays the study's

population by class standing status, repeat status, and phase of enrollment. From Phase I to Phase II, the number of students classified as "not sophomore" decreased by 8.50%; among the repeat population specifically, this subgroup decreased by 25.00%.

Table 4.14

Population by Class Standing Status, Repeat Status, and Phase

	Sophomore			Not Sophomore		
Phase	Initial Attempt	Repeat Attempt	Total	Initial Attempt	Repeat Attempt	Total
Phase I	530	41	571	192	8	200
Phase II	508	60	568	177	6	183
Total	1038	101	1139	369	14	383

H_{0D}'s calculated χ^2 was 1.377. The calculated χ^2 for Yates' correction was 0.783. Since both calculated values were less than the anticipated critical value, the null hypothesis failed to be rejected. The alternate hypothesis, which stated that "There are differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their class standing status," was rejected. Table 4.15 lists the expected frequencies for the class standing statuses that were used to calculate the χ^2.

Table 4.15

Expected Frequencies for Repeat Students by Class Standing Status and Phase

Phase	Sophomore	Not Sophomore
Phase I	43.035	5.965
Phase II	57.965	8.035

Chapter Summary

This chapter detailed the study's final population of 1,522 students, and their dependent variable classifications of repeat status, residency status, gender, and class standing status. The whole population was used to test H_{0A} with a one-way chi-square goodness-of-fit test. The study's three other null hypotheses were tested using the 115 students who repeated ACC 201 and successfully passed their repeat attempt at the institution. H_{0B}, H_{0C}, and H_{0D} were tested with two-way chi-square tests of independence. Each calculated χ^2 and corresponding calculated χ^2 from Yates' correction for continuity were compared to the critical value of 3.841, which was derived from an Alpha value of 0.05 and one degree of freedom.

The first null hypothesis, which used repeat status as its dependent variable and the availability of GRP as its independent variable, was rejected. The second, third, and fourth null hypotheses, which used residency status, gender, and class standing status as dependent variables, respectively, failed to be rejected. Chapter Five will discuss these findings. The next chapter will also include suggestions for theory, practice, and additional research, at multiple levels.

Chapter V. Discussion and Implications

This quantitative study examined a population of students who passed the Accounting (ACC) 201 gateway course at the institution and were subsequently admitted to the institution's Business School. A subset of this population needed to repeat ACC 201 in order to have a high enough grade for admission; depending on when the students repeated the course, they may or may not have had access to the institution's Grade Replacement Policy (GRP), which assisted them in improving their grade point averages (GPAs) for admission. This chapter discusses the study's findings that were presented in Chapter Four in relation to the four null hypotheses and the research question. Implications for theory and practice, and opportunities for future research are also presented.

Discussion

This dissertation conducted four chi-square tests to determine whether GRP availability, as the independent variable, impacted the dependent variables of repeat status, and students' residency status, gender, and class standing status at the time of ACC 201 enrollment. The outcomes of each null hypothesis, one of which was rejected and three of which failed to be rejected, are examined below. This section also answers the study's research question.

Null Hypothesis H_{0A}

The first null hypothesis (H_{0A}) served as the main hypothesis for this study; it measured students' repeat statuses against the availability of GRP. H_{0A} stated that "There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy." The one-way chi-square goodness-of-fit test, as well as Yates' correction for continuity, both resulted in calculated chi-squares (χ^2) greater than the critical value. Therefore, H_{0A} was rejected and its corresponding alternate

hypothesis, H_{1A}, which stated that there are differences in the number of students, failed to be rejected. This means that following the implementation of GRP, there was a statistically significant difference between the expected and observed frequencies of students who repeated and completed ACC 201 at the institution. The Business School accepted more students who repeated ACC 201 after the implementation of GRP; thus, GRP likely helped repeat students declare a business major.

Multiple Repeat Attempts. A larger number of students repeated ACC 201 more than once in Phase II than Phase I. The increase in Phase II could be due to GRP only using the most recently earned grade in GPA calculation instead of prior attempts. For example, the student who attempted ACC 201 five times in Phase II only had the fifth attempt—which was the passing attempt—included in their GPAs; the initial four grades were excluded. If this student had attempted ACC 201 five times in Phase I, when GRP was not available, all five grades would have been factored into their Pre-Business Core and cumulative GPAs; the inclusion of the four non-passed attempts would have made it very difficult for the student to reach the minimum 2.50 GPAs for admission. The availability of GRP could have encouraged students to choose to repeat the course more than once to improve their GPAs and continue their pursuit of admission to the Business School.

Null Hypothesis H_{0B}

The second null hypothesis (H_{0B}) stated that "There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their residency status." H_{0B} was the first of three hypotheses that focused exclusively on the 115 students who repeated ACC 201. The two-way chi-square test of

independence used students' residency statuses as the dependent variable. The calculated χ^2 was less than the critical value and H_{0B} failed to be rejected.

Despite increases in both groups of students who paid the resident rate of tuition and those who did not pay the resident rate among the repeat subpopulation from Phase I to Phase II, the result of H_{0B}'s chi-square test was not statistically significant at $p < .05$. The availability and use of GRP in Phase II appears to have affected the groups similarly. Thus, it was appropriate that H_{0B} failed to be rejected. H_{0B}'s alternate hypothesis, H_{1B}, which stated that "There are differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their residency status," was rejected.

Null Hypothesis H_{0C}

The third null hypothesis (H_{0C}) used students' genders as its dependent variable. Although the percentage of females in the study increased from Phase I to Phase II, the population's male students maintained the majority in both phases. Similar to the residency status percentages of the repeat population, both genders' percentages increased in Phase II. Also similar to H_{0B}'s results, the calculated χ^2 for H_{0C} was less than the critical value. H_{0C}, which stated that "There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their gender," failed to be rejected. This finding was not statistically significant at $p < .05$; the changes in the quantity of students in the gender groups among the repeat subpopulation after the implementation of GRP may be attributed to normal fluctuations of chance.

While this study's population was predominantly male, the majority of the institution's undergraduate population during the study's time frame, from Fall 2008 (the earliest semester in which data was available) to Fall 2017, was consistently female around fifty-four percent

(Institutional Research, Analysis and Planning Office, 2024a, 2024b). However, male students were the majority of the Business School's population[15] until Spring 2016 (Institutional Research, Analysis and Planning Office, 2024c). Similar to the Business School's population, male students were the majority in both phases of this study, but female repeat students were the higher percentage of the repeat subpopulation in Phase II.

Null Hypothesis H_{0D}

The fourth null hypothesis (H_{0D}) stated that "There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their class standing status." The dependent variable in this hypothesis was the class standing statuses of students who successfully completed ACC 201 on a repeat attempt. The repeat subpopulation compared sophomores to the higher class standings of juniors and seniors, which were tabulated together as the "not sophomore" group. The two-way chi-square test of independence resulted in the failure to reject H_{0D}. Although the "not sophomore" group was the only subgroup among repeat students that decreased in Phase II, the change was not statistically significant. The alternative hypothesis, H_{1D}, was rejected.

Change in Class Standing. While H_{0D} tested class standing status at the time repeat students enrolled in ACC 201 for the first time, it did not measure the class standing they were in upon completion of their repeat attempts. To further research this aspect of class standing, I devised a subsidiary null hypothesis to test changes in class standing: "There are no differences in the number of admitted Business School students who repeated ACC 201 prior to and after implementation of Grade Replacement Policy and their change in class standing status." The repeat subpopulation was categorized into two groups: those who completed the course in the

[15] Students who are pursuing admission to the Business School, but are not yet admitted, are not classified as part of the Business School's population.

same class standing (e.g., students who were sophomores during their initial and final attempts) and those who were in a different class standing at the time of completion (e.g., students who were sophomores during their initial attempt, but juniors or seniors during their final attempt). During both phases, students were only allowed to earn credit for ACC 201 once; repeating ACC 201 alone did not result in more than three credits being earned, and credit for ACC 201 could only be earned on a repeat attempt if the previous attempt resulted in a "F" grade. Students were only allowed to enroll in ACC 201 once per fall and spring semesters because the institution does not offer accelerated terms; in summer, two terms are offered. As a result, an increase in class standing was likely due to passing other courses that were taken between or concurrently with the ACC 201 attempts.

Table 5.1 recategorizes the study's population to show those who passed ACC 201 in the same class standing against those who passed in a different class standing by phase of enrollment. Students who repeated the course were split between those who were the same class standing at the time of completion and those who were a different class standing at the time of completion. Additional data tables for this subsidiary test, including the repeat subpopulation by initial and repat attempts' class standings, may be found in Appendix D.

Table 5.1

Population by Change in Class Standing Status, Repeat Status, and Phase

	Same Class Standing			Different Class Standing
Phase	Initial Attempt	Repeat Attempt	Total	Repeat Attempt
Phase I	722	29	751	20
Phase II	685	24	709	42
Total	1407	53	1460	62

From Phase I to Phase II, the percentage of repeat students who were in the same class standing during their initial and final repeat attempts decreased by 17.24%. As expected, the quantity of repeat students who were in a different class standing at the time of successful ACC 201 completion increased from Phase I to Phase II; this group increased by 110.00%.

The calculated χ^2 for the subsidiary null hypothesis was 5.893 and the calculated χ^2 for Yates' correction was 5.011. Since both calculated values were greater than the anticipated critical value, the subsidiary null hypothesis was rejected. This result was statistically significant at $p < .05$. After the implementation of GRP, students who repeated ACC 201 were more likely to be in a different class standing at the time they successfully completed the course. If students completed ACC 201 in a different class standing, such as juniors and seniors, they were likely admitted to the Business School later in their collegiate careers; instead of being admitted at the beginning of junior year, these students may have been admitted in their second semester of junior year or even as seniors. This delay in admission and declaration may impact students' time-to-degree, which is discussed in the "Suggestions for Future Research" section later in this chapter.

Research Question

This study was designed to answer the following research question: "What are the effects of the Grade Replacement Policy at the institution on students enrolled in a Pre-Business course who are subsequently admitted to the Business School?" The population selected for this study consisted of students who were admitted to the Business School as juniors and seniors, and who completed their initial and, if necessary, repeat attempts, of ACC 201 at the institution. The main dependent variable in this study was students' repeat statuses for ACC 201. Three of the four null hypotheses focused exclusively on the students who needed to repeat ACC 201. The answer

to the research question impacts the students in this study's population, the Business School, and the institution.

Based on the results of H_{0A}, more students who needed to repeat the Pre-Business Core course of ACC 201 were able to gain admission to the Business School following the implementation of GRP; the policy allowed repeating students to improve their GPAs for admission. This gave repeating students the opportunity to continue pursuing their desired business major; prior to GRP, if students repeated too many courses or did not earn grades that averaged to at least a 2.50 GPA, it was mathematically unlikely for students to reach the requisite GPAs for admission to the Business School. Inadmissible students needed to pursue a non-business major if they wanted to complete a bachelor's degree at the institution.

GRP allows students to remain eligible for admission to the Business School by giving them additional opportunities to pass the Pre-Business Core courses. At the pre-admission level, students' repetition of Pre-Business Core courses could increase demand for these seats; this includes not only the students pursuing admission to the Business School, but also the students who want to retake courses to improve their GPAs even though they are no longer planning to major in business. At the post-admission level, a larger admitted class could increase the demand for seats in the major-specific business courses. The increases in demand at both levels will require the Business School to allocate resources to provide an adequate number of seats in its courses to accommodate first-time and repeat students. These resources include instructors as well as classrooms for face-to-face course offerings.

The findings of this study indicate that GRP is allowing students to pursue admission to majors that have higher GPA requirements, such as business. This implies that GRP is meeting one of its objectives, as students' inability to declare majors that require higher GPAs, due to

repeat coursework, was a concern raised by the Institutional Faculty Senate (IFS) subcommittee that proposed GRP (Rai, 2011). However, additional study is required to determine if GRP is addressing the other concerns that were raised when it was initially introduced to the IFS: increasing first- to second-year retention, removing students from probation, and increasing the graduation rate; these outcomes were beyond the scope of this study. The rejection of H_{0A} and the subsidiary null hypothesis implied that although more repeat students were able to gain admission to the Business School, they were admitted at higher class standings—meaning, as second-semester juniors and seniors—instead of first-semester juniors. Students who repeated and passed ACC 201 as juniors and seniors still needed to complete the next course in the accounting sequence—ACC 202—before being admitted to the Business School. The institution will need to conduct additional research to determine if GRP impacted time-to-degree.

Although the name "Grade Replacement Policy" is linked to the institution featured in this study, other campuses within the institution's system, as well as many other non-system institutions, have their own versions of course repeat policies under various names. The findings of this study contribute to the body of research on repeat policies at the institutional-, system-, and national levels. The following sections will discuss the implications of this study for theory, practice, and future research.

Implications for Theory

This study focused on the evaluation and maintenance stages of the Policy Life Cycle and the fourth frame of the Educational Policy Analysis Framework (EPAF) in order to contribute to the literature on the impact of repeat policies on enrollment and student success in selective admission majors. As explained in Chapter One, the 2012 GRP has already passed stages one through four of the Policy Life Cycle and frames one through three of the EPAF; however, in the

years since its implementation, it has not advanced to the fifth stage or the fourth frame. As such, this dissertation emphasized the later stages and final frame of the Policy Life Cycle and the EPAF for GRP.

The fifth stage of the Policy Life Cycle and the fourth frame of the EPAF both analyze policy implementation and outcomes to determine the policy's effectiveness (Cheng & Cheung, 1995; Jann & Wegrich, 2007). The evaluation of a policy determines whether the policy is fulfilling its purpose, whether it has created an adverse—possibly unforeseen—outcome, and the pay-offs of that policy. Cheng and Cheung (1995) define pay-offs as "what are paid or lost in policy implementation" (p. 19). This study's findings indicate that GRP has resulted in the following outcomes for students who took ACC 201: a greater number of repeat students were admitted to the Business School and a greater number of repeat students passed the course in a different class standing. IFS should conduct its own evaluation of GRP to determine if the policy is meeting its other goals of improving retention and graduation rates. IFS's evaluation should also measure any changes in enrollment demand and time-to-degree before and after GRP's implementation; these findings should be used to determine if the changes are acceptable pay-offs for GRP's benefits.

The sixth and final stage of the Policy Life Cycle is maintenance (Jann & Wegrich, 2007). This stage is used to determine the next iteration of a policy: if it is operating as planned, it may continue and be revisited later; if improvements can be made, it may be revised and the cycle starts anew; or if the pay-offs outweigh the benefits of the policy and it cannot be revised, it may be terminated. When GRP was originally revised in 2012, the revision was considered to be "a temporary amendment" (Mānoa Faculty Senate, 2012b, p. 1) until the time in which Banner was programmed to enforce the stipulations of the original 2011 version. Given that 12

years have passed since the amended policy was implemented, the results of GRP's evaluation may prompt an alternative maintenance outcome rather than a return to the 2011 policy's stipulations.

Although the purpose of this dissertation did not involve making a formal recommendation to the IFS, I highly encourage the IFS to devote time and resources to fully evaluate the 2012 GRP and complete the unattained stages and frame of the Policy Life Cycle and the EPAF. The findings of this study indicate that—within the study's population—GRP is meeting at least one of its goals of helping students who repeat courses to gain admission to majors that have higher GPA requirements; however, additional examination is needed to determine if GRP is meeting its other goals as well as its impact on other campus populations and the undergraduate student body as a whole. The results of a full evaluation of GRP will assist the IFS in determining whether the policy should continue, be revised, or be terminated.

Implications for Practice

The institution-specific nature of policies allows campuses to design protocols to meet the specific needs of their respective student populations. While the implications for practice presented in this section were derived from this study—which featured a single institution—the implications can be considered for application at other institutions that have similar findings stemming from studies into their own repeat policies. These implications include planning for enrollment and student support, and providing resources for future studies.

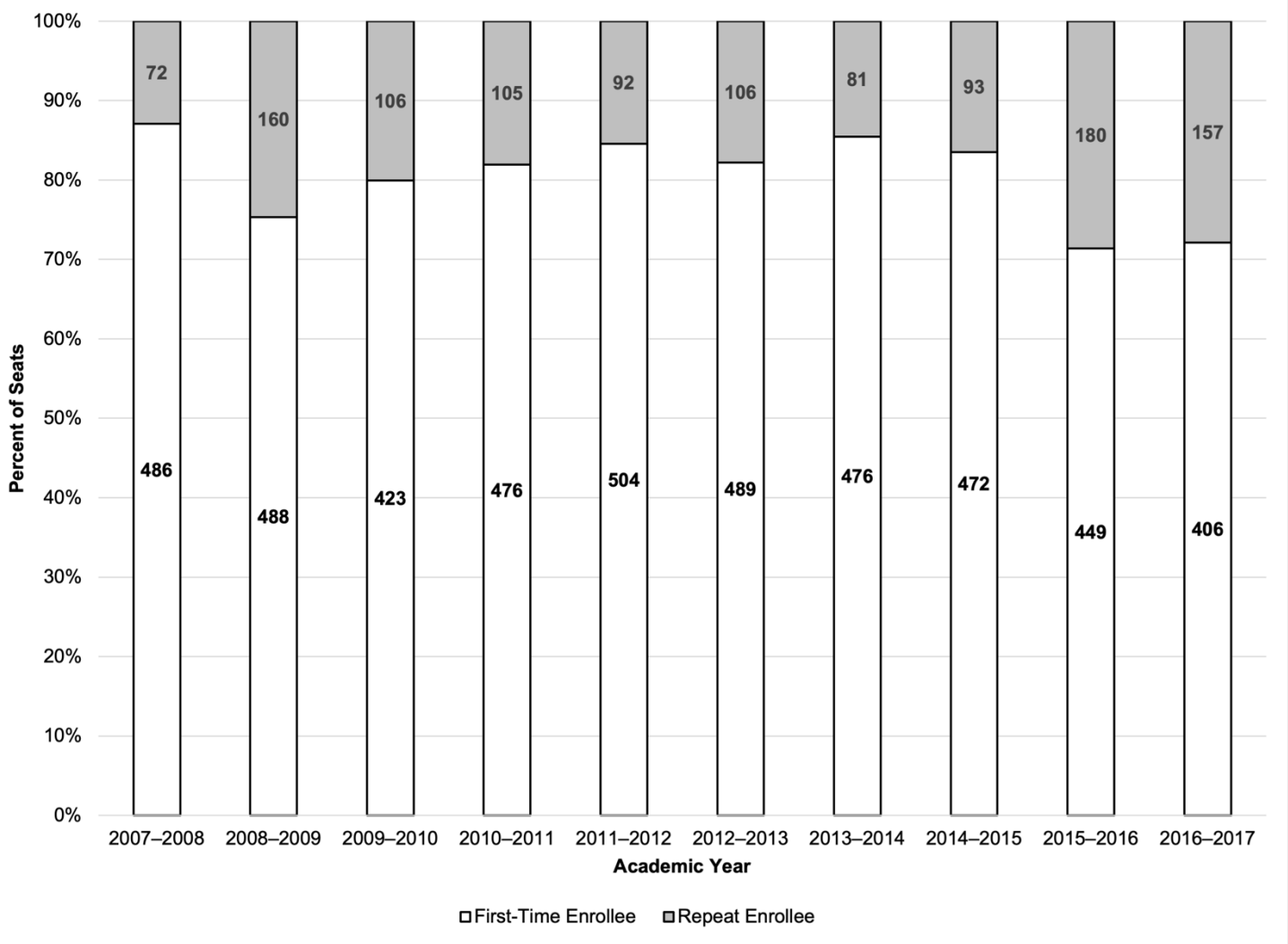
This study showed that, as anticipated, the number of students who repeated ACC 201 and were admitted to the Business School increased after the implementation of GRP; focusing on students with multiple repeat attempts, the percentage of repeat students who passed on their third attempt (second repeat) or higher also increased from Phase I to Phase II. It should be

emphasized that these findings only report the students who were admitted to the Business School; it does not include the students who intended to major in business, but could not do so due to not passing ACC 201 or any of the other Pre-Business Core courses.

Figure 5.1 displays the population of enrollees who attempted ACC 201 beginning in Spring 2007 and the number of seats that were occupied by first-time students and repeat students beginning in the 2007–2008 academic year through the 2016–2017 academic year, regardless of admittance to the Business School. Prior to GRP's implementation in the 2012–2013 academic year, the academic year with the largest percentage of repeat students was 2008–2009 in which 24.69% of filled seats were occupied by students who repeated; the remainder of the pre-GRP phase included years ranging from 12.90% to 20.04% of seats being filled by repeat students. After GRP's implementation, the range of repeat enrollees in an academic year spanned 14.54% to 28.62% of filled seats. Specifically, the last two years of the study were the two years in which the percentage of repeat enrollees approached thirty percent. Due to this study ending with ACC 201's Summer 2017 enrollment, it is unknown if the trend of repeat students in the last two academic years continued or if they were a temporary increase similar to the 2008–2009 academic year. The lists received for this study did not include information about course capacity; since it is unknown how many unfilled seats were available in ACC 201 in these academic years, vacant seats were not considered in the design of the figure.

Figure 5.1

ACC 201 Enrollment Percentages: Fall 2007–Summer 2017



Note. $N = 5821$ enrollees, of which 5209 were unique students.

Of the 5,209 students who enrolled in ACC 201 between Fall 2007 and Summer 2017, 1,364 students (26.19%) did not pass their initial attempt of ACC 201. Among these students, 540 students chose to repeat the course (39.59% of those who did not pass their initial attempt; 10.37% of the overall population). Of the students who chose to repeat, 396 students (73.33%) passed on a repeat attempt: prior to GRP's implementation, 184 students (71.88%) successfully passed with a grade of "C" or higher; after GRP's implementation, 212 students (74.65%) passed. Overall, 4,241 students (81.42%) passed their final attempt of the course, whether it was an initial or repeat attempt.

This data shows that while more than a quarter of students did not pass ACC 201 on their initial attempt, the percentage of students who passed on a repeat attempt increased after GRP was implemented. The policy, which allows students to repeat and only have one attempt factored into their GPAs, may have encouraged students to consider repeating the course; if they pass their final attempt, then all previous attempts are removed from calculation, thereby removing one or more prior non-passed grades. In this dissertation's study, 7.56% of the population repeated ACC 201, less than 9.34% repeat rate among all ACC 201 enrollees in Figure 5.1 who successfully passed the course. This discrepancy demonstrates that although students may choose to repeat a gateway course, not all students will pursue and be admitted to selective majors. Departments that offer gateway courses must decide whether to offer additional seats for all potential repeat students, for the percentage of repeat students that are likely to pass the course, or for the percentage of repeat students that are likely to pursue admission to their major.

To assist in planning for course capacity and student services, institutions may use the campus report that lists courses with high non-pass rates, commonly called "DFW" courses,

attributed to the number of "D" and "F" grades issued and withdrawals ("W" grades) incurred (Division of Academic Affairs, n.d.). However, the grades included in the report should be updated to match the grades eligible for repeat under the campus' repeat policy to ensure that all repeat-eligible students are represented in the report. For example, if an institution allows students to repeat courses in which grades of "C-" and below were earned, then the DFW course report should include courses in which high rates of "C-" grades are issued in addition to the other DFW grades, since these grades enable students to re-enroll in the courses. Awareness of the courses in which students perform poorly, as well as the courses in which students are likely to repeat, will help institutions plan for an appropriate number of course sections and resources to improve student success. Within a classroom, such support systems include instructor training to improve consistency, additional office hours, and added technology from the textbook's publisher; at the campus-level, strategies include tutoring, mentoring, advising, and investing in early alert software (Division of Academic Affairs, n.d.; Keeter, 2023). At both the classroom- and campus-levels, investments in these strategies will need to be negotiated within available budgets.

The findings of this study only focused on a selective type of student in ACC 201; more research is needed to further understand the impact of a campus-wide repeat policy. However, time and resources must be allocated for such evaluation, along with desired deadlines for reporting. Resource allocation could also include funding to improve institutional databases to assist in the data collection process. Ellucian Banner Student (Banner) is used at the institution featured in this study and as described in Chapter Three, this study's data was curated from several different lists. Banner does not label or assign an attribute to repeat students in class lists, nor does it have a report that lists all students who repeated a given course; rather, I needed to

determine this datapoint by compiling class rosters spanning the duration of this study. An investment in the evaluation stage of the Policy Life Cycle will better inform policy makers of their next steps for the maintenance stage. Suggestions for future research are described in the next section.

Suggestions for Future Research

Due to the limited scope of this dissertation, the results of this study are specifically representative of the studied population at the institution. GRP is a localized repeat policy, but other versions of it exist in many campuses across the country, as evidenced by the survey responses collected by *The Successful Registrar* ("Benchmark your institution's," 2012) and the American Association of Collegiate Registrars and Admissions Officers (AACRAO; 2015; Kilgore, 2017). Additional research is needed to compare repeat policies across institutions, measure the effects of the policy's outcomes, and investigate other populations. Suggestions for qualitative studies will also be discussed in this section.

Multi-Campus Studies

Studies that involve multiple institutions would contribute to the body of research to determine if the effects of repeat policies are similar for each campus (Baldwin et al., 1989). To improve the validity of the comparison, the institutional policies should be similar in eligibility and limitations, meaning, all institutions included in the study should use the same grade to determine students' eligibility to repeat (e.g., "C-" and below) and the policies should all have the same maximum number of repeats allowed by students (e.g., three repeats or unlimited repeats). When faced with a limitation on repeating courses, students may have different motivations in choosing whether or not to repeat; therefore, in a comparative multi-institutional study, the quantity of allowed repeats should be controlled.

Multi-campus studies would assist in determining similarities and differences among campuses and the populations studied, as well as whether the findings at one campus can be replicated at another campus. For example, in this study, the quantity of repeat students admitted to the Business School increased following the implementation of a repeat policy that recalculates students' GPAs, but it is unknown if other institutions that offer selective admission business programs would have a similar outcome. In expanding beyond students pursuing a business major, a multiple-campus study could also determine if students pursuing certain majors utilize repeat policies more than others.

Within the institution's system, each campus is responsible for its own repeat policy, which varies in stipulations such as eligible grades for repeating, and GPA calculation (Council of Chief Academic Officers, 2017). By conducting a multi-campus study within the system, the individual campuses may compare usage and stipulations of their respective repeat policies and confer to determine if a system-wide policy would be beneficial and less confusing for internal transfer students. A system-wide policy may still have a campus-specific requirement—meaning, courses must be repeated where they were originally taken in order to benefit from GPA recalculation at the campus—but should clarify which grades may be repeated and which attempt is used in GPA calculation.

Additional Policy Outcomes

Research into repeat policies also provides numerous opportunities to determine impacts on other measures of student success and whether policies are meeting their intended outcomes. Future research should be conducted on retention and graduation, GPAs, and time-to-degree. The results of such studies will be helpful for policy makers in determining the repeat policy's future for continuation, revision, or termination.

Retention and Graduation. Institutions should conduct longitudinal studies to determine if repeat policies had an impact on retention and graduation rates. When GRP was presented to the IFS, the meeting minutes stated that nearly a quarter of the institution's "freshmen do not return for their second year, and students with low grades are particularly likely to drop out. Many comparable research universities allow some form of grade replacement, and most have higher first year retention and graduation rates" (Mānoa Faculty Senate, 2011b, pp. 8–9). A longitudinal study should be conducted to compare the retention and graduation rates of students who repeated courses pre- and post-policy implementation to assist policy makers in determining whether or not the policy is having its intended effects for these aspects of student success.

GPAs. Research into repeat students' GPAs would determine if the institution's GPAs have improved since the policy was implemented. The institutional research office (IRO) reported that students' mean graduating GPAs rose from 3.10 to 3.19 from the 2009 first-time freshmen cohort (the earliest year in which data was available) to the 2015 cohort (Mānoa Institutional Research Office, 2023c). This data, however, did not differentiate the GPAs of students who repeated coursework from those who did not repeat any courses. Research into GPAs could also determine the quantity of courses being repeated and whether that number has remained consistent since policy implementation.

Time-to-Degree. Another type of longitudinal study could measure time-to-degree among students who repeated coursework and those who did not. The IRO reported that the average time-to-degree decreased from 4.74 to 4.67 years from the 2009 first-time freshmen cohort to the 2015 cohort (Mānoa Institutional Research Office, 2023c); however, similarly to the GPA data for these cohorts, the time-to-degree data were an average of all students, regardless of whether or not they repeated courses. Individual colleges, as well as departments,

may want to investigate their own student populations to determine if repeat students in prerequisite, gateway, and capstone courses are contributing to higher time-to-degree rates.

Populations

This dissertation focused on students accepted to the Business School at a single institution. More specifically, the population of this study only included students who successfully passed their initial and, if necessary, repeat attempts of ACC 201 at the institution. However, there are many other populations that future studies may consider, including other courses, such as other Pre-Business Core courses or a common general education course, and other student groups, such as transfer students and students not admitted to the Business School.

Courses. This study used ACC 201 enrollment to determine its population, but ACC 201 was not the last course that students took in the Pre-Business Core; students also needed to pass a subsequent course—ACC 202—with a minimum grade of a "C" in order to remain eligible for admission. Similar to Armstrong and Biktimirov's (2013, 2014) and Biktimirov and Armstrong's (2015) studies that focused on a single population, but on different courses, future studies could examine how the students in this study performed in ACC 202, such as whether students who repeated ACC 201 also repeated ACC 202. Another study could focus specifically on students enrolled in ACC 202 to compare the repeat rates in that course to this study's ACC 201 repeat rates among students admitted to the Business School. Since all students in this population were accepted into the Business School, the use of GRP in the other Pre-Business Core courses could also be examined individually and collectively, such as how many instances of the Pre-Business Core courses were repeated pre-GRP and post-GRP implementation. Results from such a study could identify students' difficulty in certain courses that are offered by different departments. Knowledge of individual course difficulties could assist departments in allocating their own

resources toward additional sections, tutoring, and other student support services, but knowledge of which courses potentially compound difficulty with other required courses would assist in curriculum planning (e.g., not recommending that certain courses be taken together in the same semester) and providing student support at the campus-level rather than at the department-level.

To further understand a repeat policy's impact on campus, institutions should engage in a campus-wide evaluation of the policy. There are different ways to frame such a study, whether by semester, by course, or by time period. A single-semester study would be similar to Counts et al.'s (1974) study in which a single semester was chosen and all enrolled students in that semester were analyzed. A single-course study would be similar to this dissertation, but should be conducted on a larger scale by using a course that students commonly take for general education, such as an English composition or written communication course. If an institution offers a common core of general education courses, it could examine a single course that all students must take prior to graduation to determine the use of the policy for the entire campus. Institutions that recently implemented a repeat policy could consider comparing the frequencies of repeated coursework for the academic years leading up to the policy's implementation and an equal number of academic years following implementation.

Student Groups. This study focused on the institution's first-time freshmen; as a result of this population choice, transfer students were excluded from the study. The institution belongs to a system with nine other campuses, of which seven are community colleges (Mānoa Catalog Office, 2023). From Fall 2008 (the earliest semester in which data was available) to Fall 2017 (the final semester of this study for students to be admitted to the Business School), the institution admitted 49.2% (Fall 2016) to 57.3% (Fall 2008) of all transfer students to four-year campuses within its system (Institutional Research, Analysis and Planning Office, 2022k, 2022l).

The institution also attracts a large number of transfer students from across the continental United States. A study focused on transfer students could be compared to the first-time freshmen in determining admission to the Business School for students who passed their first attempt of ACC 201 at the institution, who passed their first attempt of ACC 201 in transfer, and those who repeated ACC 201 either at the institution or at another campus.

Students who were admitted to the Business School, but repeated ACC 201 outside of the institution, were excluded from this study's population. A qualitative study could be conducted to inquire why these students opted to repeat ACC 201 elsewhere; these students could respond candidly about the myriad factors that led them to seek enrollment outside of the institution and, for those who repeated in Fall 2012 or later, why they decided to forgo the benefits of GRP. For both of this study's phases, repeating ACC 201 at a different campus did not improve students' institutional GPAs and all attempts—even those taken outside of the institution—were factored into their Pre-Business Core GPAs. For students in Phase II, repeating courses elsewhere meant that they would not benefit from GRP's GPA recalculation.

One of the conditions for inclusion in this study was admission to the Business School; students who did not pass ACC 201 were excluded because without successful ACC 201 completion, they were inadmissible. A future study could focus on the students who were pursuing admission to the Business School, but were required to change majors due to not passing ACC 201 or any other Pre-Business Core course. A study spanning pre- and post-implementation of GRP could examine whether or not GRP impacted these students' timing for finding a new major. This population would also be an opportunity for qualitative study to learn about students' motivations in choosing whether or not to retake courses and what led them to decide when it was time to pursue a non-business major. Other subpopulations among the

students who were not admitted to the Business School that could be researched are students who chose to drop out of college or transfer institutions after not completing ACC 201.

Chapter Summary

This chapter discussed the results of this dissertation's study into GRP and concluded that it did have an impact on students who enrolled in ACC 201 and were admitted to the Business School. After GRP was implemented, a greater number of students who needed to repeat ACC 201 were admitted to the Business School, indicating that the policy increased access for this subpopulation of students. This chapter also discussed implications for theory and practice by relating the study's findings to the evaluation and maintenance stages of the Policy Life Cycle and the fourth frame of the EPAF. Lastly, this chapter proposed opportunities for continued and future research, including studies of multiple campuses, additional policy outcomes, and other populations.

Appendix A. GPA Calculation and Comparison of the Repeat Policies

Prior to the Grade Replacement Policy (GRP), every attempt of a course was factored into students' grade point averages (GPAs) until the first instance in which the student passed the course with a grade of "C" or higher. For example, a student who attempted the three-credit English (ENG) 100 course three times and earned the grades of "F" (zero grade points), "D" (one grade point), and "C" (two grade points), would have a GPA calculation of nine grade points divided by nine credits, which equals a cumulative GPA of 1.00.

The 2011 GRP proposed that students could select any course to repeat, regardless of original grade earned, and only the highest grade would be included in the GPA calculation. For example, if a student originally earned a grade of "D" in ENG 100 and retook the course and earned a grade of "B" (three grade points), the GPA calculation would be nine grade points divided by three credits, which equals a cumulative GPA of 3.00. Conversely, if the student earned a grade of "B" in ENG 100 initially and a grade of "D" on the repeat attempt, the "B" grade would be the attempt factored into their GPA because the policy stipulated that the higher attempt would be used in the calculation; thus, the student would have a cumulative GPA of 3.00.

Under the revised 2012 GRP, the policy has no quantity limitations and students can repeat a course over and over until they successfully pass the course. Additionally, students do not need to take any action beyond reregistering for the course to ensure that GRP is applied. Using the initial example above of the student who took ENG 100 three times and earned the grades of "F," "D," and "C," the reported GPA on the student's transcript would be 2.00 because the "D" attempt first replaced the "F" attempt in the calculation, then after the third attempt, the "C" replaced the "D," resulting in six grade points divided by three credits. All attempts of a

course are recorded on students' transcripts, but the credits associated with the earlier attempts are removed, thus allowing for the new GPA to be calculated. Figure A.1 compares the 2011 and 2012 versions of GRP by each stipulation.

Figure A.1

Comparison of the 2011 and 2012 GRPs

Rules and Stipulations	2011 GRP [a]	2012 GRP [b]
Original course enrollment location	At the institution	At the institution
Original course enrollment semester	Fall 2011 and later	Anytime
Original course grade eligibility	All letter grades	"C-" and below
Repeat course enrollment location	At the institution	At the institution
Appearance on transcript	All attempts	All attempts
Attempt included in GPA calculation	Highest grade	Most recent attempt
Quantity limitation	Three	None
Student must indicate GRP use	Yes	No

[a] (Mānoa Faculty Senate, 2011c). [b] (Mānoa Faculty Senate, 2012b).

Appendix B. Business School Admission Criteria

Students who sought to declare a business major during this study's time frame needed to complete the following prerequisites in order to gain admission to the Business School:

- Junior standing[16]
- 2.50 cumulative grade point average (GPA)
- Completion of a computer competency course(s)
- 2.50 GPA in the Pre-Business Core, with minimum grades of "C" in:
    - English (ENG) Composition
        - ENG 100, ENG 190, English Language Institute (ELI) 100, or English as a Second Language (ESL) 100; or
        - ENG 200
    - Public Speaking
        - Speech (SP)/Communicology (COMG)[17] 151 or SP/COMG 251
    - Calculus
        - Business (BUS) 250, Mathematics (MATH) 203, MATH 215, MATH 241, MATH 251A, or Natural Resources and Environmental Management (NREM) 203
    - Microeconomics
        - Economics (ECON) 130

[16] Prior to Fall 2015, the minimum quantity of earned credits for junior standing was 55 credits (Mānoa Catalog Office, 2006b). Effective Fall 2015, junior standing requires 60 earned credits (Mānoa Catalog Office, 2015b). Following this institutional change, the Business School also updated the junior standing credit count requirement for admission in Fall 2015, from 55 to 60 earned credits (Mānoa Catalog Office, 2006d, 2015c).

[17] In Fall 2011, the Department of Speech (SP) was renamed the Department of Communicology (COMG), after which their courses changed department codes, but remained equivalent to each other, meaning that SP 151 is the same course as COMG 151 (Mānoa Catalog Office, 2011a).

- Macroeconomics
  - ECON 131
- Financial Accounting
  - Accounting (ACC) 201
- Managerial Accounting
  - ACC 202 (Mānoa Catalog Office, 2015d)

The Pre-Business Core consists of seven categories of courses that are predominately three credits each. If students enrolled in seven three-credit courses for the Pre-Business Core, the Pre-Business Core GPA was calculated by dividing earned grade points by 21 attempted credits. Prior to the Grade Replacement Policy (GRP), any repeated coursework increased the number of credits attempted and the larger dominator made it more difficult for students to reach the minimum 2.50 GPA requirement for not only the Pre-Business Core, but also the cumulative GPA.

Appendix C. Institutional Review Board Approval Letter

UNIVERSITY of HAWAI'I® SYSTEM

Office of Research Compliance
Human Studies Program

DATE:	May 24, 2024
TO:	Lucas, Christopher, PhD, University of Hawaii at Manoa, Educational Administration Terawaki, Megan, University of Hawaii at Manoa, Manoa Advising Center
FROM:	Bacon, Kristin, Rsch Supp, Hum Stds Prog, Social&Behav Exempt
PROTOCOL TITLE:	Grade Replacement Policy and Its Impact on Undergraduate Students Seeking Admission to a Selective College Program: A Case Study of an Introductory Accounting Course
FUNDING SOURCE:	None
PROTOCOL NUMBER:	2024-00297
	Approval Date: May 24, 2024 Expiration Date: N/A

NOTICE OF APPROVAL FOR HUMAN RESEARCH

This letter is your record of the Human Studies Program approval of this study as exempt.

On May 24, 2024, the request for IRB approval of changes to your exempt project noted above has been reviewed and approved. The proposed amendments will be added into your current project file. The proposed changes do not alter the exempt status of your project. The authority for the exemption applicable to your study is documented in the Code of Federal Regulations at 45 CFR 46.101(b) 4.

This approval does not expire. However, please notify the Human Studies Program when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the Human Studies Program by phone at 956-5007 or email uhirb@hawaii.edu. We wish you success in carrying out your research project.

2425 Campus Road, Sinclair 10
Honolulu, HI 96822
Telephone: (808) 956-5007 • Fax: (808) 956-9150
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Association for the Accreditation of Human Research Protection Programs, Inc. Full Accreditation

Appendix D. Changes in Class Standing Among Repeat Students

Table D.1

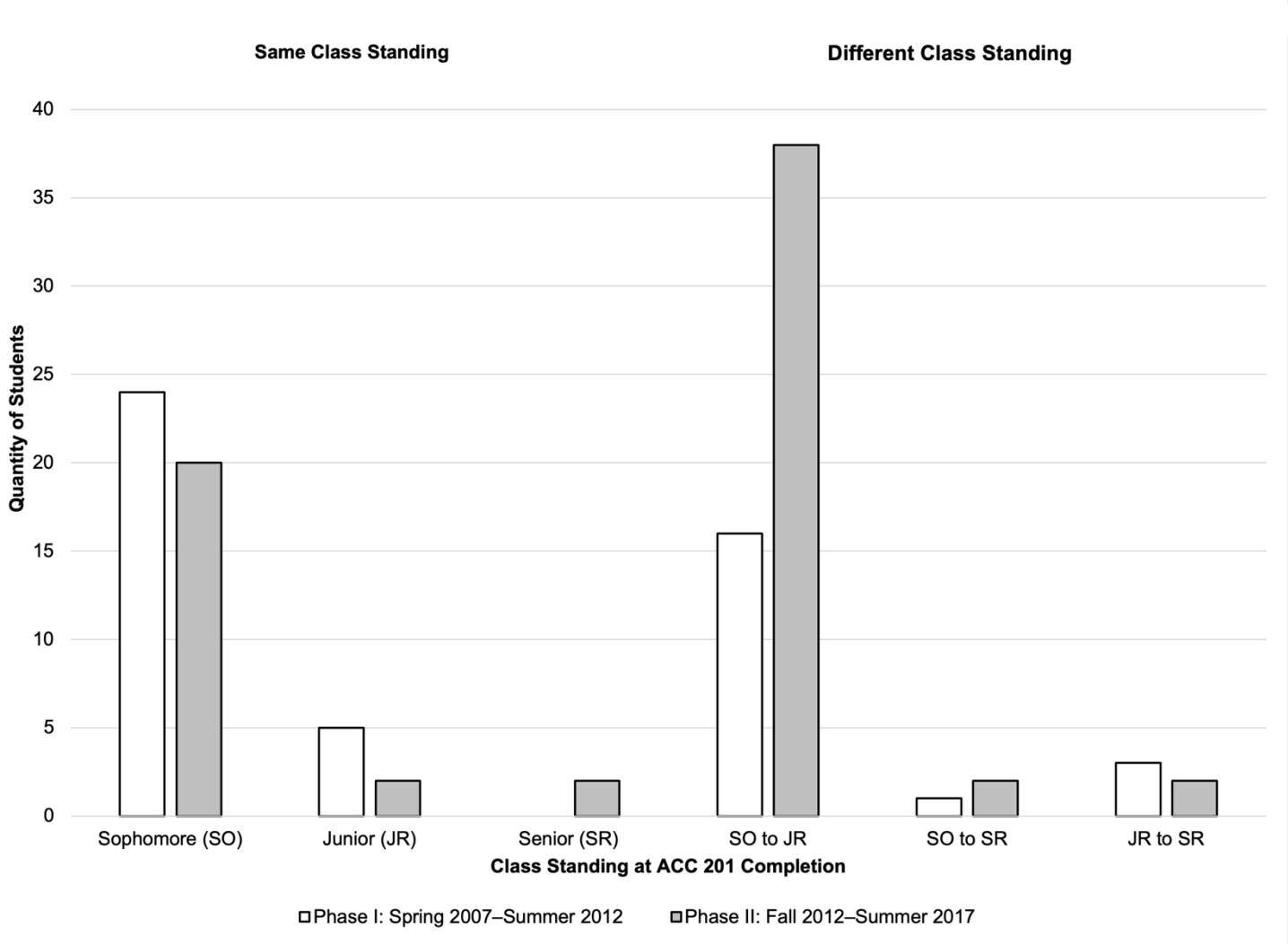
Repeat Students by Class Standing at Initial and Final Attempts and Phase

Initial Attempt Class Standing	Final Attempt Class Standing			
	Sophomore	Junior	Senior	Total
Phase I				
Sophomore	24	16	1	41
Junior	–	5	3	8
Senior	–	–	0	0
Total	24	21	4	49
Phase II				
Sophomore	20	38	2	60
Junior	–	2	2	4
Senior	–	–	2	2
Total	20	40	6	66

Figure D.1 compares the repeat subpopulation from Phase I and Phase II by class standing at the time of ACC 201 completion. The three categories on the left side of the chart include the students who completed ACC 201 in the same class standing as their original attempt. The three categories on the right side of the chart feature the students who passed ACC 201 in a different class standing from their original attempt.

Figure D.1

Repeat Students' Change in Class Standing Status at the Time of ACC 201 Completion



Note. n = 115 repeat students, of which 49 students were in Phase I and 66 students were in Phase II.

Table D.2

Repeat Students by Attempt, Change in Class Standing Status, and Phase

Class Standing Status	Second Attempt	Third Attempt	Fourth Attempt	Fifth Attempt	Total
Same Class Standing					
Phase I	29	0	0	0	29
Phase II	22	2	0	0	24
Total	51	2	0	0	53
Different Class Standing					
Phase I	19	1	0	0	20
Phase II	34	7	0	1	42
Total	53	8	0	1	62

Table D.3

Expected Frequencies for Repeat Students by Change in Class Standing Status and Phase

Phase	Same Class Standing	Different Class Standing
Phase I	22.583	26.417
Phase II	30.417	35.583

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