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Student Retention through Decision Making and Withdrawal: The Importance of Course Scheduling in Higher Education

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A Dissertation Submitted to The Graduate School at the University of Missouri-St. Louis in partial fulfillment of the requirements for the degree

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With an emphasis in Educational Leadership and Policy Studies

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ABSTRACT

Student retention is a fundamental issue in higher education, with student decision-making and withdrawal at the forefront of examining that issue. Previous research has shown that personal factors are not easily addressed, but institutional factors, such as the course scheduling process, can be modified. This research study examined how the course schedule can influence degree-seeking students at a state-funded, 4-year institution by exploring the correlation between class standing and the importance of how courses are scheduled, the correlation between class standing and the ability to register for a required course, and what factors predict a student's decision to withdraw from the university. A cross-sectional electronic survey, developed using the institution's prior class scheduling and parking survey, was modified following a pilot study to test the questions and yielded 325 responses. Longitudinal data from the institution's Withdrawal Survey yielded 3,540 responses. Pearson's chi-square test and Fisher-Freeman-Halton Exact test found significant relationships between class standing and scheduling courses around one's work schedule, family obligations, or in a preferred format, establishing that these factors were more important for upper-level students. Binomial logistic regression analysis determined the following factors as significant for withdrawing and not returning and withdrawing and transferring: a change in work schedule, relocating for a job, dissatisfaction with the major department, and a major course not being available. The findings indicate that course scheduling is crucial to student decision-making and withdrawal, leading to the recommendation that universities should focus on improving student retention by using an intentional, student-centric course scheduling model as the foundation of their institutional scheduling process.

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DEDICATION

This dissertation is dedicated to those I have lost during this journey, and to two of the most important people in my life:

To Lee, thank you for your unwavering love and for being such an anchor in my life. I could never find the words to thank you enough for what you have done to support me in this journey. I would not have accomplished this goal without your encouragement, sacrifice, and steadfast confidence in me.

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CHAPTER 1: Introduction

Student retention is a critical factor that helps determine the success or failure of any university in achieving its mission (Fincher, 2010). Used as a guideline to assess institutional success, it remains one of the leading challenges colleges and universities face today. An institution cannot be considered successful if the students are not being retained and ultimately graduated. Therefore, retention is often viewed as an imperative component of the institution's success, with high retention rates interpreted as student success (Polinsky, 2003).

As universities fight for tuition dollars, retention becomes even more pertinent. According to Maldonado et al. (2021), student dropout is a significant concern because it leads to direct economic losses. State-funded institutions must fight even harder than private universities because the impact on the bottom line is not only more significant, but their budgets are already operating at a much lower rate than they have been due to decreases in state funding (Berg, 2005). As students pursue their degrees, course offerings can be seemingly endless, causing universities to fight for the same student: Students can choose to take courses at different institutions and transfer them back to their home institution or leave their home university and transfer elsewhere. To help win the fight, processes must be enhanced, programs must be upgraded, and all departments must innovate to increase the university's admission and retention rates.

When considering student success and retention in higher education, most institutions focus on inventing programs, including support or early preventative programs, to increase retention rates on campus (Mansfield et al., 2011). While these programs are essential to student retention, more impactful institutional processes are

often ignored. The course scheduling process affects all other functions and initiatives on campus. It can also reduce the time it takes to complete a post-secondary degree (Cintrón & McLean, 2017), directly influencing student retention and success by decreasing the time it takes to graduate. As a multifaceted, timely process, Kassicieh et al. (1986) noted decades ago that course scheduling can lead strategic planning discussions on campus, while Lindahl et al. (2018) indicated that scheduling processes can significantly impact the organization. While the course schedule itself is composed of the curriculum number, course name, teacher, classroom, hours, and other information (Ming & Qi, 2010), Moore and Fetzner (2009) found that flexibility in course scheduling can increase student satisfaction. Despite these findings, universities rarely focus on this crucial process. According to Fincher (2010), the entire course offering and course scheduling process should be revamped to be more customer service oriented. Keeping the students in mind as customers when building the course schedule can positively serve students by focusing on intentional course offerings, strategic timetabling, and considering modality compared to course content. A focused production of the schedule of classes fosters retention. It improves student success by putting the student at the forefront of the process, examining their needs, and addressing them through deliberate scheduling.

The course schedule is a central part of the planning process in the academic world. Its goal is to create an accurate yet detailed (time and day offered, course modality, instructor, room, and course type) schedule of classes that optimizes the institution's resources (Comm & Mathaisel, 1988). The schedule of classes is the tool academic institutions use to allocate resources by organizing time, people, locations, credit hours, and curricular activities, much like scheduling meetings in an organization

(Mooney et al., 1996). The primary difference between universities and other organizations is that the course schedule drives when, where, and how students can complete their courses. Students map academic plans with their advisors and project required courses around their desired graduation date. Hinkin and Thompson (2002) found that due to conflicts between required courses, students were forced to choose between other classes, causing them to need two or three terms to get the necessary courses they needed when they could have taken them all in one term. In a study done by the American Association of Collegiate Registrars and Admissions Officers (AACRAO) in 2022, it was found that when building the undergraduate class schedule, student need (as determined by educational-plan data or degree-audit data) was ranked 9, with only 43% of the 340 institutions surveyed citing that as a factor considered when building the schedule. Scheduling is characteristically manual and done through trial and error, often leading to scheduling mistakes and conflicts (Rustaletov, 2020). According to Capaldi et al. (2006), “In large public universities, students often have difficulty finding their way through the maze of curricular options and requirements” (p. 46). Adding to that confusion by scheduling courses disjointedly, such as offering prerequisite courses out of order, can cause enough frustration for students to leave the university.

While course scheduling, or university timetabling (Sarin et al., 2009), is a crucial facet of any university, few stakeholders are involved. Advisors, students, and some faculty are often unaware of what happens during course scheduling. At many institutions, the schedule is copied from term to term, year after year – rolling base offerings each term and making decisions using historical data, predictive trends, and student requests to inform scheduling (Ad Astra, 2022). A study by AACRAO (2022)

found that 75% of institutions copy the current academic year and class schedule to the following academic year and term as the starting point for the class schedule (p. 4). Copying, or rolling, the class schedule from term to term in this way provides a foundation for building the next term's schedule. However, errors or conflicts will also roll to the following term, possibly causing barriers for students. If academic departments or scheduling units do not catch initial mistakes, they will recur every time students enroll. For example, if a course conflicts with another required course in year one, rolling it to year two increases the chance they will conflict again if the issue is missed. Another problem surrounding course scheduling is that it is a complex, arduous, data-intensive process. Course scheduling is one of academic administrators' most time-consuming and complex jobs, including department chairs and deans (Schwalbe, 1992). It is not a transparent procedure, and inaccuracies can be challenging to explain. The effects, however, are much more apparent and can be felt by all on campus.

When the course schedule is inaccurate or creates conflicts for students, its influence is far-reaching. According to Benfield et al. (2016), "Student scheduling and course registration is ubiquitous to the educational experience" (p. 394). Students rely on the course schedule to be precise, not to serve as an obstacle to their academic ambitions. When students enter college, they do not anticipate being unable to complete their degree due to a course scheduling error. Nor do they anticipate having to pay more money to do so, which can lead to frustration for students and may eventually cause them to withdraw from the university. Research from a national survey done by Infosilem (2015) at the American Association of Collegiate Registrars and Admissions Officers Conference (AACRAO) shows that 23% of students have been unable to schedule a course in their

major at least once, while 43% were unable to schedule a course in their major from two to five times. In addition, 18% faced lengthened time to graduation, and 8% considered leaving the university. Of the respondents, 2% left the university, with 33% reporting that the course schedule significantly impacted them.

If students experience hindrances to their intended course of study or a lack of flexibility in the course schedule, frustrations arise, and withdrawal rates increase (Hayward, 2003). This type of experience destructively influences the retention rates at the institution, leading to harmful outcomes such as financial implications for the students and extended time to graduation (Hall et al., 2003; Nicholls & Gaede, 2014). Additionally, this could lead to budget deficits and undesirable reputations for the university (Hagedorn, 2006). Understanding the significance of the course schedule and how students make their course selections can avoid unnecessary financial implications and increased time to graduation for students, as well as budget deficits, undesirable reputations, and, ultimately, the reduction in student retention for universities.

The course schedule is a commitment to the students made by the university itself. Just as institutions compete against each other for students, students have options. Understanding student decision-making and which factors affect their decision to stay with a university is paramount to connecting the dots between student retention and the process of course scheduling. Effective course scheduling maximizes students' probability of getting desired courses while considering other goals and constraints (Mooney et al., 1996). It drives all possible results for students on campus. It is also multifaceted and complex. Due to this, a comprehensive look at the routine of producing the class schedule is needed. Identifying the problems in building the course schedule and

how these errors impact student decision-making and enrollment may lead to more effective and strategic course scheduling to combat low retention rates.

Problem Statement

There is little research to show the impact course scheduling has on student decision-making and, ultimately, student success and retention, even though the course schedule directly affects the education quality of students (Komijan & Koupaei, 2015). In higher education, when students cannot schedule a course required for degree completion, it affects their willingness to stay enrolled at their university. According to Blakesley et al. (1998):

One of the greatest unanticipated costs facing many college students is having to pay an extra semester's or year's tuition because they were unable to take all of the courses required for graduation within the expected (usually four-year) time frame. (p. 1)

Course availability poses a monumental obstacle for students wishing to complete their degrees. Understanding the impact of course availability on student enrollment and what factors students use to make decisions about withdrawing is one step toward addressing the complex problem of student retention.

Purpose Statement

Student decision-making in higher education is a central concept directly related to retention in higher education. Over the years, decision-making has been widely studied, with some researchers focusing on the student decision-making process and course selection, realizing that these vital decisions can shape the student's academic future. Othman et al. (2019) explain that one of the most critical goals in higher education

is maximizing student participation in decision-making and how it is more complex than many assume. For example, course selection in higher education is complicated because many factors must be considered: how course choice may impact academic performance, word of mouth about the course (peers, parents, advisors), how the course fits into the student's schedule, the location of the course (both on campus and room conditions), course modality and student choice, and whether peers/friends are taking the same course (Nakayama & Hoshito, 2009; O'Neill et al., 2021; Othman et al., 2019; Towers & Towers, 2020).

The process of course scheduling complicates student decision-making with course availability. Bean and Metzner (1985) found that factors involved in course availability include whether the desired courses are (a) offered by the college, (b) scheduled at times when students can enroll, and (c) have sufficient capacity for student demand. In many institutions, the course schedule is rolled, or copied, from term to term, year after year. This antiquated process can affect students when they cannot find a course required to graduate, experience multiple conflicts that they cannot overcome, or take a course in a format that is not conducive to student success (Henebry, 1997; Sampson et al., 1995). In addition to the mistakes from rolling the schedule term to term, data entry errors can occur because the process of scheduling is a complex, time-consuming, and tedious process (Comm & Mathaisel, 1988; Wang et al., 2015). Historically driven schedules, rolled forward, can cause unintended consequences for all stakeholders at an institution (Ad Astra, 2023b). Furthermore, the course schedule may be "limited due to human oversight" (Blanco & Khatib, 1998, p. 2). The Registrar's Office often oversees the course schedule; however, some schools have a decentralized

process where scheduling occurs at the department level (Hill, 2010). With such a manual scheduling process, data entry errors cause scheduling conflicts and downstream effects (Miranda et al., 2012). This manual process is one of the reasons why many universities are moving to course scheduling systems to improve accuracy, with 49.3% of institutions indicating they use at least one classroom/course scheduling solution (AACRAO, 2016); however, the problem still exists for many institutions. Often, they are unaware of the significant impact the course schedule has on the retention rates of their institution. Students who cannot find the courses they need to graduate may leave the university and go elsewhere. AACRAO (2022) found that students who do not return to a university cite class availability as a big reason for not returning (p. 18).

Therefore, the purpose of this study is to examine the course schedule and its impact on retaining degree-seeking students at a state-funded, 4-year institution by focusing on course availability and its influence on student perception, intent, and action. The retention rate for full-time degree-seeking undergraduates at the institution at the time of the study is 73% (“Executive Data Reference,” 2021). To examine the impact of course scheduling on this rate, three major aspects will be explored: (a) the correlation between class standing and the importance of how courses are scheduled, (b) the correlation between class standing and the ability to register for a required course (defined as being able to enroll in a course needed for their major/course of study), (c) what factors predict a student’s decision to withdraw from the university.

Research Questions

Four research questions aid in understanding how course scheduling affects the retention of undergraduate degree-seeking students at a state-funded, 4-year institution in

the United States. The first question is related to perception and investigates the correlation between the student's class standing and the importance of their ability to schedule courses in a certain way. The second question is related to the intent. It examines the correlation between the student's class standing, the ability to register for a required course, and the intent behind the student's decision to take the course at another institution. The third question is related to action and explores the factors that predict a student's decision to withdraw from the university and not return, such as work/studies conflict, financial issues, family responsibilities, or academic dissatisfaction/difficulty. The fourth question is related to action and explores the factors that predict a student's decision to withdraw from the university and transfer to another institution, such as work/studies conflict, financial issues, family responsibilities, or academic dissatisfaction/difficulty.

1. What is the relationship between students' class standing and the importance of their ability to schedule courses in a certain way?
 - a. H₁: The students' class standing has a positive relationship with the importance of their ability to schedule courses in a certain way.
2. What is the relationship between students' class standing and the intent behind the students' decision to take the course at another institution following the inability to register for a required course?
 - a. H₂: The students' class standing has a positive relationship with the intent behind the students' decision to take the course at another institution following the inability to register for a required course.

3. What is the relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to withdraw?
 - a. H3: There is a positive relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to withdraw.
4. What is the relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to transfer?
 - a. H4: There is a positive relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to transfer.

Significance

The significance of this study is immense for institutions hoping to retain and graduate their students on time. Campuses, stakeholders, and campus partners interested in the impact of course schedule creation on academic achievement will also benefit from this study's investigation of student decision-making. Institutions can use this data to take a more intentional approach to course scheduling. Perhaps most importantly, current and prospective students will find value in this study as they recognize how course scheduling and availability impact their academic experience through graduation.

Universities can benefit from this research by understanding how the course schedule impacts student retention and time to graduation at their institutions. The high stakes of retention in higher education require academic institutions to analyze all their business practices, processes, and procedures and shape them in ways that provide the opportunity for success for all students (Crosling, 2017). According to Aljohani (2016),

one of the central factors related to retention is the quality of the students' institutional experiences. Moreover, one way to improve student retention is to identify the influences and causes of student retention and attrition (Crosling et al., 2009).

This research may help universities avoid unnecessary withdrawals by providing insight into the course scheduling process. Discovering the impact of availability on student experiences supports institutions in creating a more intentional approach to course offerings. In doing so, institutions may be better prepared to fight for student retention and success.

Current and prospective students will have the tools to evaluate their academic plans and their institutions' approaches to support them. Students and their families are becoming increasingly aware of factors influencing retention rates. According to Voigt and Hundraiser (2008), "As measures of the quality of an institution's overall product, retention and graduation rates are of interest not only to accrediting agencies, policymakers, and the general public or taxpayers, but, especially to students, their families, and contributing alumni" (p. 2). Retention and graduation rates are vital for institutions competing to enroll from the same pool of students, as students now have more information to base their decisions regarding which university to choose. As Williams and Roberts (2023) described, low numbers of students who complete their degree program can lead to poor student feedback and cause reputational damage to the institution. Institutional reputations are crucial for today's market, where students are considered customers and universities compete for them.

In the current educational climate, students pay attention to the courses offered. They are more likely to leave an institution if those courses are unavailable or not offered

in various options (Polinsky, 2003). Students have many options in higher education; if they cannot find what they need at one institution, they will move on to another.

Institutions must satisfy students with course offerings. As Thompson (2005) states, “The ability for students to get more of the courses they want adds to the array of devices for increasing satisfaction” (p. 5). Satisfied students are retained students. The resulting information from this study may justify improving course scheduling to increase student retention rates at other 4-year institutions.

Furthermore, this research will contribute to higher education by investigating if there is a direct link between the ability to register for a required course and staying enrolled at the university. While previous literature has indicated the importance of the course schedule and its ability to predict student demand (Kardan et al., 2013) and the course schedule and student satisfaction (Hew et al., 2020), there are no studies that have examined the correlation between the course schedule and student decisions regarding enrollment.

Delimitations

This study was delimited by choosing degree-seeking participants from a state-funded, 4-year institution in the Midwestern United States. Undergraduate degree-seeking students were selected to participate in the study because their programs have more specific required courses than graduate students and are thus more likely to experience the conflicts this study is investigating. A state-funded, 4-year institution was selected because insight into its course scheduling processes is more transferable to similar state-funded universities in the future.

Definition of Terms

Class - A course from the catalog built into the schedule for a given term and available for registration.

Course availability – Refers to the accessibility of classes on the course schedule regarding registration. Relates to the course being scheduled in a manner obtainable for students, such as being offered in a day/time that suits the student’s schedule (prevents conflicts with other courses, works around their employment/personal schedules, and or has enough seats for the student demand).

Course catalog – The catalog of available courses to schedule for a university.

Course schedule – The schedule of classes at a university, often available in an online class search built into the Student Information System. The course schedule is the official record of courses available each term.

Student Information System – The student information system is the system institutions use to house their official records. Examples include Campus Solutions, Banner, Jenzabar, etc.

Withdrawal rate – The percentage of students leaving the university.

Withdrawal –The act of students dropping out of the university, either for a given term or altogether. Withdrawing occurs when students stop attending college or transfer. This action can mean dropping all courses for a semester or leaving the university and not returning/transferring to another institution.

Summary

This chapter examined course scheduling and its ability to impact student retention significantly. As pressure on university budgets and the value of a college

degree increases, more information is needed to combat low retention and graduation rates. By taking a closer look at course scheduling concerning student decision-making and withdrawal, the knowledge gained from this research will establish best practices in course scheduling and the importance of course scheduling in student retention and success.

The following chapter will discuss the literature surrounding student retention and course scheduling in higher education. Student retention will be examined by looking at student decision-making and student withdrawal. The discussion on course scheduling will include a brief look at the timetabling problem previously discussed in literature and technological advances in the scheduling world. In addition, Chapter 3 will discuss the methods used for this study and the data collection and analysis procedures.

CHAPTER 2: Literature Review

This chapter examines the literature on student retention and course scheduling. Student retention will be examined by discussing the theoretical models surrounding retention and then focusing on student decision-making and withdrawal. While research is extensive on student retention, much of the research on how course scheduling impacts student decision-making focuses on the university timetabling problem, considers K-12 institutions, or is specific to a discipline, not providing a holistic context for course scheduling. Irrespective of the institutional sector or subjective focus, collective findings from previous literature emphasize the importance of student retention and course scheduling individually. In contrast, this study attempts to connect the two.

Student Retention in Higher Education

According to Burke (2019), student retention is often defined as the continued enrollment of a student from the first year to the second year. It is frequently interchangeable with student persistence, typically used to describe a student's continued enrollment from year two until graduation. A more general definition was outlined by Haverila et al. (2020), who stated that "student retention was defined by the ability of an institution to retain a student from admission through graduation" (p. 361). Student retention has been a hot topic in higher education, but why is it important? Student retention is imperative to both the student and the university. As noted by Crosling (2017), "Students withdrawing from their studies before completion is costly for the higher education system overall, the individual students and their families, and for their societies" (p. 1). For students, not completing one's academic

and personal goals can have adverse effects, such as implications for students' self-esteem and efficacy (Maher & Macallister, 2013), dissatisfaction with the university, or a decrease in motivation (Rizkallah & Seitz, 2017), and high monetary and non-monetary costs for individuals, institutions, and society (Juttler, 2020). Education is robust and allows students to hone critical thinking, technological, and analytical skills vital to contributing to society. Seidman (2012) expresses that we should care about students' completion of academic and personal goals for many reasons, primarily because of the student development and financial implications for both the college and the student. For universities, increased retention rates can have a significant impact on the economic success of the institution. Student attrition can be expensive for institutions – costing them \$3.8 billion in lost earnings yearly (Civitas Learning, 2022).

Student retention in higher education has been a concern for educational institutions since the establishment of the formal education system (Aljohani, 2016). According to Maldonado et al. (2021), early emphasis was given to the psychological needs of human behavior that explain environment-human relationships. Before the 1970s, student retention was viewed in terms of student attributes, skills, and motivation. Spady's (1970) Undergraduate Dropout Process Model is an interdisciplinary approach that indicates students operate within two central systems: the academic and social systems (Burke, 2019, p. 14). Later in the 1970s, that view began to consider the role of the institutional environment, as seen in the Institutional Departure Model by Tinto (1975, 1993), and how that impacted student decisions to stay or leave (Tinto, 2006). Before the 1970s, institutional research concentrated on the potential impact of gender, socioeconomic class, and race on student attrition (Burke,

2019). From the 1970s to 1999, two main conceptual models emerged regarding student retention and attrition: Student Attrition Models, which focus on events that occur before a student's departure and the beliefs that shape attitudes regarding dropping out or staying, and Student Integration Models, which propose that students drop out based on a variety of academic factors as well as social integration (Manyanga et al., 2017). Slinger et al. (2015) explain:

Tinto (1975) posited that college completion depends on the extent to which students are committed to their institution; commitment level depends on social and academic integration, which is determined by the quality of interactions with faculty and students. Bean (1980, 1983) focused more on cognitive and behavioral aspects of college completion by suggesting a significant role for perceptions of satisfaction and attitude impacting behavioral intentions to stay or leave. (p. 280)

In addition, much of the previous literature suggests that retention rates and student performance can be credited to a wide range of personal and social attributes and institutional practices (Thomas, 2002). McNeely (1938) found that the percentage of students obtaining a degree during or at the end of four years was 11.8% greater in private institutions than in public institutions, citing academic failure and financial difficulties as two main factors. Summerskill (1962) found that students withdrew for complex reasons, such as psychological, familial, social, and economic, while also focusing on motivational factors. Astin (1975) recognized two main predictive factors of student retention: personal (family background, marital status, study habits, educational aspirations, etc.) and environmental (residence, employment, academic

environment, etc.). Spady (1970) found that the dropout process can be explained by the interaction of the student and the college environment, providing the student the opportunity to assimilate into the academic and social systems of the college. This process was further expanded upon by Meyer (1970), who argued that integration into peer structures that shared the organization's values was important. Kamens (1971) described that larger schools had lower dropout rates because of their ability to integrate students into professional occupations, specifying that the more prestigious universities were perceived as able to offer more distinguished occupational opportunities. Tinto (1988) described the student's experience (integration) in college as the most critical factor for determining student departure, explaining that students must pass through three stages to become integrated: (1) separation from communities of the past, (2) transition between communities, and (3) incorporation into the communities of the college. Bean (1980) believed that student retention is analogous to attrition in work organizations and that satisfaction influences dropout. Bean and Metzner (1985) determined that nontraditional students were not typically socially integrated with their institutions, and their dropout decisions could be attributed to four sets of variables: (a) academic (study habits, course availability, etc.); (b) background (age, enrollment status, etc.); (c) psychological (satisfaction, stress, etc.); and (d) environmental (finances, hours of employment, family responsibilities, etc.).

Therefore, as seen in the previous research, poor retention can be attributed to several factors, including but not limited to personal factors (such as family responsibilities, time management, or study habits), financial concerns, social influence, a lack of academic or social integration, inadequate support, and work-school conflicts.

Prior research also indicates that retention has often been a marker of student success (Braxton et al., 2013). Student success, like retention, is often used to assess the quality or performance of the institution, leading to several definitions of student success in the literature (Alyahyan & Düştegör, 2020). Kuh et al. (2006) define student success as “academic achievement, engagement in educationally purposeful activities, satisfaction, acquisition of desired knowledge, skills and competencies, persistence, attainment of educational objectives, and post-college performance” (p. 7). York et al. (2015) revised the definition to outline student success as “inclusive of academic achievement, attainment of learning objectives, acquisition of desired skills and competencies, satisfaction, persistence, and post-college performance” (p. 5). While several definitions are attributed to student success, both broad definitions include the look at *academic* success as determining the student's success. Therefore, one can rationalize that student success and retention are directly linked, involving the student's academic success.

Aljohani (2016) found that higher rates of completion can give a more positive image to the institution regarding academic, administrative, and financial status; conceptually, “institutional image is described as the overall impression made on the minds of the public about an organization” (Nguyen & LeBlanc, 2001, p. 303). When the institutional image is poor, students can feel disconnected from the university, which can, in turn, cause low retention rates. Nguyen and LeBlanc (2001) found a positive relationship between institutional image and reputation on loyalty. Sung and Yang (2008) found that external prestige substantially impacted students’ supportive attitudes. Cyclically, favorable student retention rates can affect the institutional image,

directly impacting the loyalty and attitudes of the students. Brown and Mazzarol (2009) found that institutional image is a critically important construct for students and significantly affects student satisfaction, perceived value, and institutional loyalty. Therefore, an institution's image can impact whether students stay at the university, causing direct links to future perceptions of the institution in a cyclical effect. It can also adversely affect the institution's performance, thereby negatively influencing the institutional image and circumnavigating back to poor retention rates.

Retention rates frequently mark the performance of an institution. As Crosling et al. (2009) state, the importance of student retention is included in institutional statistics as a key performance indicator in educational quality. An institution's performance is often based on retention and graduation rates, directly impacting other university areas. For instance, student persistence behaviors help strengthen the academic institution's financial standing and reputation (Haverila et al., 2020). Institutions can receive additional funding based on their performance indicators, known as performance funding, which has gained popularity over the years. Yi et al. (2015) indicate that "performance funding is a logical extension of a performance indicator system in that it directly and tightly ties performance and funding levels together" (p. 503). With additional funding, performance measures can assist with strategic planning across the university and within its units. As Lewis et al. (2007) suggest, performance objectives are critical for higher education institutions because they serve multiple purposes, especially in strategic planning. Strategic planning is where the relation to course scheduling surfaces, as retention rates can drive these processes on campus, influencing the institution's retention rates.

Caruth (2018) states that graduation and persistence rates have remained the same over two decades, even though significant attention has been given to student retention for nearly half a century. Witteveen and Attewell (2019) found that 13% of entrants to 4-year colleges ‘stop out’ of college by interrupting their enrollment at some point during their first three years. Danaher et al. (2008) summarize that between 20% and 50% of undergraduate students do not complete their degrees, while Braxton et al. (2013) found that 45% of students enrolled in two-year colleges and 28% of first-year students enrolled in 4-year colleges depart at the end of their first year. DeShields et al. (2005) found that more than 40% of all college entrants leave higher education without earning a degree, 75% of these students drop out in the first two years of college, and institutions can anticipate that 56% of a class entering college will not graduate from that college.

Given that this phenomenon continues at an alarming rate, and the interest in student retention is very much alive, it is interesting to note that adequate focus has not been given to the course schedule and its bearing on student retention. Tinto (2006) explains that we have yet to test the efficacy of institutional practices that allocate faculty and resources to different segments of the institution regarding student retention. There has been little research to show the impact of course scheduling on student retention, even though the course schedule influences all aspects of the campus, serving as the foundation of college life. In a study done by Polinsky (2003), recurring issues with course scheduling impacted student attrition – even when other seemingly unrelated factors emerged. Athletics, campus activities, food services, shuttle services, and the operating hours of buildings and offices revolve around the

course schedule – when or if students will be on campus and where they will be. Zhang and Boamah (2021) found that universities can directly impact the number of on-campus activities via course scheduling. While the class schedule determines the student footprint on campus, it also determines which classes students can register for and provides a roadmap for degree completion. As outlined by Kardan et al. (2013), failing to consider the issue of course scheduling may lead to student dissatisfaction, unsatisfactory registrations, and an increase in course cancellations or number of student drops. Given this underrated prominence, it is critical to view retention by analyzing the process at the heart of the university itself. As Crosling (2017) shares, it is the responsibility of both the institution and the student to contribute to better processes to improve retention and the academic experience.

While student retention has been widely studied in higher education, students have evolved. Many students are considered nontraditional students now, which is often defined as a student over the age of 24. Remenick (2019) states the following:

The U.S. Department of Education defines nontraditional students by seven characteristics: delayed enrollment in college by a year or more after high school, part-time course enrollment, financial responsibility for themselves or their families, having dependents other than a spouse, being a single parent, working full time while enrolled, or did not receive a high school diploma (p. 114).

Battiste (2022) explains that 73% of students in higher education fit into the broader definition of a nontraditional student. As students evolve, so must the idea of student retention and student need. Ellis (2019) found numerous factors linked to

nontraditional students' persistence in higher education, including demographic, academic, and situational factors. Jeffreys (2007) found that environmental factors were the most influential in supporting or restricting retention for nontraditional students, followed by institutional interaction and integration factors. Allen (1993) found that creative class scheduling would allow students time for work responsibilities and school, outlining that success in college for nontraditional students deals with programs and services both in the classroom and on campus.

Student Decision-making

While access to higher education is more universally familiar in today's world, over 30% of students in North America fail to complete their college studies (Dewberry & Jackson, 2018); "While the number of students entering college has increased, the number of students who complete college has not shown a similar trend" (Benfield et al., 2016, p. 391). Seidman (2012) notes that many students who start in a higher education program drop out before completing a degree. This phenomenon has not been new for quite some time; some students who entered college have not succeeded in meeting their goals. Therefore, what influences student decision-making in higher education, particularly when remaining enrolled at an institution?

As Wilkins et al. (2013) stated, student decision-making and choice concepts have been widely studied over the years, focusing on theories on consumer purchasing behavior and the multiple decision-making steps. Most of the literature surrounding student decision-making in higher education revolves around choosing which college to attend (Reynolds, 2007). However, it outlines that student choice is a complex process involving various factors. Cheung Lai et al. (2014) explain that student decisions about

college entail high involvement because students need to consider a wide range of factors, and the decision will affect the student's self-image, with a significant risk of making a wrong decision. Furthermore, students must consider numerous variables when making their decisions. Some key decision-making variables for students in higher education, as noted by Moogan (2011), are course content, career advancement, the university's reputation, the course's reputation, and word of mouth. Aldowah et al. (2020) describe motivations, interaction, course content, communication, social presence, university and family support, abilities, prior experience, and content quality as factors that may influence student dropout, particularly in online courses. To expand on this, Kuhnle et al. (2014) investigate regret concerning a student's decision and identify how it may harm students' academic behavior and motivation, stating that it may affect their future decision-making. Osborne et al. (2004) found that students with multiple roles of responsibility, which can carry emotional and financial burdens, felt trepidation and uncertainty about making decisions related to higher education.

Othman et al. (2019) examined that class selection is one of the most critical decisions students face during college, affecting their academic performance and future. As a decision-making process, the course selection process is complicated with numerous sources of information available, including the instructor, course content and materials, course characteristics, workload, and informal word of mouth from peers and other sources (Babad et al., 1999). The course schedule is published with a wealth of information about how a course is offered, who is teaching it, what the course is about, and what materials are required. Babad and Tayeb (2003) explain that the class selection process involves a series of consecutive, codependent decisions about several courses,

where each choice modifies the considerations and weighting of course features for the next option. Students must make a sequence of interwoven decisions regarding their course selection each term, and each choice that they make directly impacts the decision they will be able to make about the next course. These choices add complexity to course selection and the entire decision-making process for the student. Babad and Tayeb (2003) further explain that students seek shortcuts to reduce the effort and simplify the course selection task. Maringe (2006) specifies that course decisions tend to be related to institutional choices and that the factors influencing course preference are the ability to get into the course, the reputation of the course among employers, graduate satisfaction, graduate employment rates, the quality of teaching, approaches to teaching and assessment, including opportunities for flexible study. Some students may choose a course based on whether they can enroll, whereas others may focus on the reputation of the course and the success of students who have previously completed it. Lynn and Emanuel (2021) add to this by including factors such as personal interest, simplicity of the course, social status, the university's examination protocol, the timetable schedule, and course format. Students may choose to enroll in a class because the topic is of personal interest or because their friends are enrolled in the same course, or it could be that the course format and the timetable closely align with their work schedule or family responsibilities. Course selection as a decision-making process is messy and disorganized for students and could lead to students dropping or adding courses into the semester (Babad, 2001). As prior research suggests, student decision-making concerning course selection involves several factors, but what about student decision-making related to staying enrolled in a course?

To understand why a student stays enrolled in a course, it is imperative to understand how students view the courses in which they are enrolled. Curran and Rosen (2006) found influential factors essential to student attitudes toward a course include the interaction between instructor and students, the emotional environment for each class, the physical environment and setting for each class, student participation, the interaction between students, innovation, and technology, and the reason for being in the course. Much like the decision-making process for course selection, several factors influence a student's satisfaction with the course in which they are enrolled. Strelan et al. (2020) cite the student involvement theory, which indicates that students are more likely to be satisfied with their educational experience when they expend more physical and psychological effort engaging with their academic environment and peers. Driscoll et al. (2012) also mention that the timely and substantive interaction between students and instructors indicates course satisfaction. The interaction between students, faculty, and students and peers is essential for students to feel satisfied with their course selection. Poon (2019) builds upon this idea by stating that teaching performance, including educational activities and course materials, determines student satisfaction. Furthermore, in examining the technology behind how students interact with their courses, called the learning management system (LMS), it is crucial to note that certain factors arise regarding student satisfaction. Ghazal et al. (2018) found that student characteristics (technology experience), classmate characteristics (attitude and interaction), and course characteristics (quality and flexibility) were vital elements for a positive experience and satisfaction with the learning management system (LMS).

Regardless of which factors influence student satisfaction, it is essential to

understand the implications student satisfaction with their courses can have on retention. Shahijan et al. (2015) postulate that if students have a high level of satisfaction, the rate of student dropout will be reduced, and students will demonstrate a higher degree of commitment and persistence. When students persist, they remain enrolled in both the course and at the institution; however, when they withdraw, they can do so from their course or the institution entirely. It is paramount to comprehend how student decision-making and satisfaction impact their choice to withdraw from their classes or the institution.

Student Withdrawal

According to Akos and James (2020), withdrawal from college has been an important topic in higher education literature for half a century due to the significant cost and curricular implications for students and institutions. As explained by Larsen et al. (2012), ‘university’ dropout is typically used to describe when students leave the university before obtaining a formal degree, and while terms like ‘dropout’ and ‘non-completion’ can have negative undertones, the term ‘withdrawal’ stresses a more voluntary aspect of leaving a university. Regardless of the term used, there can be financial repercussions for the student and the university if there is a failure to retain the student. According to Seidman (2012), there are many economic consequences of early student departure from college: Students may be left with loans that must be repaid, and the tuition and auxiliary costs for the institution can be substantial. Therefore, it is in the best interest of institutions and students to focus on increasing and highlighting the importance of retention.

Student withdrawal from courses is a typical enrollment behavior in two- and

four-year sectors (McKinney et al., 2019). Wheland et al. (2012) found that 35% of first-year students withdrew from at least one course even after receiving thorough and intensive academic advising, while 54% of students had withdrawn from at least one course by their sophomore year. Hagedorn et al. (2007) also reported that 38% of students dropped courses between Fall 2000 and Winter 2001. In a previously conducted study by Morris (1986), 35% of students reported dropping a course for the Fall 1982 semester, citing schedule conflicts as the top reason (26.7%). Before that, Fleming (1985) found that 28.77% of the student body was responsible for an average of 57.3% of total hours dropped for Spring 1981, Fall 1981, and Spring 1982. McKinney et al. (2019) explain that course withdrawal rates at individual colleges ranged from 6.3% to 15.5% in 2011, citing institutional factors such as student profile, registration procedures, and academic advising as influencing course-dropping behaviors. Burt (2022) cites cost and affordability as two of the top factors weighing on students, with mental health and other academic challenges also on the list of reasons why they have entertained dropping out, with nearly 40% of students during the past year considering leaving their institutions.

Students withdraw for a variety of reasons. Kalsner (1991) and Bergman et al. (2014) found that withdrawal decisions typically stem from personal, social, and financial problems. For example, some students leave because of work-study conflicts, while others leave due to family problems (including dependent care) or lack of institutional or family support. Furthermore, reasons that students withdraw also include internal environmental factors. Internal variables include financial aid, housing policies, enrollment status, counseling, evening and weekend scheduling,

instructor/advisor support, sufficient institutional policies and procedures, adequate university support, and dining services. Other environmental factors include finances, employer support, and significant life events (Bergman et al., 2014). Thus, the relationship between the student and their internal and external environments can impact their progression to degree completion. Additionally, it has been established that nontraditional students are more apt to leave due to conflicts at work and home (Jones, 2019). Tinto (1975) referenced a theoretical model focusing on the interaction between the student and the institution to expand on these considerations. This model posits that students are more likely to drop out if they are insufficiently integrated into the social systems and culture within the college. As mentioned, regarding student success, Tinto (1975, 2006) found that students must be fully integrated socially and academically to persist in college, thereby leading to their success and preventing their withdrawal, an idea first applied by Spady (1970) to drop out. Bean and Eaton (2002) found that psychological processes lead to academic integration and that individual characteristics such as motivation and self-efficacy play a role in a student's decision to withdraw. As Behr et al. (2020) summarize, prior literature on student dropout and persistence focuses on sociological (e.g., academic integration, institutional structure, student-institution fit), psychological (e.g., interaction behavior, social/academic integration, self-efficacy, motivation), and economic perspectives (e.g., valuation of a college degree, weighting costs/benefits, career prospects, financial situation), or a combination of those theoretical perspectives (e.g., both internal and external factors during study). Thus, student dropout involves many factors, relying on the compatibility between those factors based on the individual student, organization, and

circumstance; these factors directly affect a student's decision to withdraw from a course or the institution.

As McKinney et al. (2019) noted, courses are the basic building blocks of a college degree, but the outcome of withdrawing from a course remains understudied in research. Michalski (2014) defines withdrawal from a course as *course attrition*, while withdrawing from the institution is simply *attrition*, and explains that while withdrawing from a course is a more positive outcome than withdrawing from the university, individual course withdrawal is still problematic in its own right. According to Boldt et al. (2017), course withdrawal decisions are both time- and money-costly for students and can cause the institution to misallocate seats and resources. Even though each decision a student makes can have a significant impact on their future, part of the college experience is being involved in constant decision-making: selecting a program or major, selecting an institution to attend, choosing courses to enroll in, and then choosing to stay enrolled in those courses or swapping them out for other options. Babad et al. (2008) stipulate that students are involved in continuous decision-making processes in college, and after they select their courses and begin attending them, they put their selection processes' utility to an empirical test. This refers to the "Drop/Add" period, where students can change their courses by dropping some, adding others, or dropping all. After a student decides to enroll in a course and attend it, they weigh the pros and cons of remaining registered. Bosshardt (2004) clarified that a student's decision to drop depends on the expected costs and benefits of completing the course. Babad et al. (2008) found that there are times when it is beneficial for a student to drop their courses, such as when they are several weeks

into the semester and realize that they are unprepared for the content. Rather than having an “F” appear on their transcript, it can be more beneficial for the student to withdraw from the course. Students can also attend the first class, realize the course content is too complicated, and withdraw to take a presumably more straightforward course. However, the decision to withdraw from a course can vastly differ from the decision to withdraw from the university. Reed (1981) makes a fundamental distinction that withdrawal from college and from a course while remaining enrolled are not the same and have different causes. Hagedorn et al. (2007) specify that they are not identical actions but involve overlapping features.

Kimbark et al. (2017) found that mastering self-management skills and developing interdependence were equally crucial in facilitating a student’s decision to stay enrolled at the institution. Brower (1992) describes how students pursue different outcomes in college and how those personal goals and educational objectives, coupled with compensatory relationships, can impact their decisions to persist. In this sense, it depends on why the students chose to attend college in the first place, coupled with their educational objectives and the relationships they form while attending the university. Meyer et al. (2009) found that the availability and convenience of access to courses in the correct format (in this case, online) are most important when examining why students enroll and stay enrolled at the institution. Course format plays a significant role in why some students remain enrolled in their courses and the institution since some universities offer degrees in specific formats (online versus in person). Behr et al. (2020) also found that there is rarely only one isolated aspect that increases or reduces student dropout; it is more an interrelationship of varying factors, which include things

like gender, individual level, age, parental background, self-confidence, working while studying, academic performance, satisfaction, and fit with the environment. Course attrition, as well as attrition in general, often includes personal and institutional factors.

Hence, student retention, success, and persistence depend on the student and the institution. The student must have the motivation and self-efficacy needed to persist. Still, the institution must also provide an assimilating culture, easy-to-navigate processes, available resources, and an overall structure amenable to student success. While much focus has been given to improving retention regarding student characteristics, student motivations, student effort, and campus culture, no attention has been shown to the course scheduling process, which can work against the abovementioned concentrations.

Course Scheduling

Course scheduling in higher education is often referred to as timetabling. “University course scheduling, or timetabling, is a complex problem involving logistics, politics, funding, and pedagogy” (Hill, 2010, p. 11). Course scheduling is like assembling a complex puzzle, often with various moving parts that are hard to decipher. With thousands of sections to schedule at a given time, the puzzle can often be overwhelming, complex to interpret, and even more difficult to weave together. Sarin et al. (2009) state, “The sheer size of a university-timetabling problem, which typically involves the scheduling of thousands of courses to be taught by hundreds of faculty members over hundreds of classrooms, makes this a formidable problem to solve to optimality” (p. 131). Malmgren and Themanson (2010) describe it as a complex puzzle involving many factors that may compete in priority. While one piece of the puzzle may seem most important,

another element comes into view as significant, causing parts of the puzzle to struggle against each other for worth. Furthermore, some of the pieces of the puzzle are often missing. According to Southerland (2017), course scheduling is like a Rubik's cube, but only solving one side of the cube does not solve the entire puzzle. Therefore, sometimes, one puzzle piece may be solved, but another component is misplaced or indecipherable. The trick to course scheduling is understanding how the pieces match the course's curriculum and how that impacts the academic achievement of the students enrolled in those courses.

Hayes (2013) described the schedule as resembling the human body's skeletal structure, supporting and maintaining the programs, initiatives, and support structures while also having the ability to be crafted to allow new programs, initiatives, and support structures as needed. Effective scheduling should support and maintain the institution's current programs, initiatives, and program structures and help promote ways to improve those key components. Primarily, the course schedule should meet the needs of the students while positively enhancing the organization's and community's climate and culture (Leach & Zepke, 2003; Stoecker, 2008). As Hayes (2013) so eloquently points out, "in the end, it is not about a schedule that is printed on a piece of paper; it is about meeting the individual needs of all the stakeholders in an organization" (p. 9).

While the process is much more complicated than you might expect, it is also mission-critical in a time of decreasing enrollment and shrinking budgets (Dickler, 2022). Despite enrollment shifting, course scheduling is still crucial for universities as their budgets and resources are limited. Oude Vrielink et al. (2019) describe the issue of centralizing and diminishing resources, such as classrooms and housing, as budget cuts

occur, even in a time of increasing enrollment for some universities. To clarify, some universities are experiencing a resource shortage as the cost to maintain buildings outweighs the budget allocated for facility maintenance, requiring them to sell buildings or demolish them to reduce their campus footprint. In a time when budgets are fading, universities need to find ways to supplement or better allocate their resources to endure the necessary changes.

Additionally, as institutions become more service-oriented and look for ways to increase their service to students, course scheduling must not be overlooked. As described by Wang et al. (2008), the efficiency of course scheduling is a crucial indicator of the school's service quality and is a critical service item. While some may argue that students are not "customers," one cannot ignore that increasing the level of service provided is desirable, especially if no additional costs are involved (Sampson & Weiss, 1995). Incidentally, viewing students as customers also brings to light the concern that higher education institutions often compete for students and their enrollment. Limarev et al. (2019) describe how competition in the market for education services characterizes the state of the industry and leads to the necessity of finding new ways to increase the economic efficiency of higher education providers who are facing intensifying competition with each other. Increasing the economic efficiency of higher education can start with course scheduling.

Course scheduling, or timetabling, can be strategic and purposeful. Suppose universities focus on the approach to building course schedules rather than the data entry behind it. In that case, they can positively impact student retention and time to completion (graduation). As Cintrón and McLean (2017) clarify, "reducing the time it

takes to complete a post-secondary degree can be accomplished with purposeful course scheduling” (p. 102). By analyzing how courses are offered in combination with the number of students and resources available on the campus, universities can crack the code of course scheduling and find a suitable balance that will allow for fewer course conflicts and more student options. In a study by McMillan et al. (2013), gathering data, such as information on historical course offerings, was proven to help drive strategic decisions on campus about what to offer to decrease conflicts and bottlenecks in students’ progress toward graduation. Improving upon these issues can only increase retention as students are more likely to stay on track with reduced conflicts and issues surrounding the course schedule.

Timetabling

Previous research has focused on course scheduling as timetabling, and there is no shortage. According to Boronico (2000), there were over 1000 references to timetabling as of 1995, while Oude Vrielink et al. (2019) specify the literature saw an increase in publication between 2005-2015. What is timetabling? Hill (2010) outlines that a typical definition of timetabling in literature is determining which courses are taught by whom, at what days/times, and in which rooms. Miranda et al. (2012) cite the definition of course timetables and classroom assignments as a crucial process for post-secondary institutions. Regardless of the definition or label, timetabling and course scheduling are identical as they both get at the heart of building the schedule for the institution: deciding when courses are offered, on what days/times, in which rooms, taught by whom, and in what format. Furthermore, according to Oude Vrielink et al. (2019), studies have found that problems in the field of timetabling have caused dissatisfaction among students,

staff, and the organization. This further signals the importance of course scheduling and timetabling for universities as satisfaction remains paramount in unity with efficiency and educational quality levels.

Timetabling research also focuses on room assignments, sometimes in unification with timetabling concerns. As indicated by Barnhart et al. (2021), “most course scheduling literature focuses on course timetabling and room assignment, the two problems with the largest decision space and thus with the most to gain from an automated approach” (p. 2). Since timetabling and room assignments are pieces of the puzzle that adhere to a specific set of data-driven rules, prior research has strived to solve the timetabling problem by automating it with optimization-based algorithms, programming models, and more tractable curriculum-based approaches (Barnhart et al., 2021).

The problem of course scheduling concerning timetabling has been extensively studied in the literature, with various solutions offered based on operations research (Miranda et al., 2012). Most prior research, however, is sorted by discipline or categorized into specific areas. As Barnhart et al. (2021) indicate, “Traditionally, timetabling problems are divided by application area” (p. 3). Regardless of discipline, researchers have taken various approaches to course scheduling and the timetabling problem: mathematical programming, logic programming, and decision-support systems to aid experienced users (Hinkin & Thompson, 2002). Much of the research has focused on solving the timetabling issue with specialized algorithms or distinct programming that allows the output of more optimal schedules that better utilize timeframes and room assignments. At a rudimentary level, previous research has been primarily operational

and tactical rather than strategic (Lindahl et al., 2018). There has been little research to look at the timetabling problem from a more strategic decision-making approach; it is difficult to find additional research on how such decision-making would impact retention.

Centralized Versus Decentralized

As Jacobson (2013) explains, there are two general models of classroom scheduling: centralized and decentralized. The same is true for the overall process of course scheduling. The centralized approach consists of one central department, typically the Office of the Registrar, inputting the schedule submissions. The decentralized approach, by contrast, consists of the individual departments within each college or school keying the schedule submissions. Heikel (2012) explains the centralized operation within a single office, vested with decision-making authority and existing as a distinct entity on campus, whereas decentralized distributes responsibilities and functions to separate academic units with individual autonomy. The primary difference is those responsible for overseeing and entering the course schedule information directly into the scheduling software or Student Information System (SIS).

In the centralized approach, the overall process of course scheduling and the intricacies involved in inputting the course schedule into the scheduling software or SIS fall to one unit on campus, often the Office of the Registrar. This approach has several benefits, as you have one office overseeing the entire course scheduling process for the university, including managing policy creation alongside campus peers. Sutton (2018) indicates that moving to a centralized approach could restore order on your campus while ensuring students can access the necessary courses to complete their degree. Part of this is because centralized scheduling allows for a more cohesive manner for entering the

schedules and a more consolidated way of overseeing compliance with the rules and regulations governing the course schedule. For example, instead of the departments scheduling the courses without oversight regarding the spread of meeting patterns, centralized scheduling gives the unit overseeing the schedule the authority to enforce a standard percentage for courses meeting within primetime to courses campus wide. In addition, there is a smaller margin for error as fewer schedulers enter the course schedule directly into an SIS system, reducing data entry mistakes by having those specifically hired and trained to do the heavy lifting. The reduced margin of error is why centralized scheduling is considered a national best practice, as detailed by Portalatin (2018), and why universities are making the switch.

Another benefit to centralized scheduling pinpoints a primary ongoing concern for universities – resource constraint. Centralized scheduling espouses the benefits of having fewer resources to oversee the entry of the schedule itself while also requiring fewer resources for course development. Piper (1996) thought centralization was more effective in capturing efficiencies than were lost using the decentralized method. Unlike in the decentralized technique, administrative efforts are unduplicated when using the centralized approach, leading to cost savings for the institution over time.

In the decentralized approach, while the general oversight of the schedule (ensuring that it gets done) might remain with the Office of the Registrar, inputting scheduling details in the scheduling software or SIS falls to the departments or academic units. McMillan et al. (2013) explain that the decentralized timetabling system allowed representatives from every department to input their schedule directly into a legacy SIS and assign those courses to certain rooms. Historically, this approach has consisted of the

departments or units not only inputting the schedule but also overseeing decisions and policies related to their schedule. Moreover, the departments in a decentralized approach are also responsible for any errors or data entry mistakes on their schedule of classes. Much like centralized scheduling, this approach also has unique benefits. First, the departments have more control over their schedule and have a hand in decision-making processes that govern the course schedule; they also have an in-depth look into the scheduling process. Mooney et al. (1996) describe that decentralization means that departments can also respond to changes in demand, instructor availability, and other factors. Second, while the decentralized approach requires more resources and often duplicates administrative functions, something must be said about the ownership of the data and how the departments overseeing their course schedules have more implicit knowledge regarding their schedules than other offices on campus. In this sense, the financial cost may seem more significant, but the institution could see savings by having those with a more intimate knowledge of their degrees and programs at the helm. Nevertheless, the decentralized approach has drawbacks as more universities grapple with decreasing budgets and limited resources. Hill (2010) surmises that while the decentralized style has worked in the past, it has begun to prove problematic due to a significant enrollment increase without a comparable increase in classroom space.

Regardless of the approach, the focus must be on the needs of the students when building and finalizing the course schedule for a term. According to Barnhart et al. (2021), a good course schedule should allow students to attend all the courses they need or want to take without conflicts. In this sense, the centralized approach is often touted as being superior. Hentschel (1991) argued the significance of having a central office to

manage the “big picture” to respond to student needs. Sutton (2018) agreed by affirming that moving to centralized scheduling can be necessary for meeting the needs of adult learners by ensuring that your campus offers enough evening courses. Having one central administration responsible for oversight makes enforcing consistent rules and regulations across the campus easier, ensuring students are at the forefront of scheduling. However, given technological solutions that have emerged over the last few decades, such oversight can be given to one central office while the data entry resides with the individual departments. Therefore, it is no longer a choice between a centralized versus decentralized approach; instead, it is a culmination of the two, bringing together both worlds to revolutionize the course scheduling process.

Technological Solutions

In recent years, course scheduling has received a face-lift as companies have focused on improving course scheduling through technological advancement. According to Miranda et al. (2012), manual scheduling methods require enormous amounts of time and resources to deliver results of questionable quality, and multiple course and classroom conflicts usually occur. As it happens, Comm and Mathaisel (1988) found that a software solution was needed back in the 1980s when they stated that there should be “the development of interactive tools on computer workstations to simulate and help automate the manual scheduling process” (p. 189). Knowing that this niche needed to be filled, companies have been working on scheduling solutions for quite some time and have recently taken it to the next level with software solutions to course scheduling by crafting deliberate class scheduling software. Rustaletov (2020) explains that various systems and services are designed to create schedules, reserve classrooms, and assign

classrooms for course teachers at specific times. The software solutions allow institutions to be more strategic about building their schedule of classes, purportedly taking the bulk of the data entry out of the equation. In a case study by CourseLeaf (“Increasing Engagement and Reducing Scheduling Timelines with CourseLeaf,” n.d.), it was found that course scheduling software drastically reduced the amount of time spent on manual data entry and human error. Course scheduling now looks different to some universities, depending on how the overall process is controlled. While some institutions still schedule using spreadsheets and templates, keying the information into the system by hand, others have taken that technological leap forward, conducting their overall process with the help of scheduling software or other solutions. Course scheduling solutions continue to advance, as Huang et al. (2021) recently shared their findings on an artificial intelligence-aided course scheduling system.

Perhaps the most significant advantage of technological advances in the world of course scheduling in higher education is the ability to streamline the process while focusing on the needs of the students. There is no longer such a divide between centralized and decentralized because technological advances have bridged the gap, allowing the Office of the Registrar to oversee the “big picture” of course scheduling while decentralizing the editing of the schedule to the academic units. According to Siva and Chhabra (2003), “Chairs of departments now can schedule faculty, rooms, and courses for an unlimited number of semesters” (p. 177). Utilizing technology to improve course scheduling is quite the step forward, as institutions can improve processes, policies, and procedures all within the software. For instance, while some institutions have Standard Meeting Pattern policies for when their courses should meet on campus,

many are not enforced. A scheduling tool helps institutions impose these policies from a centralized tactic while building the schedule for any given term using a decentralized process. In doing so, the schedule is clean, intentional, and cohesive, with student success in mind. The software advances allow for easy scheduling data management, automated SIS syncing, and increased data transparency.

Managing scheduling data in and of itself is a difficult task, dependent on the size of the institution. For some universities, there are thousands of sections to plan each term, which can be overwhelming. Course scheduling software allows universities to write data entry and maintenance rules directly into the software itself. As described by Dasgupta and Khazanchi (2005), “With the development of software technologies such as intelligent agents, it is now possible to address the fundamental challenge of combining real-time environmental data with existing decision rules and historical knowledge about the domain obtained from previous experience” (p. 64). The development of software technologies is a substantial turning point in course scheduling for the primary reason that the Student Information System (SIS) does not allow for error checks or rules to be put in place without heavily modifying the entire system; this is not ideal as heavily changing a program for the whole university can cause catastrophic issues down the line, such as increased lag times, heavy data loads and a slower network. The hard part is done before the data is synced back into the SIS by writing the rules for entering and managing data into the scheduling software. Therefore, any data coming back from the scheduling software into the SIS is not only clean, but it is precisely scheduled around rules, error checks, and course scheduling policies at that institution. These technological advances reduce scheduling inefficiencies and promote strategic scheduling to reduce conflicts and

enhance student's scheduling experiences. While maintaining data accuracy, these technological innovations also create transparency between departments.

Sharing the course schedule data with constituents across campus, even other departments, can be daunting without scheduling software. Housing the data within the scheduling software allows easy access for others on campus, where any faculty or staff member can log into the system to view the data. The improved accessibility increases transparency between departments and allows faculty and advisors to view the information and catch potential issues before the schedule goes live for students to view and register. Scheduling software also makes reporting on the data much more accessible, allowing other stakeholders across campus to see what is happening on campus regarding course scheduling. Transparency is essential because, as outlined by Bloomfield and McSharry (1979), "the success of any model is strongly influenced by the usefulness of the output that it generates" (p. 29). Campus Police, Residential Life, Food Services, and New Student Programs are just some of the offices that benefit from running reports on the schedule of classes and seeing how many students are expected to be on campus at any given time.

Bringing all these benefits together, employing scheduling software for building the schedule of classes helps streamline the schedule while assisting institutions in updating or changing their business practices. It can modernize the process, reduce staff workload, and enhance student's academic quality and learning experience by reducing errors and conflicts and providing a more intentional approach to course scheduling. The innovation does not stop there, as course scheduling software continues to improve by integrating with Degree Audit Reporting systems to predict course demand based on

student programs and plans. This ingenuity provides another layer of knowledge as the course schedule can be built around future course demands, anticipating the needs of the students based on their academic plans. Predicting course demand is pertinent to student success for several reasons, but primarily means that students no longer have to wait for their required courses to become available. Students can continue their academic journey without roadblocks positioned by poor scheduling. This advancement will change course scheduling forever, thrusting higher education into a world of technology that can place students at the forefront of the most imperative processes on campus.

Student Preference

One of the most significant challenges to course scheduling remains the preferences of the faculty and the students. Ralph et al. (2021) note that students are consumers who make choices about their education, and student course selection can be studied as a decision-making process. Student decision-making helps explain why universities are stuck in primetime—students and faculty love specific times during the day and rarely want to shift from that schedule. According to Dills and Hernández-Julián (2008), it is essential to remember that students are not randomly assigned to courses; they schedule their own, and this course selection includes choosing a time when they know they will perform their best. While there has been much debate on which time of day is the best time for students regarding performance, thought must be given to student availability and overall time preference. A Class Scheduling Survey done at the University of Missouri – St. Louis in April of 2016 found that of 449 surveys completed, 408 respondents ranked “when the classes are offered” as the most critical factor when determining one’s schedule, after it has been decided which courses the student needs to

take (“University of Missouri – St. Louis,” 2016). The study also found that most respondents preferred a schedule during primetime, defined as being between 10 a.m. and 2 p.m., Monday through Thursday. To be precise, most students chose the 10 a.m. to 12 p.m. timeslot, the busiest time for most institutions.

Scheduling during primetime has caused such a bottleneck for scheduling that several institutions have implemented policies regarding how many courses can be scheduled during primetime. Loveland and Bland (2013) confirm that “the University of Arizona implemented a rule that allows each college to schedule no more than 70% of its courses during prime time” (p. 191). The University of Missouri – St. Louis has implemented a similar policy, enforced with the help of their scheduling software, which requires no more than 50% of each department's sections to be scheduled during primetime (“University of Missouri – St. Louis’ Office of the Registrar,” 2020). Primetime scheduling has been an issue for quite some time, as students prefer to meet during the day rather than early in the morning, which is a concern as the demand for campus resources is restricted to a specific period, causing high demands for rooms, parking, food, student support services, etc. Zhang and Boamah (2021) explain that parking management is a central issue in planning a sustainable campus and that course scheduling could impact on-campus traffic and parking demand. In addition, this high demand for resources across campus leads to disaster as students have long wait times for services across campus, causing frustration and headaches. For example, suppose most courses on campus are scheduled during primetime, and a student requires tutoring while on campus. In that case, it strains tutoring services before and after primetime as students try to squeeze in before or after. If those slots become full, it causes an inability to access

services needed for success, which is detrimental to student success. Course scheduling has a domino effect on and around campus, causing disadvantageous results if not done correctly.

Faculty Preference

Faculty preference remains at the forefront of scheduling as well. Badri et al. (1998) noted that the assignment of courses in an academic environment is not without some organizational and individual goals that influence the assignment problem. Primarily, the administrators' plans are often guided by the change in student demand, focusing on enrollment and retention. The challenge, then, focuses on how an institution balances student demand with faculty preference when it is also an essential consideration in the scheduling process (Badri et al., 1998). Samiuddin and Haq (2019) define how universities prioritize a faculty's preferred schedule, proving that faculty preference remains a central influence in scheduling. However, it is imperative to note that while faculty may not always receive their preferred time slots, the more significant issue becomes balancing faculty preference with the institution's policies and goals and the student's needs. Faculty preference is so vital that Houhamdi et al. (2019) incorporated it into their multi-agent system for course timetable generation to lessen disappointments in the department.

Student and faculty preferences are often engrained in the institutional culture, making it difficult to change. Change, in any capacity, can be difficult as people are often creatures of habit and do what is known to them. However, not adapting to the times can harm the campus, hindering advancement toward student success, retention, and graduation.

Institutional Culture

Like many things in an organization, course scheduling feeds off the existing institutional culture. Every organization has a culture with inherent subcultures. Pacanowsky and O'Donnell-Trujillo (1983) note that each organization has its way of doing what it does and talking about what it is doing. For many universities, the culture surrounding course scheduling is archaic, focusing on doing what was historically done rather than thinking of new and innovative ways to complete the process. As explained by Hill (2010), the foundation of the schedule every year is the previous year's schedule, as well as decisions about which courses to offer, how many spaces and sections for each class, and assigning faculty to teach the lessons. How the course schedule is built is seldom changed from historical practice, as terms are brought forward by copying or rolling and changed only slightly in terms of the instructor, meeting times, and room allocations. This pays homage to how course scheduling has been done for the past 30 years. This inherent knowledge of how the institution has always done things can often harm progress, especially in the scheduling world, as departments, administration, faculty, and staff are slow to accept advancements that go against the preconceived understanding of "how it's done." Nevertheless, institutions must go against the grain to continue improving and adapting. Shaver (2020) advises that copying schedules will no longer work because research has shown that those schedules are not typically aligned with students' needs, and such schedules are rarely efficient for institutions. While historical data, such as student enrollment, can be beneficial in guiding future decisions, it cannot be the only factor when building the schedule. In today's world, the schedule must adapt to the changing climate and shifting needs of the students and the institution

itself. That means institutional culture will have to change, but it will ultimately be for the institution's success.

Due to the institutional culture held by most institutions, course scheduling still faces numerous challenges today. As Southerland (2017) explains, current challenges include academic departments not working together on how to offer general education or support courses for their students, departments, and faculty migrating towards primetime scheduling only (e.g., 10 a.m. – 2 p.m.), overlaps or conflicts in required courses, and canceling classes due to a low fill rate or lack of qualified instructors. Primetime offerings are one example of how institutional culture works against course scheduling (para. 5). Undoing the belief that something is working because it is how it has always been done is complex and quite an uphill battle. Still, it must be fought for the good of the institution and continual advancement. Improvement can be realized by considering unconstrained student preferences when producing the course schedule (Thompson, 2005). Concentrating on student preferences coupled with student demand, instead of relying on historical processes stifled by institutional culture, generates an exclusive opportunity to produce a more student-focused schedule based on real-time data. In doing so, the institution puts student retention at the forefront of course scheduling – opening the door to new possibilities for increasing student success through enrollment, retention, and graduation rates.

Course Schedule Modifications

Course schedules are often built six months to a year in advance, when certain schedule aspects may be unknown (who is teaching, what days/times the course will be taught, what format). Therefore, building the schedule can be a best-guess scenario in

some instances. When those guesses are wrong or modifications are needed to the schedule, the results can be far-reaching. As noted by Hill (2010), “course-by-course scheduling modifications degrade the overall integrity of the schedule” (p. 11). These changes are because universities generally “publish” the schedule of classes for students to see and enroll in many months before the semester begins because enrollment starts that far in advance. Modifying the schedule after students have enrolled can lead to distrust or frustration for the students because they have already spent time creating their schedules around other aspects of their lives. Ralph et al. (2021) express how students build their schedules to reach the best possible outcome, often weighing their academic needs with other life demands (work schedules, caregiving responsibilities, etc.). Updating the schedule of classes after students have spent so much time arranging their courses to fit their needs can damage the student's trust in the institution, directly influencing retention rates and time to graduation.

Chapter Summary

This chapter discussed the literature surrounding student retention in higher education with student success and withdrawals. This chapter also examined the existing literature on course scheduling, including timetabling, centralized versus decentralized approaches, technological advances, student preferences, institutional culture, and course scheduling modifications.

In summary, course scheduling is a complex process with far-reaching impacts on students, faculty, and staff. In an era defined by budget constraints but a desperate need for enrollment, student success, and retention, institutions must take a step back to look at all processes with an innovative lens. Course scheduling requires a strategic, mindful

approach to contribute to student success in higher education rather than impeding it. Student success is obtainable via course scheduling by implementing a process that is decentralized in the editing portion but centralized in oversight. It cannot be centralized or decentralized; it must combine both to ensure that the “big picture” is realized while the intricate details are fine-tuned. This approach must be coupled with technological advances like course scheduling software systems to reach its full potential. Building a course schedule must shift from historical information driving the process to student preferences and student demand leading the way. Shifting that focus may require a change in institutional culture, but it will help ensure that the institution survives to have a culture that exists in the future. In a strategic plan adopted by McMillan et al. (2013), retention rates were increased by an entire percentage point by concentrating on course data analysis, policy changes, enhanced course scheduling tools, and curriculum analysis. Focusing on student success, retention, and graduation rates as an outcome of effective course scheduling must be the future of higher education for institutions to succeed – bottom line.

CHAPTER 3: Methods

The purpose of this study was to examine the course schedule and its impact on retaining undergraduate degree-seeking students at a state-funded, 4-year institution by examining (a) class standing and the perceived importance of the ability to schedule courses in a certain way, (b) class standing and the decision to take a course at another institution following the inability to enroll in a required (major) course for graduation. Furthermore, this study examined the course schedule and its impact on student retention by exploring what factors (such as work/studies conflict, financial issues, family responsibilities, or academic dissatisfaction/difficulty) most predict someone withdrawing from the university and (a) not planning on returning, or (b) transferring to another institution. This chapter focuses on the methodology, the participants and setting, data collection, validity and reliability, data analysis procedures, ethics, and human relations.

Research Questions

Four research questions were considered to aid in the understanding of how course scheduling may adversely affect the retention of undergraduate degree-seeking students at a state-funded, 4-year institution in the United States by concentrating on what drives decision-making concerning enrollment:

1. What is the relationship between students' class standing and the importance of their ability to schedule courses in a certain way?
2. What is the relationship between students' class standing and the intent behind the students' decision to take the course at another institution following the inability to register for a required course?

3. What is the relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to withdraw?
4. What is the relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to transfer?

Research Design

A quantitative research method was used. Among other things, it was chosen to allow future researchers to replicate the findings easily (Allen et al., 2009). A cross-sectional survey research design was implemented, along with an analysis of longitudinal archival data from an established Withdrawal Survey in use at a state-funded 4-year institution in the Midwest, to determine if there was a correlation between student retention and course scheduling. First, an electronic survey instrument, distributed via email at a state-funded, 4-year institution in the Midwest, was used to collect data regarding course scheduling and student preference/decision-making. Second, an analysis of archival data from an established Withdrawal Survey in use at the same institution was performed to focus on student withdrawal. As Goertzen (2017) outlined, quantitative research methods focus on collecting and analyzing data that is both structured and can be represented numerically. This design was chosen to identify the relationship between the variables in research questions one and two, if applicable. Archival data were used to see which factors, as outlined by questions three and four, most predict someone withdrawing from the university and not planning on returning or transferring to a different institution. For research question three, the binomial logistic regression analysis will determine which factors most predict someone withdrawing from the university and not planning on returning. For research question four, the binomial logistic regression

analysis will determine which factors most predict someone withdrawing from the university and transferring to another institution.

Sample and Population

The sample for the cross-sectional survey portion of the study consisted of undergraduate degree-seeking students from a state-funded, 4-year institution, Midwestern University (pseudonym), in the Midwestern United States, enrolled during the fall 2021 term. A previous course scheduling survey conducted at the institution yielded 449 respondents, but since enrollment has declined at the institution since then, the target sample size for this study was 400 respondents. A state-funded, 4-year institution was selected because it is more likely to use comparable course scheduling processes as other universities; without private funding, it is less likely to use high-tech course scheduling systems, giving more compatible results. The only criterion for participation was that the respondent be a student enrolled during the fall 2021 term at the university. For this research, the primary focus was given to undergraduate degree-seeking student responses since they are more likely to experience conflicts with required courses.

Midwestern University (MU) is a public research institution in the suburbs of an urban setting in the Midwest with an enrollment of around 15,000 students. Residing in a city with several community colleges, MU accepts many transfer students, leading to more juniors and seniors than first- and second-year students. Unlike many traditional college campuses, MU does not require specific student populations to live on campus. Therefore, the off-campus population of students is more significant than those who live on campus.

Instrumentation

Both a survey and archival data were used. According to Creswell and Creswell (2018), a survey quantitatively describes a population's trends, attitudes, and opinions and allows researchers to answer questions about relationships between variables. The cross-sectional survey design collects data at one point rather than over time (Creswell & Creswell, 2018). The primary method of collecting data was a university-wide, web-based survey (See Appendix A) accessible through a URL.

Jones (2010) outlines the advantage of archival data as the possibility of inspecting experiences involving past historical periods by examining data collected during that period. Turiano (2014) explains how archival data sources can provide a more diverse participant population.

Survey

The survey was developed by modifying a previous Class Scheduling, Parking, and Shuttle Survey sent to students at Midwestern University in March 2015. The initial survey (See Appendix B) was created using Qualtrics in 2015 and was developed by a team of faculty, staff members, and students (T. Keuss, personal communication, April 20, 2016). The prior Class Scheduling, Parking, and Shuttle Survey was provided by the current Registrar at Midwestern University, with her written (email) permission to use the survey to develop and inform a survey for this study. The questions were reviewed and adjusted to match current scheduling practices while removing the parking and shuttle questions, as those are not relevant to the present study. For example, a question was added inquiring whether the students prefer asynchronous or synchronous online courses.

Another was added, asking students how often they've had a course changed after enrolling for an upcoming semester.

Additionally, a qualitative study of two students (Faucett, 2021) was completed to ascertain their experiences with course scheduling and its impact on their overall student experience. Feedback from the study was used to incorporate the survey instrument's waitlist question (How many times have you been waitlisted for a required course and ultimately not been enrolled from the waitlist?).

The survey included 15 multiple-choice questions, two ranking questions, one slider question (to rank importance), two seven-point Likert scale questions, and one text entry question. Three additional text entry questions were only displayed if the participant chose "it depends" on their selection to the previous question. The Likert scale consists of *Extremely likely* to *Extremely unlikely* options. The survey focused on questions regarding participant satisfaction with and preferences of the course schedule and how it pertains to their willingness to stay with the university, thoughts of dropping out, or dissatisfaction. Survey scales used to measure items on the instrument include continuous scales and categorical scales to warrant robust data collection (Creswell & Creswell, 2018). Demographic questions were asked to provide insight into the participants' academic area of study, age, academic level, first-generation status, and housing status (on or off campus). The survey was web-based using an online platform, Qualtrics, and was accessible through a URL. The survey was sent twice: once at the beginning of the one week in which the survey was open, and another as a reminder on the Thursday of the same week (4 days later) to inform students to complete the survey before it closed within the week.

Archival Data

The archival data was used to determine the factors influencing a student's decision to withdraw from the university. The data came from an existing Withdrawal Survey from Midwestern University that degree-seeking students must complete to drop their last course at the institution for a given term. The archival data was obtained by contacting the institution's Registrar and asking for written permission via email to get de-identified data from their Withdrawal Survey. The data was de-identified by removing any identifying characteristics submitted by the student, such as name or student ID number. The archival data for the study includes terms between the fall of 2018 and the spring of 2022. This timeline was selected because the withdrawal survey data before 2018 was not captured at the institution in a suitable format for analysis. Choosing this timeline also ensured a robust collection of data. However, it must be noted that terms between the spring of 2020 and the spring of 2022 include those impacted by the pandemic. These terms were chosen to remain included since course scheduling was a prominent concern during the pandemic and could have influenced student decisions. The Withdraw Survey has a series of questions that ask students why they are withdrawing from the university, such as question 15, which asks if they are leaving due to Academic Dissatisfaction (Appendix C).

Validity

As Teo (2013) indicated, a test is considered valid if it measures what it claims to be measuring. The survey's validity threats may include history, maturation, or instrumentation (Creswell & Creswell, 2018). The internal validity threats of history and maturation can be decreased by conducting the survey only once, reducing the likelihood

of events influencing the outcome or participants maturing enough to affect the results (Creswell & Creswell, 2018). Participants were chosen by sending the survey to all eligible students to decrease the selection threat to validity. External threats to validity using survey design include the interaction of selection and treatment, setting and treatment, and history and treatment. To minimize the external threats to validity, the researcher will restrict claims about groups to which the results cannot be generalized (Creswell & Creswell, 2018).

According to Creswell and Creswell (2018), validity in quantitative research refers to whether you can draw meaningful and valuable inferences from scores on the instruments, and there are three types: content, criterion, or construct validity. Content validity is used to decipher whether or not the items measure what they are intended to measure; criterion validity indicates whether or not the score predicts a criterion measure or if the results correlate with other results; construct validity refers to whether or not the scale correlates with what the study has predicted based on literature. For this study, two content experts were used to establish if the items in the survey were well represented and how well they reflected what they were intended to. Both experts found that the items in the survey were well represented, adequately phrased, and reflected what they intended to. Criterion validity was established through predictive validity, using scores or tests to predict the value of another variable to see if the survey accurately indicates what it is supposed to. Construct validity was used to determine whether or not the concepts operationalized by the researcher are related to the actual causal relationship the researcher is trying to examine; in this case, it was used to determine if course scheduling

relates to retention rates among degree-seeking students at a state-funded, 4-year institution.

Miller et al. (2021) summarize the five facets of validity that should be used with archival data: response process, content evidence, internal structure, relations to other variables, and consequences. The response process relates to how the data was generated, which is also a concern for cross-sectional surveys because responses are self-reported. Since the primary data collection for the archival data started as a survey and was self-reported, the response process was addressed by describing to the extent possible how the archival data was generated so that the response concerns could be adequately acknowledged. Content evidence speaks to how a dataset may lack measures to represent every aspect of a construct, which raises questions about the content facet of validity (Miller et al., 2021). Content evidence was addressed by using transparency in how constructs are operationalized while explaining and justifying if a single indicator is used to estimate reflective constructs. The internal structure is applicable when measuring constructs hypothesized as reflective latent variables using multiple indicators and showing acceptable internal consistency. The internal structure was addressed by ensuring that statistical approaches were executed correctly and that scores intended to measure a single construct yielded homogenous results (Cook & Beckman, 2006). Relations to other variables provide evidence of validity to the extent that the pattern of relationships conforms to existing theoretical expectations (Miller et al., 2021). To address this, the researcher identified if the relationships are consistent with existing theories on student withdrawal. The consequences facet refers to the extent to which decision-making based on the measures is justifiable for a particular purpose. This was

covered by refraining from decision-making that would affect the respondents, and if that is not possible, then the benefits and costs from such an action would be considered.

Reliability

Reliability is used to tell if a test or measurement tool measures whatever it is supposed to measure and is an integral part of the validity of the test (Teo, 2013). A measure is considered reliable if a person scores the same or similar when given the same test twice. For multi-item instruments, the most important type of reliability is internal consistency, which is the degree to which sets of items on an instrument behave in the same way (Creswell & Creswell, 2018). For this study, Cronbach's Alpha was used to compute correlation values among the questions on the survey. To ensure reliability, a pilot survey was administered before implementation to evaluate the questions for clarity and internal consistency. Instructions and information about the survey were standardized and included in the email communication and at the top of the survey itself. The results of the pilot found that participants experienced being waitlisted for their required courses, something that was not addressed in the original set of questions. Therefore, an additional question was added to the survey addressing being waitlisted for a required course.

Data Collection

For the cross-sectional survey portion of the study, students were contacted via email and asked to complete an anonymous electronic survey instrument regarding course scheduling and student preferences in higher education, which was developed using Qualtrics. The link was sent out university-wide, targeted at students enrolled in the fall 2021 term to solicit responses from participants. The survey was sent to approximately 8,000 students enrolled in the fall 2021 term (excluding high school

advanced credit students) using a listserv of currently enrolled students. It was sent out from the Academic Affairs office and the Registrar's Office of the Midwestern, 4-year institution. Since the survey was done in collaboration with Academic Affairs at the university, its purpose was twofold. However, the goal of this study was to solicit a robust group of responses regarding student preferences in course scheduling to investigate if there is a correlation to student retention. This survey was modeled from a similar survey regarding course scheduling and parking at the university five years prior, and it is noteworthy that a survey like this has not been done since then. Associate Deans and Deans were asked to share the survey with their faculty (See Appendix D) who were currently teaching and might have been interested in giving time during class for students to complete the survey. It was open for completion for one week, which is the same amount of time as the original survey, and the email included information about the survey (See Appendix E) and the link to an online Qualtrics survey. A follow-up email was sent on the fourth day, reminding students to complete the survey (See Appendix F). Once the survey closed, the data set was exported to Excel to be distributed to Academic Affairs and used in SPSS statistical software for analysis. There were 593 responses.

It should be noted that of the 593 responses, some were duplicates, and others were incomplete. For this study, there were 486 complete unfiltered responses. Names were not collected to protect the anonymity of the participants. The responses were tracked by IP address to ensure duplicates were flagged; however, the IP address was removed from the data upon download and was not presented in the findings to connect with any response. Before uploading into SPSS, the data was filtered for complete, unduplicated answers. Graduates and non-degree-seeking students were removed since

they are not the focus of this study. From there, once uploaded into SPSS, data was cleaned for errors. Missing data was found for approximately five cases. Those responses were determined to be missing completely at random and were removed from the study.

The archival data was retrieved from the Institutional Research Department at the university by requesting de-identified data from the Withdrawal Survey used by the Registrar's Office. The data was collected by filling out a request in the Institutional Research ticketing system, complete with IRB acknowledgment and approval from the Registrar, who is the gatekeeper of this data. It must be noted that while the researcher has access to this system, given their role at the university, the request was submitted using the same process those outside the institution would follow. The Registrar's Office initially collected the data via the Withdrawal Survey, which requires any student withdrawing for a term or from the university to complete the survey before they can drop their last class. This archival data was collected over twelve semesters (summer 2019 to spring 2022) as students completed the Withdrawal Survey. The data were requested to be de-identified by removing any identifiable student information (such as names or student ID numbers). Still, all undergraduate and graduate students were asked to be included. The way the Withdrawal Survey data is collected was updated in 2019; therefore, the data received only includes terms contained after the data change (summer 2019 moving forward). The data obtained included the de-identified reports for the periods available and saved on a computer requiring a login and multi-factor authentication. Responses were not solicited and reflect those received from students withdrawing from the university. The data received consisted of over 5,000 rows, with each row indicating a submitted response from a student. For this study, any responses

indicating graduate or non-degree-seeking academic plans were removed before analysis, which yielded 3,540 rows of responses. Once uploaded into SPSS, data were cleaned for errors. The data were inspected, and missing data were removed altogether from the analysis to correct for missing values in the data analysis; this included less than 10 cases in total.

Data Analysis Procedures

Barceló (2018) explains that chi-square analysis is a statistical procedure to analyze contingency tables, which organize data to visualize the possible relationship between qualitative variables. Franke et al. (2012) also explain that chi-square tests represent one of the most used statistical analyses for answering questions about the association between categorical variables. Given that the variables from the survey portion of the research are qualitative, the chi-square test will be used to identify the possible relationship between the two. As outlined by Curtis and Youngquist (2013), the category that deviates the most from expected cell counts is the one that contributes the most to the chi-square test statistic.

Data analysis was completed using the SPSS statistical software through the web-based survey instrument. Pearson's chi-squared test was used to determine whether there was a statistically significant relationship between class standing and the ability to register for a required course, leading to the student's decision to take the course at another institution (Pallant, 2016), as noted by the research questions. For research question one, the chi-square test was used to determine the relationship between class standing and the perceived importance of scheduling courses in a certain way. For research question two, the chi-square test was used to determine the relationship between

class standing and the decision to take the course at another institution following the inability to register for a required course. Pearson's chi-squared test analysis was run on the responses to the survey item that will measure class standing (question 2- what is your class standing?) and the answers to the survey item that will measure the reported importance of the ability to schedule courses in a certain way (question 24 - Please indicate the importance of the following to your overall experience). Pearson's chi-squared test analysis was also run on the responses to the survey item that will measure class standing (question 2- what is your class standing?) and the answers to the survey item that will measure the ability to register for a required course and the student's decision on what action they would take (question 21- If you attempted to register for a required course, and discovered it was not offered on the days/times that you needed it, or in the format that you prefer, what would you do?). A sub-analysis was conducted on any chi-square analysis with small group sizes. This sub-analysis was done by collapsing across groups (importance rating) and performing a Fisher's Exact Test, as it is better suited to handling small group n's.

Data analysis was also completed using SPSS statistical software to analyze the archival data from the Withdrawal Survey. A binomial logistic regression analysis was used to explore the relationship between a student's decision to withdraw from the university and plan not to return and the factors that might predict that decision, such as work/studies conflict (question 12), financial issues (question 16), family responsibilities (question 13) or academic dissatisfaction/difficulty (question 17) (Pallant, 2016). Out of all the factors listed on the Withdrawal Survey, these four overarching factors were chosen based on previous literature findings, indicating the potential strong predictors of

student retention: work/studies conflicts, financial issues, family responsibilities, and academic dissatisfaction or difficulty. A binomial logistic regression analysis was also used to explore the relationship between a student's decision to withdraw from the university and their transferring to a different institution and the factors that might predict that decision, such as work/studies conflict (question 12), financial issues (question 16), family responsibilities (question 13) or academic dissatisfaction/difficulty (question 17) (Pallant, 2016). The Omnibus test of model coefficients, which provides the overall statistical significance of the model, was used to analyze the data. For research question three, the binomial logistic regression analysis was used to determine the factors that most predict a student withdrawing and not returning. For research question four, the binomial logistic regression analysis was used to determine the factors that most predict a student withdrawing and transferring.

Hilbe (2011) describes logistic regression as the most common method used to model binary response data, indicating that when a response is binary, it usually takes the form of 1/0, with 1 generally showing a success and 0 a failure. In the archival portion of this study, the dependent variable is a dichotomous variable with only two categories without an intrinsic order that are mutually exclusive. Sperandei (2014) confirms that logistic regression works similarly to linear regression but with a binomial response variable and allows multiple explanatory variables to be analyzed simultaneously, with a primary advantage being the ability to avoid confounding effects.

Descriptive statistics of all variables are summarized in the next chapter, reporting large amounts of data in a more straightforward summary. The percentages and rate of

category responses are discussed since many variables are categorical. Missing data are also identified and discussed.

Ethics and Human Relations

The researcher works in higher education, specifically with curriculum and scheduling. It is important to note that while the researcher works in the field and has expertise regarding course scheduling, she does not have any ties to the participants in the study. The nature of the researcher's profession may introduce a possibility for bias to the phenomenon being studied. However, that will be addressed by conducting a pilot study and having the survey questions peer reviewed. The researcher will use her role in higher education to gain access to participants for this study. This study will require Institutional Review Board (IRB) approval.

Cooperation of the participants will be gained by detailing the purpose and importance of the study. Anonymity will be guaranteed by coding each returned questionnaire. Participants will be told how the information will be distributed, ensuring their identity is concealed, which is of utmost priority. In the end, the hope is that participants will want to participate and cooperate in the study because of their experiences as students and the importance of the study on higher education research.

Chapter Summary

This chapter looked at the methodology used for this study, including the participants and setting, data collection, validity and reliability, data analysis procedures, and ethics and human relations. A quantitative, cross-sectional survey research design, combined with the analysis of archival data, was used to determine if there is a correlation between student retention and course scheduling. The electronic survey

instrument, distributed via email at a state-funded, 4-year institution in the Midwest, was used to collect student perceptions and course scheduling data. In contrast, the archival data of an existing withdrawal survey was used to analyze data regarding factors predicting students' decisions to withdraw from a university.

CHAPTER 4: Findings

This study sought insight into institutional processes that can positively impact student retention at Midwestern University, a state-funded, 4-year institution. The course schedule and its influence on retaining students were examined by focusing on students' perceived importance of optimal scheduling of courses. Course availability and what factors most predict a student withdrawing, either not returning or transferring to another institution, were also examined.

Pearson's chi-squared test was used to determine if there was a statistically significant relationship between class standing and the self-reported importance of the ability to schedule courses in a certain way (to earn the degree quickly, around one's work schedule, around family obligations, in a preferred format). Pearson's chi-squared test was then used to determine if there was a statistically significant relationship between the ability to register for a required course and the decision to take the course at another institution following the inability to register for a required (major) class. In this portion of the study, degree-seeking students at Midwestern University were asked to complete a Course Scheduling Survey to share their thoughts regarding course scheduling.

Using the archival data from the Withdrawal Survey at Midwestern University, a binomial logistic regression analysis was used to ascertain the effects of factors such as work/studies conflict (question 12), financial issues (question 16), family responsibilities (question 13) or academic dissatisfaction/difficulty (question 17) on the likelihood a student would withdraw and not return or be unsure of returning. A binomial logistic regression analysis was also used to ascertain the effects of factors such as work/studies conflict (question 12), financial issues (question 16), family responsibilities (question

13), or academic dissatisfaction/difficulty (question 17) on the likelihood a student would transfer to another institution. The archival data used in this portion is from students who had withdrawn from the same university. Still, it is essential to note that this is not the same pool of students who completed the Course Scheduling Survey.

The following section will discuss the results of the study. First, a brief sample description will be given, followed by the study's findings concerning each stated research question. After the analysis, the key results will be summarized.

Demographic Data and Characteristics

The researcher emailed the electronic survey instrument to an active student listserv, as explained in Chapter 3. The enrollment at the time the email was sent consisted of approximately 8,866 students, not including high-school advanced credit students ("Registrar Enrollment Reports," n.d.). Removing graduate and non-degree-seeking students and any student with an undeclared major, 5,545 students remain. Of the 5,545 students who met the criteria, 593 responded, an 11% response rate, with 486 responses submitted as finished, for a 9% finished response rate. For this study, the responses were limited to undergraduate degree-seeking students, which yielded 331 responses. Of those responses, some were incomplete, producing 325 responses (n=325) used in the data analysis; therefore, the response rate used in the research was 6%. The demographics are shown in Table 4.1.

Table 4.1*Course Scheduling Survey Demographics*

Class Standing	Frequency	Percent
Freshman	49	15.1
Sophomores	44	13.5
Juniors	111	34.2
Seniors	121	37.2
Total	325	100.0
Age	Frequency	Percent
18-24 years	219	67.4
25-34 years	60	18.5
35-44 years	23	7.1
45-59 years	17	5.2
60+ years	6	1.8
Total	325	100.0
Student Housing Status	Frequency	Percent
On-Campus	58	17.8
Off-Campus	267	82.2
Total	325	100.0
First Generation Status	Frequency	Percent
Yes	128	39.4
No	191	58.8
Unsure	6	1.8
Total	325	100.0

Over 3,500 (3,540) undergraduate degree-seeking responses were included in the archival data. It is important to note that these responses indicate a completed withdrawal survey without missing data and do not indicate if the student later re-enrolled or chose to cancel their withdrawal request. The demographics are shown in Table 4.2.

Table 4.2

Withdrawal Survey Demographics

Student Housing Status	Frequency	Percent
On-Campus	101	2.9
Off-Campus	3439	97.1
Total	3540	100.0

Financial Aid Received	Frequency	Percent
Yes	2329	65.8
No	1211	34.2
Total	3540	100.0

Evaluation of Findings

RQ1: What is the relationship between students' class standing and the importance of their ability to schedule courses in a certain way?

H₁: The student's class standing has a positive relationship with the importance of their ability to schedule courses in a certain way.

Research question one focused on determining if there was a relationship between class standing and the importance of scheduling courses in a certain way, such as earning the degree quickly, around one's work schedule, around family obligations, or in a preferred format. The goal was to determine if students with a specific academic level (freshman, sophomore, junior, senior) ranked the importance of each category higher or lower.

For research question one, student responses to the course scheduling survey were examined to determine the importance ranked for each category. This research question had five possible outcomes, assigned values of 1-5 in SPSS: extremely important, moderately important, very important, slightly important, and not at all important.

Class Standing and Importance of Earning a Degree Quickly

A chi-square test of independence was performed to evaluate the relationship between class standing and the importance of the ability to schedule courses to earn one's degree quickly. The relationship between these variables was not significant, $\chi^2 (12, N = 325) = 5.34, p = .946$. There was not a statistically significant association between the two variables. Therefore, we accept the null hypothesis and cannot accept the alternative hypothesis.

Freshmen, juniors, and seniors reported that earning their degree quickly was extremely important. For sophomores, it was very important. This finding indicates that all class levels found that earning their degree quickly was either very important or extremely important, describing a possibility for the lack of significance in the relationship *between* the variables. As seen in Table 4.3, Extremely Important accounted for almost half of all responses, whereas Moderately Important accounted for a little under one-fourth of responses, for a total of 60% of respondents indicating that scheduling courses in a way that allows them to earn their degree quickly is moderately or extremely important.

Table 4.3

Earn Degree Quickly

Importance Level	Frequency	Percent
Extremely Important	143	44.0
Very important	108	33.2
Moderately important	52	16
Slightly Important	19	5.9
Not at all important	3	.9
Total	325	100.0

The two highest categories for freshmen were extremely important and very important, with 40.8% and 36.7% of respondents choosing those categories, respectively. For sophomores, extremely important and very important were the two highest categories, with 36.3% choosing extremely important and 40.9% choosing very important. Juniors chose extremely important and very important as their two highest categories, with 49.5% choosing extremely important and 28.8% choosing very important. Seniors also selected extremely important and very important as their top categories, with 42.9% choosing extremely important and 33.1% choosing very important (see Table 4.4).

Table 4.4

Crosstabulation of Class Standing and Earning Degree Quickly

Class Standing	Earn Degree Quickly					Total
	Extremely Important	Very important	Moderately important	Slightly Important	Not at all important	
Freshman	20	18	8	3	0	49
Sophomore	16	18	7	3	0	44
Junior	55	32	16	6	2	111
Senior	52	40	21	7	1	121
Total	143	108	52	19	3	325

A sub-analysis using the Fisher-Freeman-Halton Exact Test was performed to test the association between class standing and the importance of the ability to schedule courses to earn one’s degree quickly. The sub-analysis was done by collapsing the variables for earning the degree quickly into three instead of five: “extremely or very important,” “moderately or slightly important,” or “not at all important.” There was no statistically significant association between class standing and the importance of scheduling courses to earn one’s degree quickly as assessed by Fisher's exact test, $p =$

.978 (see Table 4.5). Therefore, we still accept the null hypothesis and cannot accept the alternative hypothesis.

Table 4.5

Crosstabulation of Class Standing and Earning Degree Quickly Collapsed

Class Standing	Earn Degree Quickly			Total
	Extremely or Very Important	Moderately or Slightly Important	Not at all important	
Freshman	38	11	0	49
Sophomore	34	10	0	44
Junior	87	22	2	111
Senior	92	28	1	121
Total	251	71	3	325

Class Standing and Importance of Scheduling Around Work Schedule

A chi-square test of independence was performed to evaluate the relationship between class standing and the importance of the ability to schedule courses around one’s work schedule. The relationship between these variables was significant, $\chi^2 (12, N = 325) = 22.79, p = .030$. The association was small (Cohen, 1988), Cramer’s $V = .153$.

Therefore, we reject the null hypothesis and accept the alternative hypothesis.

All classes predominantly found scheduling their courses around their work schedule extremely important, with 50% of juniors finding it extremely important. As seen in Table 4.6, Extremely Important accounted for approximately half of the total responses, whereas Very Important accounted for roughly one-fourth of the total responses, for a total of 73.2% of respondents indicating that scheduling courses around their work schedule is at least very important to them.

Table 4.6*Schedule Around Work Schedule*

Importance Level	Frequency	Percent
Extremely Important	160	49.2
Very important	78	24.0
Moderately important	48	14.8
Slightly Important	23	7.1
Not at all important	16	4.9
Total	325	100.0

The two highest categories for freshmen were extremely important and moderately important, with 31% and 29% of respondents choosing those categories, respectively. For sophomores, extremely important and very important were the two highest categories, with 43% choosing extremely important and 30% choosing very important. Juniors chose extremely important and very important as their two highest categories, with 50% choosing extremely important and 21% choosing very important. Seniors also selected extremely important and very important as their top categories, with 58% choosing extremely important and 25% choosing very important (see Table 4.7). It is important to note that although all classes report this as extremely important, it was still found to be significant when doing the analysis.

Table 4.7*Crosstabulation of Class Standing and Scheduling Around Work Schedule*

Class Standing	Schedule Around Work Schedule					Total
	Extremely Important	Very important	Moderately important	Slightly Important	Not at all important	
Freshman	15	12	14	4	4	49
Sophomore	19	13	7	4	1	44
Junior	56	23	14	12	6	111
Senior	70	30	13	3	5	121
Total	160	78	48	23	16	325

A sub-analysis using the Fisher-Freeman-Halton Exact Test was performed to test the association between class standing and the importance of the ability to schedule courses around one's work schedule. The sub-analysis was done by collapsing the variables for earning the degree quickly into three instead of five: "extremely or very important," "moderately or slightly important," or "not at all important." There was a statistically significant association between class standing and the importance of the ability to schedule courses around one's work schedule as assessed by Fisher's exact test, $p = .015$ (see Table 4.8). Therefore, we still reject the null hypothesis and accept the alternative hypothesis.

Table 4.8*Crosstabulation of Class Standing and Scheduling Around Work Schedule Collapsed*

Class Standing	Schedule Around Work Schedule			Total
	Extremely or Very Important	Moderately or Slightly Important	Not at all important	
Freshman	27	18	4	49
Sophomore	32	11	1	44
Junior	79	26	6	111
Senior	100	16	5	121
Total	238	71	16	325

Class Standing and Importance of Scheduling Around Family Obligations

A chi-square test of independence was performed to evaluate the relationship between class standing and the importance of the ability to schedule courses around family obligations. The relationship between these variables was significant, $\chi^2(12, N = 325) = 36.00, p = <.001$, and the association was small (Cohen, 1988), Cramer's $V = .192$. Therefore, we reject the null hypothesis and accept the alternative hypothesis.

All classes predominantly found scheduling their courses around family obligations as extremely important, with seniors finding it most important, with 39.7% of respondents indicating it as extremely important. As can be seen in Table 4.9, Extremely Important accounted for approximately one-third of the responses, whereas Moderately Important accounted for roughly one-fourth of responses, for a total of 57.8% of respondents indicating that scheduling courses around family obligations is moderately to extremely important.

Table 4.9

Schedule Around Family Obligations

Importance Level	Frequency	Percent
Extremely Important	110	33.8
Very important	74	22.8
Moderately important	78	24.0
Slightly Important	38	11.7
Not at all important	25	7.7
Total	325	100.0

As outlined in Table 4.10, freshmen found scheduling around family obligations as primarily slightly important, with 30.6% of respondents selecting that, whereas another 24.5% saw it as moderately important. Sophomores found scheduling around family

obligations to be extremely important and moderately important, with 27.3% choosing extremely important and 31.8% selecting moderately important. Juniors reported scheduling around family obligations as extremely important and moderately important, with 36.9% choosing extremely important and 22.5% selecting moderately important. For seniors, the main choices were extremely important and very important, with 39.7% choosing extremely important and 28.1% selecting very important.

Table 4.10

Crosstabulation of Class Standing and Scheduling Around Family Obligations

Class Standing	Schedule Around Family Obligations					Total
	Extremely Important	Very important	Moderately important	Slightly Important	Not at all important	
Freshman	9	11	12	15	2	49
Sophomore	12	8	14	4	6	44
Junior	41	21	25	11	13	111
Senior	48	34	27	8	4	121
Total	110	74	78	38	25	325

A sub-analysis using the Fisher-Freeman-Halton Exact Test was performed to test the association between class standing and the importance of the ability to schedule courses around family obligations due to the small group size in the original chi-square test. The sub-analysis was done by collapsing the variables for earning the degree quickly into three instead of five: “extremely or very important,” “moderately or slightly important,” or “not at all important.” There was a statistically significant association between class standing and the importance of the ability to schedule courses around family obligations as assessed by Fisher's exact test, $p = .001$ (see Table 4.11). Therefore, we still reject the null hypothesis and accept the alternative hypothesis.

Table 4.11*Crosstabulation of Class Standing and Scheduling Around Family Obligations Collapsed*

Class Standing	Schedule Around Family Obligations			Total
	Extremely or Very Important	Moderately or Slightly Important	Not at all important	
Freshman	20	27	2	49
Sophomore	20	18	6	44
Junior	62	36	13	111
Senior	82	35	4	121
Total	184	116	25	325

Class Standing and Importance of Scheduling in Preferred Format

A chi-square test of independence was performed to evaluate the relationship between class standing and the importance of the ability to schedule courses in a preferred format. The relationship between these variables was significant, $\chi^2(12, N = 325) = 23.62, p = .023$. The association was small (Cohen, 1988), Cramer's $V = .156$. Therefore, we reject the null hypothesis and accept the alternative hypothesis.

Seniors and juniors are more likely than freshmen to find the ability to schedule courses in a preferred format extremely important. All classes predominantly found scheduling their courses in a preferred format extremely important, with seniors finding it most important, with 62.8% of respondents indicating it as extremely important. As seen in Table 4.12, Extremely Important accounted for over half of the responses, whereas Very Important accounted for more than one-fourth of the answers, with 80.3% of respondents indicating that scheduling courses in a preferred format is very or extremely important.

Table 4.12*Schedule Preferred Format*

Importance Level	Frequency	Percent
Extremely important	172	52.9
Very important	89	27.4
Moderately important	53	16.3
Slightly important	7	2.2
Not at all important	4	1.2
Total	325	100.0

Freshmen reported that scheduling in a preferred format was very important, with 42.8% of respondents ranking that as the importance level, while 30.6% said it was extremely important. For sophomores, 45.4% of respondents chose it as extremely important, with another 27.2% indicating it was moderately important. Juniors found it as extremely important and very important, with 54.9% reporting it as extremely important and 26.1% reporting it as very important. Seniors were the same as juniors, with extremely and very important coming in as the top two categories. For seniors, 62.8% selected extremely important, and 23.1% chose very important for scheduling in a preferred format (see Table 4.13).

Table 4.13*Crosstabulation of Class Standing and Scheduling in Preferred Format*

Class Standing	Scheduling in Preferred Format					Total
	Extremely Important	Very important	Moderately important	Slightly Important	Not at all important	
Freshman	15	21	10	1	2	49
Sophomore	20	11	12	1	0	44
Junior	61	29	16	3	2	111
Senior	76	28	15	2	0	121
Total	172	89	53	7	4	325

A sub-analysis using the Fisher-Freeman-Halton Exact Test was performed to test the association between class standing and the importance of the ability to schedule courses in a preferred format due to the small group size in the original chi-square test. The sub-analysis was done by collapsing the variables for earning the degree quickly into three instead of five: “extremely or very important,” “moderately or slightly important,” or “not at all important.” There was no statistically significant association between class standing and the importance of the ability to schedule courses in a preferred format as assessed by Fisher's exact test, $p = .061$ (see Table 4.14). Therefore, we accept the null hypothesis and cannot accept the alternative hypothesis.

Table 4.14

Crosstabulation of Class Standing and Scheduling in Preferred Format Collapsed

Class Standing	Scheduling in Preferred Format			Total
	Extremely or Very Important	Moderately or Slightly Important	Not at all important	
Freshman	36	11	2	49
Sophomore	31	13	0	44
Junior	90	19	2	111
Senior	104	17	0	121
Total	261	60	4	325

The findings indicate a relationship between class standing and the importance of the ability to schedule courses around one’s work schedule, family obligations, and in a preferred format. While the relationship between class standing and the ability to schedule courses to earn one’s degree quickly was insignificant, this could be because all class levels found that earning their degree quickly was very or extremely important. The most significant relationship was between class standing and the ability to schedule courses around one’s family obligations.

RQ2: What is the relationship between students' class standing and the intent behind the students' decision to take the course at another institution following the inability to register for a required course?

H₂: The students' class standing has a positive relationship with the intent behind the students' decision to take the course at another institution following the inability to register for a required course

Research question two focused on determining if there was a relationship between class standing and the reported action a student would take if they could not register for a required course (needed for degree completion/graduation). The goal was to determine if a specific academic level (freshman, sophomore, junior, senior) would be more likely to take the course at another institution.

For research question two, student responses to the course scheduling survey were examined to determine the reported action the student would take. There were five possible outcomes to this research question: enroll in another course, enroll in the course anyway, wait until next semester to see how it is offered, take the course at a different institution, or it depends/unsure of what I would do.

Class Standing and Required Course Action

A chi-square test of independence was performed to evaluate the relationship between class standing and the action a student would take if a required course were unavailable. The relationship between these variables was not significant, $\chi^2(12, N = 325) = 15.90, p = .196$. The association was small (Cohen, 1988), Cramer's V = .128. There was not a statistically significant association between the two variables. Therefore, we accept the null hypothesis and cannot accept the alternative hypothesis.

As seen in Table 4.15, 27.1% of the respondents would enroll in another course, while 24.9% would wait until the next semester to see how it is offered. 22.2% of the respondents were unsure of what they would do, with 17.8% stating that they would enroll in the course anyway and 8% indicating that they would take the course at a different institution.

Table 4.15

Required Course Action

Reported Action	Frequency	Percent
Enroll in another course	88	27.1
Enroll in the course anyway	58	17.8
Wait until next semester to see how it is offered	81	24.9
Take the course at a different institution	26	8.0
It depends/Unsure of what I would do	72	22.2
Total	325	100.0

Sophomores and seniors are most likely to enroll in another course if a required course they need is unavailable. In contrast, freshmen and juniors were more likely to wait until the next semester to see how it is offered. Freshman primarily reported that they would wait until next semester to see how a course was offered if they could not enroll in their required course, with 38.7% selecting that option. For sophomores, 34.1% of respondents chose that they would enroll in another course. Juniors were also likely to wait until next semester to see how a course was offered, with 27.9% selecting that option. Seniors reported that they would enroll in another course, with 31.4% choosing that option. When asked if they would take the course at another institution if they were

unable to enroll in a required course, 8.16% of freshmen, 6.81% of sophomores, 6.3% of juniors, and 9.92% of seniors reported that as the action they would take (see Table 4.16).

Table 4.16

Crosstabulation of Class Standing and Required Course Action

Class Standing	Required Course Action					Total
	Enroll in another course	Enroll in the course anyway	Wait until next semester to see how it is offered	Take the course at a different institution	It depends/unsure of what I would do	
Freshman	8	10	19	4	8	49
Sophomore	15	6	12	3	8	44
Junior	27	21	31	7	25	111
Senior	38	21	19	12	31	121
Total	88	58	81	26	72	325

The findings indicate no relationship between class standing and the intent behind the students' decision to take the course at another institution following the inability to register for a required course. However, it must be noted that 8% of students indicated that they would take the course at another institution if they could not enroll in a required course; out of all academic levels, seniors were most likely to choose this option.

RQ3: What is the relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to withdraw?

H₃: There is a positive relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to withdraw.

Research question three aimed to determine if a specific factor would more likely predict a student withdrawing and choosing “no” or “unsure” when asked if they plan to return to the university.

For research question three, student responses to the withdrawal survey were examined to determine what factors led to the student withdrawing from the university and choosing not to return or unsure if they are returning. This research question had four overarching factors: work/studies conflict, family responsibilities, financial issues, and academic dissatisfaction or difficulty. There were additional subcategories for each factor:

1. Work/Studies Conflict: not enough time, an employer not flexible, change in work schedule, relocating for a job, other work/studies issues.
2. Family Responsibilities: childcare unavailable/too costly, home responsibilities too great, care of a family member, other family responsibilities.
3. Financial Issues: could not find a job, not enough money for tuition, not enough money for living expenses, other financial issues.
4. Academic Dissatisfaction/Difficulty: coursework not challenging, dissatisfied with the major department, dissatisfied with the course, inconvenient class times, courses too difficult, studies too time-consuming, low grades, inadequate study techniques, felt academically unprepared, major course not available, and other academic dissatisfaction/difficulty.

Multicollinearity was tested using SPSS to ensure the independent variables were not highly correlated. Multicollinearity was detected by inspecting correlation coefficients and Tolerance/VIF values in SPSS. All VIF values were less than 5, indicating a moderate correlation between a given predictor variable and other predictor

variables in the model; however, this was not severe enough to require attention and demonstrates that multicollinearity will not be a problem in the regression model.

Therefore, the data meets this assumption.

Withdraw and Not Return Factors: Overarching Factors

A binomial logistic regression analysis was run to predict if students withdraw and not return from the following factors: Work-Study conflict, family responsibilities, financial issues, or academic dissatisfaction or difficulty. The frequencies of the four overarching factors are presented in Tables 4.17 to 4.20.

Table 4.17

Work-Study Conflict Frequencies

Selection	Frequency	Percent
Not Selected	2314	65.4
Selected	1226	34.6
Total	3540	100.0

Table 4.18

Family Responsibilities Frequencies

Selection	Frequency	Percent
Not Selected	2730	77.1
Selected	810	22.9
Total	3540	100.0

Table 4.19

Financial Issues Frequencies

Selection	Frequency	Percent
Not Selected	2621	74.0
Selected	919	26.0
Total	3540	100.0

Table 4.20*Academic Dissatisfaction or Difficulty Frequencies*

Selection	Frequency	Percent
Not Selected	3039	85.8
Selected	501	14.2
Total	3540	100.0

The logistic regression model was statistically significant, $\chi^2(4) = 58.23, p < .001$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. The model explained .02% (Nagelkerke R^2) of the variance in not returning and correctly classified 65.5% of cases. All four predictor variables were statistically significant: Work-Study conflict, family responsibilities, financial issues, and academic dissatisfaction or difficulty (as shown in Table 4.21). The odds of withdrawing and not returning are 1.83 times greater for those citing academic dissatisfaction or difficulty than those who did not.

Table 4.21*Logistic Regression Predicting Likelihood of Return No or Unsure based on Overarching Factors*

Factors	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Work-Study Conflict	-.225	.077	8.623	1	.003	.799	.687	.928
Family Responsibilities	-.194	.088	4.921	1	.027	.823	.694	.978
Financial Issues	-.204	.083	6.064	1	.014	.815	.693	.959
Academic Dissatisfaction or Difficulty	.602	.098	37.612	1	<.001	1.825	1.506	2.212
Constant	-.562	.053	114.169	1	<.001	.570		

The Omnibus Tests of Model Coefficients, which provide the overall statistical significance of the model, show that the model is statistically significant ($p < .001$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit because the test is not statistically significant ($p = 13.23$). The cut value is .500, indicating that the probability of a case being classified into the “selected” category is greater than .500. The classification table without any independent variables showed that 65.5% of cases overall could be correctly classified by simply assuming that all cases were classified as “not selected.” The model remained the same with the independent variables added, classifying 65.5% of cases overall.

The results show that Work-Study factors ($p = .003$), family responsibilities ($p = .027$), financial issues ($p = .014$), and academic dissatisfaction or difficulty ($p = <.001$) all added significantly to the model/prediction.

Withdraw and Not Return Factors: Work-Study

A binomial logistic regression analysis was run to predict if students withdraw and not return from the following work-study factors: not enough time, employer inflexibility, change in work schedule, relocating for a job, and other work-study issues. The logistic regression model was statistically significant, $\chi^2(5) = 45.17, p < .001$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. The model explained .01% (Nagelkerke R^2) of the variance in not returning and correctly classified 65.8% of cases. Three of the five predictor variables were statistically significant: change in work schedule, relocating for a job, and other work/studies conflict issues (as shown in Table 4.22). The odds of withdrawing and not returning are 3.14 times greater for those relocating for a job as opposed to those who are not.

Table 4.22

Logistic Regression Predicting Likelihood of Return No or Unsure based on Work-Study Factors

Factors	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Not Enough Time	-.100	.086	1.362	1	.243	.905	.765	1.070
Employer Not Flexible	-.337	.185	3.320	1	.068	.714	.497	1.026
Change in Work Schedule	-.453	.136	11.134	1	<.001	.635	.487	.829
Relocating for Job	1.144	.304	14.182	1	<.001	3.140	1.731	5.695
Other Work-Study Issues	-.303	.086	12.406	1	<.001	.739	.624	.874
Constant	-.302	.087	11.889	1	<.001	.740		

The Omnibus Tests of Model Coefficients show that the model is statistically significant ($p < .001$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit ($p = .748$). The cut value is .500. The classification table without any independent variables showed that 65.5% of cases overall could be correctly classified by simply assuming that all cases were classified as “not selected.” However, with the independent variables added, the model now correctly classifies 65.8% of cases overall, which means that the addition of the independent variables improves the overall prediction of cases into their observed categories of the dependent variable, which is referred to as the percentage accuracy in classification (PAC).

The results show that a change in work schedule ($p = <.001$), relocating for a job ($p = <.001$), and other work/studies issues ($p = <.001$) added significantly to the

model/prediction but not enough time ($p = .243$) and employer not flexible ($p = .068$) did not add significantly to the model.

Withdraw and Not Return Factors: Family Responsibilities

A binomial logistic regression analysis was run to predict if students withdraw and do not return from family responsibility factors: childcare unavailable or too costly, home responsibilities too great, care of a family member, or other family responsibilities. The logistic regression model was statistically significant, $\chi^2(4) = 16.51, p < .002$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. The model explained .01% (Nagelkerke R^2) of the variance in not returning and correctly classified 65.5% of cases. Of the four predictor variables, one was statistically significant: other family responsibilities (as shown in Table 4.23).

Table 4.23

Logistic Regression Predicting Likelihood of Return No or Unsure based on Family Responsibility Factors

Factors	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Childcare Unavailable or Too Costly	-.336	.198	2.881	1	.090	.714	.484	1.053
Home Responsibilities too Great	-.014	.113	.014	1	.905	.987	.790	1.232
Care of a Family Member	-.154	.135	1.300	1	.254	.857	.657	1.117
Other Family Responsibilities	-.344	.101	11.497	1	<.001	.709	.581	.865
Constant	-.319	.095	11.193	1	<.001	.727		

The Omnibus Tests of Model Coefficients show that the model is statistically significant ($p < .002$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit ($p = .391$). The cut value is .500. The classification table without any independent variables showed that 65.5% of cases overall could be correctly classified by simply assuming that all cases were classified as “not selected.” The model remains the same with the independent variables added, classifying 65.5% of cases overall.

The results show that other family responsibilities ($p < .001$) added significantly to the model/prediction, but childcare unavailable or too costly ($p = .090$), home responsibilities too great ($p = .905$), and care of a family member ($p = .254$) did not add significantly to the model.

Withdraw and Not Return Factors: Financial Issues

A binomial logistic regression analysis was run to predict if students withdraw and do not return from the following financial issue factors: they could not find a job, not enough money for tuition, not enough money for living expenses, or other financial issues. The logistic regression model was statistically significant, $\chi^2(4) = 20.41$, $p < .001$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. The model explained .01% (Nagelkerke R^2) of the variance in not returning and correctly classified 65.5% of cases. Of the four predictor variables, three were statistically significant: not enough money for tuition, not enough money for living expenses, and other financial issues (as shown in Table 4.24). The odds of withdrawing and not returning are 1.47 times greater for those who do not have enough money for living expenses than those who do.

Table 4.24

Logistic Regression Predicting Likelihood of Return No or Unsure based on Financial Issue Factors

Factors	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Could Not Find a Job	-.196	.234	.703	1	.402	.822	.520	1.300
Not Enough Money: Tuition	-.297	.097	9.399	1	.002	.743	.615	.898
Not Enough Money: Living Expenses	.388	.143	7.344	1	.007	1.474	1.113	1.951
Other Financial Issues	-.211	.086	5.970	1	.015	.810	.684	.959
Constant	-.421	.087	23.636	1	<.001	.656		

The Omnibus Tests of Model Coefficients show that the model is statistically significant ($p < .001$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit ($p = .126$). The cut value is .500. The classification table without any independent variables showed that 65.5% of cases overall could be correctly classified by simply assuming that all cases were classified as “not selected.” The model remains the same with the independent variables added, classifying 65.5% of cases overall.

The results show that not enough money for tuition ($p = .002$), not enough money for living expenses ($p = .007$), and other financial issues ($p = .015$) added significantly to the model/prediction but could not find a job ($p = .402$) did not add significantly to the model.

Withdraw and Not Return Factors: Academic Dissatisfaction or Difficulty

A binomial logistic regression analysis was run to predict if students withdraw and do not return from the following academic dissatisfaction or difficulty factors: coursework not challenging, dissatisfaction with the major department, dissatisfaction with the course, inconvenient class times, courses too difficult, studies too time-consuming, low grades, inadequate study techniques, felt academically unprepared, major course not available, and other academic dissatisfaction or difficulty. The logistic regression model was statistically significant, $\chi^2(11) = 99.98, p < .001$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. The model explained .04% (Nagelkerke R^2) of the variance in not returning and correctly classified 67% of cases. Five of the eleven predictor variables were statistically significant: coursework not challenging, dissatisfaction with the major department, dissatisfaction with the course, major course not available, and other academic dissatisfaction or difficulty (as shown in Table 4.25). The odds of withdrawing and not returning are 4.09 times greater for those experiencing dissatisfaction with the major department than those who do not. The odds of withdrawing and not returning are 3.86 times greater for those reporting that the coursework is not challenging than those who do not. The odds of withdrawing are also 1.98 times greater for those who have reported that their major course is unavailable than those who do not.

Table 4.25

Logistic Regression Predicting Likelihood of Return No or Unsure based on Academic Dissatisfaction or Difficulty Factors

Factors	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Coursework Not Challenging	1.352	.592	5.211	1	.022	3.865	1.211	12.338
Dissatisfaction with Major Department	1.409	.322	19.184	1	<.001	4.091	2.178	7.684
Dissatisfaction with Course	.556	.211	6.968	1	.008	1.744	1.154	2.636
Inconvenient Class Times	-.255	.306	.691	1	.406	.775	.425	1.413
Courses Too Difficult	-.015	.241	.004	1	.952	.985	.615	1.580
Studies Too Time-Consuming	.084	.237	.125	1	.724	1.087	.683	1.731
Low Grades	.049	.214	.053	1	.819	1.050	.691	1.596
Inadequate Study Techniques	.477	.250	3.632	1	.057	1.612	.987	2.633
Felt Academically Unprepared	-.245	.218	1.260	1	.262	.783	.510	1.201
Major Course Not Available	.688	.267	6.659	1	.010	1.989	1.180	3.354
Other Academic Dissatisfaction or Difficulty	-.350	.102	11.744	1	<.001	.705	.577	.861
Constant	-.419	.095	19.558	1	<.001	.658		

The Omnibus Tests of Model Coefficients show that the model is statistically significant ($p < .001$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit ($p = .921$). The cut value is .500. The classification table without any independent variables showed that 65.5% of cases overall could be

correctly classified by simply assuming that all cases were classified as “not selected.” However, with the independent variables added, the model now correctly classifies 67% of cases overall, which means that the addition of the independent variables improves the overall prediction of cases into their observed categories of the dependent variable, which is referred to as the percentage accuracy in classification (PAC).

The results show that coursework not challenging ($p = .022$), dissatisfaction with the major department ($p = <.001$), dissatisfaction with the course ($p = .008$), major course not available ($p = .010$), and other academic dissatisfaction or difficulty ($p = <.001$) added significantly to the model/prediction. Still, inconvenient class times ($p = .406$), course too difficult ($p = .952$), studies too time-consuming ($p = .724$), low grades ($p = .819$), inadequate study techniques ($p = .057$), and felt academically unprepared ($p = .262$) did not add significantly to the model.

Withdraw and Not Return Factors: Most Significant Factors

A binomial logistic regression analysis was run to predict which factor that added significantly to the prior research was most significant on a student withdrawing and not returning: a change in work schedule, relocating for a job, other work-study issues, other family responsibilities, not enough money for tuition, not enough money for living expenses, other financial issues, coursework not challenging, dissatisfaction with the major department, dissatisfaction with the course, major course not available, and other academic dissatisfaction or difficulty. The logistic regression model was statistically significant, $\chi^2(12) = 135.93, p < .001$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. The model explained .05% (Nagelkerke R^2) of the variance in not returning and correctly classified 67% of cases. Of the twelve predictor variables,

eight were statistically significant: change in work schedule, relocating for a job, not enough money for tuition, not enough money for living expenses, coursework not challenging, dissatisfaction with the major department, dissatisfaction with the course, and major course not available (as shown in Table 4.26). The odds of withdrawing and not returning are 4.08 times greater for those experiencing dissatisfaction with the major department than those who do not. The odds of withdrawing and not returning are 4.01 times greater for those reporting that the coursework is not challenging than those who do not. The odds of withdrawing are also 1.94 times greater for those who have reported that their major course is unavailable than those who do not.

Table 4.26

Logistic Regression Predicting Likelihood of Return No or Unsure based on Most Significant Overarching Factors Subcategories

Factors	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Change in Work Schedule	-.569	.132	18.503	1	<.001	.566	.437	.734
Relocating for Job	1.075	.308	12.173	1	<.001	2.930	1.602	5.358
Other Work-Study Issues	-.158	.152	1.076	1	.300	.854	.633	1.151
Other Family Responsibilities	-.292	.391	.556	1	.456	.747	.347	1.608
Not Enough Money: Tuition	-.310	.098	10.055	1	.002	.733	.605	.888
Not Enough Money: Living Expenses	.319	.143	4.991	1	.025	1.375	1.040	1.819
Other Financial Issues	.100	.160	.392	1	.531	1.105	.808	1.512
Coursework Not Challenging	1.388	.601	5.335	1	.021	4.006	1.234	13.005
Dissatisfaction with Major Department	1.405	.320	19.331	1	<.001	4.075	2.178	7.623
Dissatisfaction with Course	.519	.199	6.783	1	.009	1.680	1.137	2.482
Major Course Not Available	.662	.249	7.065	1	.008	1.939	1.190	3.159
Other Academic Dissatisfaction/Difficulty	-.015	.392	.002	1	.969	.985	.457	2.121
Constant	-.323	.099	10.662	1	.001	.724		

The Omnibus Tests of Model Coefficients show that the model is statistically significant ($p < .001$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit ($p = .712$). The cut value is .500. The classification table without any independent variables showed that 65.5% of cases overall could be correctly classified by simply assuming that all cases were classified as “not selected.” However, with the independent variables added, the model now correctly classifies 67% of cases overall, which means that the addition of the independent variables improves the overall prediction of cases into their observed categories of the dependent variable, which is referred to as the percentage accuracy in classification (PAC).

The results show that change in work schedule ($p = < .001$), relocating for job ($p = < .001$), not enough money for tuition ($p = .002$), not enough money for living expenses ($p = .025$), coursework not challenging ($p = .021$), dissatisfaction with the major department ($p = < .001$), dissatisfaction with the course ($p = .009$), major course not available ($p = .008$) added significantly to the model/prediction. However, other work-study issues ($p = .300$), other family responsibilities ($p = .456$), other financial issues ($p = .531$), and other academic dissatisfaction or difficulty ($p = .969$) did not add significantly to the model.

The findings indicate that all overarching factors were significant. Of the work-study factors, a change in work schedule, relocating for a job, and other work/studies issues were found to be significant for students withdrawing and not returning. Of the family responsibility factors, the other family responsibilities factor was found to be significant. Of the financial issues factors, not enough money for tuition, not enough money for living expenses, and other financial issues were significant. Of the academic

dissatisfaction or difficulty factors, coursework not challenging, dissatisfaction with the major department, dissatisfaction with the course, major course not available, and other academic dissatisfaction or difficulty were significant. Overall, the most significant factors to predict a student withdrawing and not returning were a change in work schedule, relocating for a job, not enough money for tuition, not enough money for living expenses, coursework not challenging, dissatisfaction with the major department, dissatisfaction with the course, and major course not available.

RQ4: What is the relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to transfer?

H4: There is a positive relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to transfer.

Research question four focused on determining which factors most predict a student withdrawing from the university and transferring to a different institution. The goal was to determine if a specific factor would more likely predict a student withdrawing and choosing “yes” when asked if they plan on transferring to a different institution.

For research question four, student responses to the withdrawal survey were examined to determine what factors led the student to withdraw from the university and transfer to a different institution. This research question had four overarching factors: work/studies conflict, family responsibilities, financial issues, and academic dissatisfaction or difficulty. There were additional subcategories for each factor:

1. Work/Studies Conflict: not enough time, the employer not flexible, change in work schedule, relocating for a job, other work/studies issues.

2. Family Responsibilities: childcare unavailable/too costly, home responsibilities too great, care of a family member, other family responsibilities.
3. Financial Issues: could not find a job, not enough money for tuition, not enough money for living expenses, other financial issues.
4. Academic Dissatisfaction/Difficulty: coursework not challenging, dissatisfaction with the major department, dissatisfaction with the course, inconvenient class times, courses too difficult, studies too time-consuming, low grades, inadequate study techniques, felt academically unprepared, major course not available, and other academic dissatisfaction/difficulty.

Multicollinearity was tested using SPSS to ensure the independent variables were not highly correlated. Multicollinearity was detected by inspecting correlation coefficients and Tolerance/VIF values in SPSS. All VIF values were less than 5, indicating a moderate correlation between a given predictor variable and other predictor variables in the model; however, this was not severe enough to require attention and shows that multicollinearity will not be a problem in the regression model. Therefore, the data meets this assumption.

Withdraw and Transfer: Overarching Factors

A binomial logistic regression analysis was run to predict if students withdraw and transfer from the following factors: work-study conflict, family responsibilities, financial issues, or academic dissatisfaction or difficulty. The logistic regression model was statistically significant, $\chi^2(4) = 74.28, p < .001$. Therefore, we reject the null

hypothesis and accept the alternative hypothesis. The model explained .03% (Nagelkerke R^2) of the variance in transferring and correctly classified 75.1% of cases. Three predictor variables were statistically significant: work-study conflict, family responsibilities, and academic dissatisfaction or difficulty (as shown in Table 4.27). The odds of withdrawing and transferring are 1.68 times greater for those citing work-study conflict factors than those who did not.

Table 4.27

Logistic Regression Predicting the Likelihood of Transferring based on Overarching Factors

Factors	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Work-Study Conflict	.522	.088	35.417	1	<.001	1.686	1.419	2.002
Family Responsibilities	.227	.099	5.322	1	.021	1.255	1.035	1.523
Financial Issues	-.042	.089	.222	1	.637	.959	.805	1.142
Academic Dissatisfaction or Difficulty	-.576	.104	30.517	1	<.001	.562	.458	.690
Constant	.989	.057	298.651	1	<.001	2.690		

The Omnibus Tests of Model Coefficients show that the model is statistically significant ($p < .001$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit ($p = .188$). The cut value is .500. The classification table without any independent variables showed that 75.1% of cases overall could be correctly classified by simply assuming that all cases were classified as “not selected.” The model remained the same with the independent variables added, classifying 75.1% of cases overall.

The results show that work-study conflict ($p = <.001$), family responsibilities ($p = .021$), and academic dissatisfaction or difficulty ($p = <.001$) all added significantly to the model/prediction. Still, financial issues ($p = .637$) did not add significantly to the model. The frequencies of the four overarching factors are presented in Tables 4.17 to 4.20.

Withdraw and Transfer Factors: Work-Study

A binomial logistic regression analysis was run to predict if students withdraw and transfer from the following work-study factors: not enough time, employer inflexibility, change in work schedule, relocating for a job, and other work-study issues. The logistic regression model was statistically significant, $\chi^2(5) = 73.58, p < .001$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. The model explained .03% (Nagelkerke R^2) of the variance in transferring and correctly classified 74.9% of cases. Three of the five predictor variables were statistically significant: not enough time, change in work schedule, and relocating for a job (as shown in Table 4.28). The odds of withdrawing and transferring are 1.69 times greater for those reporting not enough time between work and school than those who do not. The odds of withdrawing and transferring are 1.68 times greater for those reporting a change in their work schedule than those who do not.

Table 4.28*Logistic Regression Predicting Likelihood of Transferring based on Work-Study Factors*

Factors	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Not Enough Time	.529	.101	27.225	1	<.001	1.698	1.392	2.071
Employer Not Flexible	.255	.219	1.351	1	.245	1.290	.840	1.981
Change in Work Schedule	.521	.162	10.393	1	.001	1.684	1.227	2.312
Relocating for Job	-1.484	.308	23.228	1	<.001	.227	.124	.415
Other Work-Study Issues	.150	.095	2.513	1	.113	1.162	.965	1.399
Constant	.812	.096	71.556	1	<.001	2.252		

The Omnibus Tests of Model Coefficients show that the model is statistically significant ($p < .001$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit ($p = .664$). The cut value is .500. The classification table without any independent variables showed that 75.1% of cases overall could be correctly classified by simply assuming that all cases were classified as “not selected.” However, with the independent variables added, the model now correctly classifies 74.9% of cases overall, which means that the addition of the independent variables improves the overall prediction of cases into their observed categories of the dependent variable, which is referred to as the percentage accuracy in classification (PAC).

The results show that not enough time ($p = <.001$), change in work schedule ($p = .001$), and relocation for a job ($p = <.001$) added significantly to the model/prediction. Still, an employer not flexible ($p = .245$) and other work-study issues ($p = .113$) did not add significantly to the model.

Withdraw and Transfer Factors: Family Responsibilities

A binomial logistic regression analysis was run to predict if students withdraw and transfer from family responsibility factors: childcare unavailable or too costly, home responsibilities too great, care of a family member, or other family responsibilities. The logistic regression model was statistically significant, $\chi^2(4) = 16.48, p < .002$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. The model explained .01% (Nagelkerke R^2) of the variance in transferring and correctly classified 75.1% of cases. Only two of the four predictor variables were statistically significant: childcare unavailable or too costly and other family responsibilities (as shown in Table 4.29).

Table 4.29

Logistic Regression Predicting Likelihood of Transferring based on Family Responsibility Factors

Factors	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Childcare Unavailable/Too Costly	.679	.251	7.333	1	.007	1.972	1.206	3.224
Home Responsibilities too Great	.141	.128	1.214	1	.271	1.151	.896	1.480
Care of a Family Member	.009	.147	.004	1	.950	1.009	.756	1.347
Other Family Responsibilities	.237	.111	4.591	1	.032	1.268	1.020	1.575
Constant	.857	.104	68.273	1	<.001	2.356		

The Omnibus Tests of Model Coefficients show that the model is statistically significant ($p < .002$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit ($p = .190$). The cut value is .500. The classification

table without any independent variables showed that 75.1% of cases overall could be correctly classified by simply assuming that all cases were classified as “not selected.” The model remains the same with the independent variables added, classifying 75.1% of cases overall.

The results show that childcare unavailable or too costly ($p = .007$) and other family responsibilities ($p = .032$) added significantly to the model/prediction. Still, home responsibilities too great ($p = .271$), and the care of a family member ($p = .950$) did not add significantly to the model.

Withdraw and Transfer Factors: Financial Issues

A binomial logistic regression analysis was run to predict if students withdraw and transfer from the following financial issue factors: they could not find a job, not enough money for tuition, not enough money for living expenses, or other financial issues. The logistic regression model was not statistically significant, $\chi^2(4) = 7.25$, $p = .123$. Therefore, we accept the null hypothesis and cannot accept the alternative hypothesis. The model explained .03% (Nagelkerke R^2) of the variance in transferring and correctly classified 75.1% of cases. Of the four predictor variables, one was statistically significant: not enough money for living expenses (as shown in Table 4.30). The odds of withdrawing and transferring are 1.11 times greater for those who do not have enough money for tuition than those who do. The odds of withdrawing and transferring are 1.11 times greater for those who reported other financial issues than those who did not.

Table 4.30

Logistic Regression Predicting the Likelihood of Transferring based on Financial Issue Factors

Factors	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Could Not Find a Job	-.102	.239	.181	1	.670	.903	.565	1.444
Not Enough Money: Tuition	.101	.104	.945	1	.331	1.106	.902	1.357
Not Enough Money: Living Expenses	-.347	.152	5.247	1	.022	.707	.525	.951
Other Financial Issues	.100	.095	1.128	1	.288	1.106	.919	1.331
Constant	1.022	.095	115.720	1	<.001	2.778		

The Omnibus Tests of Model Coefficients show that the model is not statistically significant ($p = .123$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit ($p = .565$). The cut value is .500. The classification table without any independent variables showed that 75.1% of cases overall could be correctly classified by simply assuming that all cases were classified as “not selected.” The model remains the same with the independent variables added, classifying 75.1% of cases overall.

The results show that not enough money for living expenses ($p = .022$) added significantly to the model/prediction. Still, not enough money for tuition ($p = .331$), could not find a job ($p = .670$), and other financial issues ($p = .288$) did not add significantly to the model.

Withdraw and Transfer Factors: Academic Dissatisfaction or Difficulty

A binomial logistic regression analysis was run to predict if students withdraw and transfer from the following academic dissatisfaction or difficulty factors: coursework not challenging, dissatisfaction with the major department, dissatisfaction with the course, inconvenient class times, courses too difficult, studies too time-consuming, low grades, inadequate study techniques, felt academically unprepared, major course not available, and other academic dissatisfaction or difficulty. The logistic regression model was statistically significant, $\chi^2(11) = 79.79, p < .001$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. The model explained .03% (Nagelkerke R^2) of the variance in transferring and correctly classified 75.8% of cases. Four of the eleven predictor variables were statistically significant: coursework not challenging, dissatisfaction with the major department, courses too difficult, and major course not available (as shown in Table 4.31). The odds of withdrawing and transferring are 2.01 times greater for those reporting that the courses are too difficult than those who do not. The odds of withdrawing and transferring are 1.16 times greater for those with inadequate study techniques than those without. The odds of withdrawing are also 1.21 times greater for those who have indicated other academic dissatisfaction or difficulty than those who did not.

Table 4.31

Logistic Regression Predicting the Likelihood of Transferring based on Academic Dissatisfaction or Difficulty Factors

Factors	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Coursework Not Challenging	-1.217	.504	5.838	1	.016	.296	.110	.795
Dissatisfaction with Major Department	-1.288	.294	19.257	1	<.001	.276	.155	.490
Dissatisfaction with Course	-.151	.229	.433	1	.510	.860	.549	1.348
Inconvenient Class Times	-.248	.305	.664	1	.415	.780	.429	1.418
Courses Too Difficult	.697	.289	5.816	1	.016	2.008	1.139	3.538
Studies Too Time-Consuming	-.113	.260	.189	1	.664	.893	.536	1.487
Low Grades	-.331	.229	2.088	1	.148	.718	.459	1.125
Inadequate Study Techniques	.148	.282	.276	1	.599	1.160	.667	2.015
Felt Academically Unprepared	.066	.238	.076	1	.783	1.068	.670	1.703
Major Course Not Available	-.667	.259	6.661	1	.010	.513	.309	.852
Other Academic Dissatisfaction/Difficulty	.194	.112	2.993	1	.084	1.214	.975	1.511
Constant	.994	.104	91.752	1	<.001	2.703		

The Omnibus Tests of Model Coefficients show that the model is statistically significant ($p < .001$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit ($p = .193$). The cut value is .500. The classification table without any independent variables showed that 75.1% of cases overall could be correctly classified by simply assuming that all cases were classified as “not selected.”

However, with the independent variables added, the model now correctly classifies 75.8% of cases overall, which means that the addition of the independent variables improves the overall prediction of cases into their observed categories of the dependent variable, which is referred to as the percentage accuracy in classification (PAC).

The results show that coursework not challenging ($p = .016$), dissatisfaction with the major department ($p = <.001$), courses too difficult ($p = .016$), and major course not available ($p = .010$) added significantly to the model/prediction, but dissatisfaction with the course ($p = .510$), inconvenient class times ($p = .415$), studies too time-consuming ($p = .664$), low grades ($p = .148$), inadequate study techniques ($p = .599$), felt academically unprepared ($p = .783$) and other academic dissatisfaction or difficulty ($p = .084$) did not add significantly to the model.

Withdraw and Transfer: Most Significant Factors

A binomial logistic regression analysis was run to predict which factor that added significantly to the prior research was most significant on a student withdrawing and transferring to a different institution: not enough time, a change in work schedule, relocating for a job, childcare unavailable or too costly, other family responsibilities, not enough money for living expenses, coursework not challenging, dissatisfaction with the major department, courses too difficult, major course not available. The logistic regression model was statistically significant, $\chi^2(10) = 160.39, p < .001$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. The model explained .06% (Nagelkerke R^2) of the variance in transferring and correctly classified 75.8% of cases. Of the ten predictor variables, all ten were statistically significant: not enough time, change in work schedule, relocating for a job, childcare unavailable or too costly,

other family responsibilities, not enough money for living expenses, coursework not challenging, dissatisfied with major department, courses too difficult, major course not available (as shown in Table 4.32). The odds of withdrawing and transferring are 1.84 times greater for those finding childcare unavailable or too costly than those who do not. The odds of withdrawing and transferring are 1.76 times greater for those reporting insufficient time or a change in work schedule than those who do not report that. The odds of withdrawing and transferring are also 1.64 times greater for those who said their courses are too difficult than those who do not.

Table 4.32

Logistic Regression Predicting the Likelihood of Transferring based on the Most Significant Factors from Overarching Factors Subcategories

Factors	B	S.E.	Wald	D f	Sig.	Exp (B)	95% C.I. for Odds Ratio	
							Lower	Upper
Not Enough Time	.568	.103	30.620	1	<.001	1.765	1.443	2.158
Change in Work Schedule	.569	.161	12.464	1	<.001	1.767	1.288	2.424
Relocating for Job	-1.438	.311	21.341	1	<.001	.238	.129	.437
Childcare Unavailable/Too Costly	.609	.249	5.977	1	.014	1.839	1.128	2.998
Other Family Responsibilities	.234	.113	4.258	1	.039	1.264	1.012	1.578
Not Enough Money: Living Expenses	-.357	.145	6.032	1	.014	.700	.527	.931
Coursework Not Challenging	-1.295	.509	6.478	1	.011	.274	.101	.743
Dissatisfaction with Major Department	-1.332	.287	21.524	1	<.001	.264	.150	.463
Courses Too Difficult	.497	.250	3.958	1	.047	1.644	1.007	2.683
Major Course Not Available	-.952	.247	14.900	1	<.001	.386	.238	.626
Constant	.801	.108	54.933	1	<.001	2.228		

The Omnibus Tests of Model Coefficients show that the model is statistically significant ($p < .001$). Furthermore, the Hosmer and Lemeshow goodness of fit test shows that the model is a good fit ($p = .769$). The cut value is .500.

The results show that not enough time ($p = <.001$), a change in work schedule ($p = <.001$), relocating for a job ($p = <.001$), childcare unavailable or too costly ($p = .014$), other family responsibilities ($p = .039$), not enough money for living expenses ($p = .014$), coursework not challenging ($p = .011$), dissatisfaction with the major department ($p =$

<.001), courses too difficult ($p = .047$), major course not available ($p = <.001$) added significantly to the model/prediction. There were no factors that did not add significantly to the model.

The findings indicate that the overarching factors of work-study conflict, family responsibilities, and academic dissatisfaction or difficulty were significant. Of the work-study factors, not enough time, change in work schedule, and relocation for a job were found to be significant for students withdrawing and transferring. Of the family responsibility factors, childcare unavailable or too costly and other family responsibilities were found to be significant. Although the overarching factor was not significant for the financial issues factors, not enough money for living expenses was significant. For the academic dissatisfaction or difficulty factors, coursework not challenging, dissatisfaction with the major department, courses too difficult, and major course not available were significant. Overall, the most significant factors to predict a student withdrawing and transferring were not enough time, a change in work schedule, relocating for a job, childcare unavailable or too costly, other family responsibilities, not enough money for living expenses, coursework not challenging, dissatisfaction with the major department, courses too difficult, and major course not available.

Summary

This research study explored how course scheduling in higher education may impact success and retention. The summary of findings is shown in Table 4.33.

The relationship between the variables was significant for all cases except for the ability to schedule courses in a way to earn one's degree quickly. All academic levels reported that it was very important or extremely important to them to schedule their

courses in a way that would allow them to earn their degree quickly. The relationship between class standing and the ability to schedule courses around one's work schedule was significant. It is important to note that all academic levels found it important, but there was a significant relationship between juniors and the importance of scheduling courses in this way. The relationship between class standing and the ability to schedule courses around family obligations indicates that the higher the academic level, the more important scheduling around one's family obligations becomes. The relationship between class standing and the ability to schedule courses in a preferred format reveals that the highest academic level finds it most important that their courses be scheduled in a preferred format. The relationship between class standing and the decision to take the course at another institution, following the inability to register for a required course, revealed no clear relationship between class standing and what a student would choose to do. This finding suggests that it depends more on the student and other factors than class standing. It is important to note, however, that 8% of the respondents indicated that they would take the course at a different institution.

All overarching factors were significant in predicting students withdrawing and not returning. The overarching factors were then split into subcategories and analyzed separately. Of the subcategories, the significant factors were change in work schedule, relocating for a job, other work/studies issues, other family responsibilities, not enough money for tuition, not enough money for living expenses, other financial issues, coursework not challenging, dissatisfaction with the major department, dissatisfaction with the course, major course not available, and other dissatisfaction or difficulty. To further delineate which factors were most significant in leading a student to withdraw and

not return, a final analysis included all the significant factors from the varying subcategories. The final analysis identified which factors contributed the most, as seen in Table 4.33.

The following factors were significant in predicting students withdrawing and transferring: work-study conflict, family responsibilities, and academic dissatisfaction or difficulty. The overarching factors were then split into subcategories and analyzed separately. Although the overarching factor of Financial Issues was insignificant, one significant sub-factor was found when examining the sub-factors. Of the subcategories, the significant factors were not enough time, change in work schedule, relocation for a job, childcare unavailable or too costly, other family responsibilities, not enough money for living expenses, coursework not challenging, dissatisfaction with the major department, courses too difficult, and major course not available. A final analysis included all the significant elements from the varying subcategories to delineate further which factors were most influential in leading a student to withdraw and transfer. This final analysis identified which factors contributed the most out of all the factors, as seen in Table 4.33.

Table 4.33

Summary of Findings

Research Question	Significance	
	Added Significantly to Model	Did Not Add Significantly to Model
RQ1: What is the relationship between students' class standing and the importance of their ability to schedule courses in a certain way?	Around Work Schedule Around Family Obligations In Preferred Format	Earn Degree Quickly

RQ2: What is the relationship between students' class standing and the intent behind the students' decision to take the course at another institution following the inability to register for a required course?

Enroll in another course
Enroll in the course anyway
Wait until next semester to see how it is offered
Take the course at a different institution
Unsure of what they would do

RQ3: What is the relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to withdraw?

Change in work schedule
Relocating for a job
Not enough money for tuition
Not enough money for living expenses
Coursework not challenging
Dissatisfaction with major department
Dissatisfaction with course
Major course not available

Other work-study issues
Other family responsibilities
Other financial issues
Other academic dissatisfaction or difficulty

RQ4: What is the relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to transfer?

Not enough time
A change in work schedule
Relocating for a job
Childcare unavailable or too costly
Other family responsibilities
Not enough money for living expenses
Coursework not challenging
Dissatisfaction with the major department
Courses too difficult
Major course not available

Chapter 5 will contain the discussion, including the significance of the findings and the implications. Recommendations for universities and future research will also be addressed, followed by the limitations. The chapter will close with the conclusion.

CHAPTER 5: Discussion

This quantitative study examined the course schedule and its impact on retaining undergraduate degree-seeking students at a state-funded, Midwestern, 4-year institution by exploring how course availability influences student perception, intent, and action. This chapter discusses significant findings concerning the literature on student retention, including student decision-making and withdrawal. This chapter also discusses course scheduling processes within higher education, course availability, and the impact on student retention. The chapter concludes with the study's implications, recommendations for future research, the limitations of the study, and a summary.

The purpose of this study was twofold: (a) to examine the course schedule and its impact on retaining undergraduate degree-seeking students at a state-funded, 4-year institution by focusing on the perceived importance of scheduling ability as well as course availability, and (b) to examine the factors that most predict a student withdrawing and either not returning or transferring to another institution.

Research Questions

Four research questions aided in understanding how course scheduling affects the retention of undergraduate degree-seeking students at a state-funded, 4-year institution in the United States.

1. What is the relationship between students' class standing and the importance of their ability to schedule courses in a certain way?
2. What is the relationship between students' class standing and the intent behind the students' decision to take the course at another institution following the inability to register for a required course?

3. What is the relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to withdraw?
4. What is the relationship between factors (work-study conflict, family issues, financial issues, academic difficulty) and decisions to transfer?

Class Standing and Scheduling Courses

Research question one (RQ1) asked if there was a relationship between class standing and the importance of the ability to schedule courses in a certain way (to earn the degree quickly, around one's work schedule, around family obligations, or in a preferred format). Results found that freshmen, juniors, and seniors reported the ability to schedule their courses in a way that allowed them to earn their degree quickly as extremely important. In contrast, sophomores reported it as very important. This result indicates that regardless of class standing, students find it important to be able to schedule their courses in a way that would allow them to earn their degree quickly. This finding is unsurprising as adding even one extra year to complete a degree can be costly. According to Abel and Deitz (2014), staying an additional year in college costs more than \$85,000, and those who take an extra two years to finish can expect to pay about \$174,000. Results also show that scheduling around one's work schedule is extremely important. While all academic levels reported this as extremely important, with that selection accounting for 49.2% of the responses, 50% of students at the junior level reported it as extremely important to schedule their courses around their work schedule. Ecton and Carruthers (2023) estimate that students who work in college are 20% less likely to complete their degrees than similar peers who don't work and that 43% of full-time students and 81% of part-time students work while enrolled in college. This data

helps explain why so many students find it extremely important to be able to schedule their courses around their work schedule since many of them have work obligations to consider.

Furthermore, all academic levels also reported that scheduling their courses around family obligations was extremely important, with seniors reporting it as most important, with 39.7% of respondents indicating it. Witkow et al. (2015) explain that compared to high school, family obligations may impede the student's abilities to manage family and school demands, and college-age students may face a conflict between providing for their family and attending college. Lastly, all levels found that scheduling their courses in a preferred format was extremely important, with seniors indicating it as most important, with 62.8% choosing extremely important. According to Sanford et al. (2017), students often use course convenience as a criterion for selecting one course over another, and they may differ in their appreciation for convenience across different course formats. This difference in appreciation can be because students have conflicting priorities for their time and what defines convenience. For example, a senior might find it more convenient to have online or night courses due to their work schedule, whereas a freshman might find it more convenient to take in-person courses during the day. Overall, the most significant way of scheduling one's classes was found to be around family obligations. This finding is intelligible because students at all levels may have family obligations compared to other priorities, such as work, scheduling their courses in a preferred format, or earning their degree quickly. Packham et al. (2004) describe that family and work commitments can negatively influence successful completion, indicating that due to lack of funding, many students must work part-time alongside their full-time

studies, which can significantly impact commitment. Based on these findings, the recommendation is that universities focus on allowing students to schedule their courses in a way that will enable them to tend to family obligations and plan their studies in a preferred format. Scheduling courses in a preferred format will likely assist students in meeting their family obligations and allow for more flexibility with that priority. Therefore, it is proposed that universities offer a variety of course formats to accommodate their students, where possible.

Class Standing and Taking the Course at Another Institution

Research question two (RQ2) asked if there was a relationship between class standing and the intent behind the students' decision to take the course at another institution following the inability to register for a required course. Sophomores and seniors were most likely to enroll in another class if they could not enroll in a course required for their major. In contrast, freshmen and juniors were more likely to wait until the next semester to see how the course would be offered. Of those who responded, 8% said they would take the course at another institution if they could not register. Of that 8%, most respondents who chose that option were seniors. Gurantz (2015) describes that "course scarcity," or the inability to enroll in the courses necessary for completion, may cause the time to degree to increase or cause degree attainment to decline (p. 527). For this reason, 8% of respondents would likely try to find an alternative way of getting the course they need for completion. Tying that back into the cost of prolonging degree completion, taking the course elsewhere may save students thousands of dollars rather than waiting to see how it is offered next semester or enrolling in another class. Focusing on degree plan requirements and the number of students needing those courses will help

predict course demand to ensure course availability for degree-seeking students.

American Association of Collegiate Registrars and Admissions Officers (AACRAO)

(2022) recommends using data to initiate discussions to move toward student-centric

class scheduling. It outlines that 65% of non-completers report that a flexible schedule to

fit their lifestyle would make them more interested in attending college again.

Withdrawing from the University and Not Returning

A three-part analysis was conducted to answer research question 3 (RQ3), starting with the overarching factors, then the elements included in each subcategory, and finally looking at the most significant factors from the subcategories. All the overarching factors were found to be significant:

1. Work-Study factors
2. Family responsibilities
3. Financial issues
4. Academic dissatisfaction.

Within those overarching factors, the subcategories were examined, and it was found that the following factors were significant:

1. Change in work schedule
2. Relocating for a job
3. Other work/study issues
4. Family responsibilities
5. Not enough money for tuition
6. Not enough money for living expenses
7. Other financial issues

8. Coursework not challenging
9. Dissatisfaction with the major department
10. Dissatisfaction with the course
11. Major course not available
12. Other academic dissatisfaction or difficulty.

Further analysis found that the most significant factors to predict a student withdrawing and not planning on returning were:

1. Change in work schedule
2. Relocating for a job
3. Not enough money for tuition
4. Not enough money for living expenses
5. Coursework not challenging
6. Dissatisfaction with the major department
7. Dissatisfaction with the course
8. Major course not available.

Zainol and Salleh (2021) describe that work schedules, financial difficulty, financial hardship among varying socioeconomic backgrounds, courses attended, and course difficulties drive attrition choices and student retention. Based on these findings, Midwestern University should focus on tuition assistance, departmental structure, course content or format, and course availability to combat low retention rates. Student work constraints should be considered when developing course schedules, providing various options to students who might be unable to make a traditional schedule work for their needs. In addition to considering varying course schedule options, analyzing data

surrounding course demand and program requirements is crucial. Ensuring students have the courses they need to graduate on time is paramount. AACRAO (2022) explains that among the many factors that contribute to students being unable to complete their degrees on time, a student's ability to access the courses they need, when needed, plays a critical role. Furthermore, financial concerns should also be addressed for students by analyzing the cost of living and attending the institution with the student's finances. Understanding the student's financial requirements and shortcomings should help the institution understand where the bottlenecks are causing students not to be able to persist due to financial constraints. This understanding also plays into the course scheduling consideration as the student might be unable to work because of their course schedule, or their hours are limited due to the required courses they must take. Therefore, course scheduling could also have financial implications on the student, increasing the likelihood that they will withdraw and not return. That relationship should be investigated if the institution wishes to retain students.

Withdrawing and Transferring

Similar to RQ3, a three-part analysis was conducted to answer research question four (RQ4), starting with the overarching factors, then the elements included in each subcategory, and finally looking at the most significant factors from the subcategories. Results found that all but the financial issues factor was significant:

1. Work-Study factors
2. Family responsibilities
3. Academic dissatisfaction.

Within those overarching factors, the subcategories were examined, and it was found that the following factors were significant:

1. Not enough time
2. Change in work schedule
3. Relocating for a job
4. Childcare unavailable or too costly
5. Other family responsibilities
6. Not enough money for living expenses
7. Coursework not challenging
8. Dissatisfied with the major department
9. Courses too difficult
10. Major course not available

Further analysis found that the most significant factors to predict a student withdrawing and not planning on returning were the same as those found in the subcategory analysis; all factors were significant in this third analysis. When looking at the significance level, Midwestern University should focus on supporting students who work, departmental structure, course content or format, and course availability to combat low retention rates.

Significance of Findings

The findings are significant for universities looking to increase student retention, especially as enrollment remains a concern. Hunter (2022) explained that registration of full-time students fell to 64% in the Fall of 2021, down 2.8% from 2 years earlier, at public 4-year universities. As retention and enrollment continue to be a substantial

concern for universities nationwide and worldwide, understanding the factors that lead to student retention is of prime importance. As outlined by Williams and Roberts (2023), dropping out of a university is rarely attributable to one factor, and the catch-all term “personal circumstances” conceals the role institutional factors play in the student’s decision to leave. Furthermore, while retention theories have historically been centered on social and academic integration (Seidman, 2012), this study shows that processes within the institution that allow students to complete their degrees on time are paramount to student retention. Therefore, these findings indicate that course scheduling is crucial for students and must be treated as such. Investing in the course scheduling process can benefit universities as the return will come by ensuring more are retained and graduate on time.

For many institutions, nontraditional students outnumber traditional students, a trend that has happened since the 1980s (Allen, 1993). Wyatt (2011) explains that “nontraditional students mandate that institutions develop effective educational strategies that include creativity, the ability to be flexible, and the willingness to adopt a new paradigm to this diverse student population” (p. 14). Therefore, the findings in this study support the idea that students prefer flexibility, allowing them to graduate on time around their personal and professional commitments.

Students must make tough financial decisions due to the cost of living, inflation rates, and rising education costs. According to Jabbari et al. (2023), nearly two-thirds of college seniors who graduated in 2019 did so with an average of \$28,950 in undergraduate student loans, an increase of 56% since 2004. The rising cost of education is an essential factor when students choose to go to school or stay enrolled in school. This

study is significant in understanding how students are affected by financial issues and what the institution can do from a process standpoint to assist those students in persevering rather than dropping out.

Finally, as noted by Tinto (2010), although we can increasingly explain why some students persist and others leave, we have not yet developed a model of institutional action that would help universities progress in assisting students to complete their degree programs. This study can lay the foundation for providing a comprehensive model of institutional action that universities can use to drive their processes and improve student retention at their campus.

Implications

One of the significant implications of this work is changing how higher education institutions view the course schedule and how it is built. Retention in higher education remains essential for institutions to understand and strategically improve upon. While the course schedule remains the institution's backbone, universities have overlooked this imperative process. As explained by Hunter (2022), student-aligned schedules are foundational to improving student success, yet too many institutions struggle to implement sound course scheduling practices. Based on these findings, the recommendation is that universities focus on allowing students to schedule their courses in a way that will enable them to tend to family obligations and schedule their classes in a preferred format. Scheduling courses in a preferred format will likely assist students in meeting their family obligations and allow for more flexibility with that priority. Therefore, it is proposed that universities offer a variety of course formats to accommodate their students, where possible. In addition to considering varying course

schedule options, analyzing data surrounding course demand and program requirements is crucial. Institutions need to view the course schedule as a tool that can help them improve student retention. Unfortunately, this might mean changing institutional culture as most course schedules are faculty-centered; however, it is a much-needed change for the institution's continued success. Universities should use this information to adjust their course scheduling process to be more student focused.

An additional implication is understanding the connection between student perception, intent, and action by looking at what students perceive as necessary when scheduling their courses and what actions they would take if they could not register for a required course. Tying that to the steps students did take when they withdrew. This linking would be more meaningful as a study where the same students were surveyed at each point in the process, which is a limitation of this student. However, the findings regarding what that would mean for understanding student retention would be staggering.

Another implication of this study is the difference between the factors leading students to withdraw and not return and those that lead students to withdraw and transfer. Understanding the differences between those who leave and those who transfer can help institutions pinpoint where to focus their initial support. It is also vital to understand if there were any overlapping factors for those who chose to leave and not return and those who were transferring. That leads to several follow-up questions:

1. Why were financial issues not significant for students choosing to leave and transfer? Additional follow-up with students withdrawing and transferring would help clarify why financial issues were not a substantial factor in their decision compared to those who left and did not plan on

returning. The follow-up could be in any format, including surveys, focus groups, or interviews.

2. Would this data hold across other institutions? This institution is a part of a four-campus system, so how does this data compare to the other institutions within the system? Given that at least one other campus actively uses a Withdrawal Survey, gathering and analyzing data from that campus to compare findings should be reasonable.
3. What other factors might be significant? This study chose a few of the main overarching factors to examine. Still, other factors are included in the Withdrawal Survey, such as personal issues, medical/physical/mental health illness, difficulties navigating the institution's system/processes, connection or sense of belonging to the campus, and campus life/student experience. Of the additional factors not studied here, which are significant? Analyzing all factors would better represent how the factors compare and what remains noteworthy.
4. To improve retention based on these results, where should the institution start? The findings show that course scheduling was central across the research questions. Students find it imperative to be able to schedule their courses in a certain way; they will consider other options if they are unable to register for a required course, and some have withdrawn without planning on returning or planning to transfer due to their major course not being available. Therefore, it makes the most sense to start with the course

schedule and how to make it more student-centered by focusing on time to degree.

Recommendations for Universities

Course scheduling is a vital process in higher education and will continue to be critical to the success of universities, particularly regarding student retention. The focus on retention is central for institutions, mainly as enrollment fluctuates and budget concerns endure. Huiskes (2023) confirms that some public colleges may lose one-fifth of their state funding in the next two years while also dealing with a loss of tuition revenue. Therefore, universities must focus on the institutional process of course scheduling to aid them in increasing student success and retention when operating with less money and increased pressures. Ad Astra (2023a) agrees that as universities are asked to do more with less, it is critical to find better scheduling practices. Based on this research, the recommendation is to consider the course scheduling process a tool to aid student retention by concentrating on the student.

Student-Centered Model of Course Scheduling

This research shows that student retention is affected by the course schedule via student decision-making and withdrawal. The course scheduling process must be intentional and student-centered to impact student retention positively. Intentional course scheduling can ensure students can access the necessary courses to graduate on time. Ad Astra (2023c) argues that schedules promoting increased access and flexibility can effectively retain students and graduate students faster. As the findings from this study indicate, this is accurate as students find it necessary to schedule those courses in a way that allows them to earn their degree quickly. While some students may not understand

the implications of not graduating on time, they realize the importance of accessing their required courses to earn their degree promptly. Course availability is a fundamental component of student-centered scheduling, as it removes the unnecessary barriers restricting students from promptly reaching their academic goals. Another critical factor is the ability to schedule courses around other external factors, such as work and family responsibilities.

Institutions must realize how essential the course scheduling process is to their students' experiences. However, this cannot be done without understanding how the students' external priorities influence their overall institutional encounter. In today's world, students are changing, as are their needs. They require more creative scheduling options, providing flexibility to complete coursework alongside competing priorities. Students also need to schedule their classes in a way that suits their external responsibilities. Many students have increased duties outside of school, such as work or family obligations, and successfully balancing both is essential to today's students. Moreover, students also care about the format of their courses. Being able to schedule classes in a way that allows students to manage their additional obligations, such as taking a course in a format that will enable them to attend to those same responsibilities, is valuable to students. For example, some students have family responsibilities requiring them to take classes online or in a flexible format that will prevent them from being on campus for every class period. This flexibility in scheduling can help universities reach more students who may not fit into the traditional student model. Campuses must consider scheduling options that meet the needs of a diverse population of students, a population that may no longer fit the conventional student mold. Therefore, institutions

need to include commuter, non-traditional, and working students in that consideration. Ignoring this evolution of student demographics and preferences will be catastrophic to an institution's success.

This deliberate and student-focused course scheduling model requires detailed planning and strategic insight across campus. The class schedule relies on input from faculty and staff across campus to ensure its success. Ad Astra (2023c) states that since the course schedule touches every student and unit across campus, optimal scheduling requires alignment across all stakeholders. Institutions must seek input on their plans from faculty and staff campus wide. Seeking feedback from the advisors who work directly with the students, Department Chairs, Program Directors, Associate Deans, and Deans could help universities solidify a schedule that would work for most students, creating a more student-centric approach. Gathering this input from stakeholders across campus also helps guarantee fewer course conflicts and more accuracy on how courses are offered. Advisors often work directly with the students, hearing their preferences and understanding their external responsibilities. Bringing those advisors into the scheduling process could provide invaluable insight into what students search for before registering for classes. Furthermore, Department Chairs, Associate Deans, and Deans of the respective colleges will know their program requirements and can provide insight into their degree plans. The good news is that many technological solutions now provide these key stakeholders access to the schedule before students can see it, giving much-needed oversight to the process when it matters most.

Intentional, student-centered scheduling means putting the student at the forefront of the scheduling process. Course conflicts are a severe problem for students, preventing

them from successfully taking their gen ed, corequisite, or prerequisite courses they need to graduate on time. To avoid this, universities should consider using a mixed approach to their scheduling process, simultaneously offering centralization and decentralization. Centralizing their course scheduling process would allow for the general oversight of the schedule by one department responsible for overseeing its governance, such as the Registrar's Office. Decentralizing, however, would allow the primary management of the process to remain with each academic unit. This mixed approach would enable the university to enforce policies across departments equally and provide much-needed supervision of the process while also giving oversight of the intricate details to those who know them best – the academic units. The primary benefit of this approach is that one department oversees the entire process, and potential conflicts could be caught much sooner, preventing the detrimental effect they could have on the students. While many institutions already take this approach, it may not be feasible for others due to culture or staffing constraints. Considering that limitation, another option would be to expand the timeline for academic units to build their schedules. Coursedog (n.d.-b) states that ample time for departments to make corrections is required to avoid conflicts that force students to compromise on their courses and make last-minute scheduling changes. This concern is an idea that Hanover Research (2018) confirms in one of the key findings from their report on best practices in course scheduling: it is no longer sufficient to carry the schedule over from term to term. Universities must continually examine their course offerings alongside their course catalog and degree programs, which may take additional time during the scheduling cycle. Therefore, extending the timeframe of the scheduling cycle could also give institutions time to inspect their offerings to ensure available classes

match each program's bulletin and intended degree outcomes. This level of scrutiny will guarantee course accessibility and on-time graduation for students. Campuses that do not use the course catalog as the foundation when building the schedule play a guessing game where the students lose.

Furthermore, the outdated scheduling method of using Excel spreadsheets must be left behind. Technology enhancements are compulsory for student-centered scheduling. The overall process of course scheduling is already tedious and manual, increasing the likelihood of errors and conflicts. Universities must streamline this process, utilizing technological advancements to assist, where possible, in decreasing some of the manual entry and error-checking. Course scheduling must change from a data-entry process into a strategic practice. Coursedog (n.d.-c) recalls that institutions have described their scheduling practices as medieval, indicating that it might be time for institutions to modernize their scheduling processes. This transformation can be crucial for campuses experiencing staffing issues or decreasing budgets, as these advancements help make the overall course scheduling process more efficient and tactical.

Another requirement for student-centric scheduling with technology involves being able to predict course demand. Using course-demand technology in collaboration with scheduling tools can also assist universities in being more intentional about their scheduling process. Mintz (2019) explains that a rare development is demand-driven scheduling, which uses data analytics to predict course demand through the number of students declaring a specific major and changes in major requirements. Harnessing the technological advances that have come out in the scheduling world can help institutions leverage the tools needed to create student-centered schedules by giving them the power

to project the need for specific classes well in advance. Using demand to drive strategic decisions around course scheduling will allow institutions to locate scheduling bottlenecks and calculate which courses need additional sections to meet the demand. This strategy will help students access required classes and courses to fulfill their prerequisite requirements. Efficient scheduling by analyzing course-demand data will help institutions offer a schedule free from barriers to students graduating on time by increasing the number of credits students can complete in a given term.

Student-centered scheduling requires sufficient data to inform decisions and manage countless moving parts. Hanover Research (2018) details how imperative it is for institutions “to collect, manage, and analyze data relating to course scheduling” (p.4). Data-driven scheduling, however, reaches far beyond predicting course demand. Course scheduling data can provide critical information regarding enrollment trends, space utilization, and preferred format. Institutions need to start by collecting this data and then dig deep into studying it to see the story it tells. What can an institution learn from historical enrollment trends? Besides what capacity to set that course at for future terms, they can recognize which sections of courses met their enrollment compared to others. Perhaps the instruction mode or format of the course offered played a role, or maybe the meeting pattern or session of the class played a more prominent role. Gathering and understanding this data provides universities with an invaluable tool for comprehending how the course schedule and students intersect.

Universities should also consider how changes to the schedule after enrollment begins can affect students. As the research in this study indicates, students care about how their courses are scheduled, and changing those courses after they are enrolled can

have far-reaching implications. For instance, it can have unforeseen impacts on the students who create their schedules around their external obligations, such as work hours or family obligations. If a student enrolls in a course scheduled for a specific time and that time changes, that could alter their entire schedule as they try to balance their responsibilities. The same is true for a course moved from online to in-person or vice versa; the course scheduling modifications made after enrollment can be detrimental to the plan students put together when they register for courses. What happens when students must find a new plan that prevents them from staying registered in a required course? The students could feel frustrated, disappointed, and dissatisfied with the institution. As the findings of this study show, this could lead to them withdrawing or transferring to another institution.

While universities are revitalizing their course scheduling process to be more student-focused, they must also examine the policies that govern that process. Courserog (n.d.-a) explains four policies essential to student-centric scheduling: standard meeting patterns, adopting scheduling blocks, allocating seats or sections for high-demand courses, and creating rules to prevent course conflicts. Many institutions may have standard meeting pattern policies but enforcing those standard meeting times is essential to avoiding course conflicts for students. Collaboration among departments is critical for guaranteeing students can access all the courses needed for their degree program. For example, suppose a nursing student requires a biology course to fulfill their requirements. In that case, the nursing and biology departments must work together to ensure that the necessary courses are available for all students and free from conflicts with their other required classes. Other policies, such as the scheduling blocks, reserve seats, and

scheduling rules, can also be cardinal for ensuring students have access to the classes they need to graduate.

Adopting one or more of these recommendations will move institutions toward increased student retention and graduation rates, as students will no longer have unintended barriers to their academic roadmaps. Although these recommendations could take time, the payoffs are substantial, as student satisfaction is also in jeopardy.

Recommendations for Future Research

The population surveyed for the first portion of the study was narrow in that it only included a public, state-funded institution of higher education with approximately 8,000 students enrolled (excluding high school advanced credit students). Further research could benefit from expanding the survey to include a broader range of institutions, including private, for-profit, and institutions with enrollments over 20,000.

One thing to note for forthcoming studies is that the findings from the chi-square analysis and Fisher's exact test on class standing and scheduling in a preferred format show different results. The effect size was small with the chi-square analysis, which could be why it did not hold when completing the sub-analysis. Future research could benefit from more extensive studies to examine the relationship between class standing and scheduling in a preferred format.

The withdrawal responses included information from the last five years but did not represent a complete five years of data due to the change in how the data was collected at the institution. Future research could examine institutions that have not changed how they collect data to gain a more robust and fuller picture of why students have withdrawn before the pandemic. The withdrawal responses are also from a public,

state-funded institution of higher education with approximately 8,000 students enrolled (excluding high school advanced credit students). Again, further research could benefit from looking at a more robust data collection from various institutions, including private, for-profit, and universities with enrollments over 20,000. Furthermore, the research investigates the factors that lead students to withdraw, either not planning to return or transferring, to this specific institution. For a more comprehensive understanding of factors that lead to students withdrawing and not returning or transferring, similar research should be conducted on institutions of varying sizes and types. This type of analysis should be performed at more prominent public universities and both sizes of private institutions and community colleges. That would provide a more holistic view of student retention and course scheduling among the different types of institutions in higher education.

While the research focuses on course scheduling processes, few recommendations for best practices have been given. Future research could examine policy and student-centered scheduling at various institutions to develop a best practices approach to increasing student retention through effective, intentional course scheduling. Understanding the process at different institutions is imperative for creating a model from which multiple institutions could benefit; however, this is not a one-size-fits-all model. Course scheduling involves many caveats, and what works for one university might not work for another due to institutional culture.

This research examines student perceptions, intent, and actions regarding the course schedule and their decision to withdraw from the university. However, the sample of students for each section of the study was not the same. Further research should look at

a longitudinal study that surveys students at various intervals and tracks whether they have withdrawn from the university, either not returning or transferring to another institution. This longitudinal data will give a clearer picture of the course schedule's effect on student decision-making and withdrawal. It will capture data at each point for the same student, allowing researchers to understand how the same student moves through the decision-making process and if it leads them to withdraw or stay enrolled.

Lastly, this study did not investigate the impacts of student schedules changing after enrollment. Future research on course scheduling and student retention could benefit from a thorough survey of how course scheduling modifications impact students and their decisions to withdraw or transfer.

Limitations

There were several limitations of the study, some of which were anticipated by the researcher beforehand. The number of responses was limited for the course scheduling survey portion of the study; therefore, the sample size to analyze was small. Due to this, the chi-square test was expected to have more of a comparable distribution across all categories. I recognize that the responses were not spread more across the categories; however, I also believe that it lends itself to the importance of the research, showing that all undergraduate levels are similar in what they perceive as important regarding course scheduling.

This study combines a course scheduling survey and a withdrawal survey conducted on different samples. Therefore, the sample sizes for each portion of the study are independent and do not accurately represent the perception, intent, and actions of the

same set of students. Instead, it collects the perceptions and intentions of one group of students while analyzing the actions of another set of students.

I have attempted to recognize my biases while collecting and analyzing the data. Research design and participant bias were minimal because the Course Scheduling survey was designed by a Student Affairs, Academic Affairs team, and the Registrar's Office. In contrast, the Withdrawal Survey was developed by others in the Registrar's Office some time ago. All currently enrolled students were invited to complete the course scheduling survey, while the withdrawal data was requested from IR as de-identified data. Data collection bias was minimized as all responses were accepted if they were submitted and complete for the course scheduling survey, and all responses were included if they were complete without missing data for the Withdrawal Survey. It is important to note that the data was collected to include undergraduate and graduate information, but only degree-seeking undergraduate information was analyzed for this study.

Conclusion

Retention in higher education is a vital concern and will remain so for years. Given that the course scheduling process is the foundation of any higher education institution, it must be an area of focus if retention rates are to increase. Strategic course scheduling can shift the focus of student retention, allowing institutions to take a new view by confirming course availability and reducing the time to graduation. Hunter (2022) indicates that structured scheduling can better connect retention with enrollment and completion. Intentional scheduling, specifically student-centered, can help universities guarantee that students have the courses they need to graduate on time and

have flexible options that meet their needs and preferences. Furthermore, universities are seeing an increase in nontraditional students, which must alter how students are supported.

This study supports the ideas of previous research, mainly that of Bean and Metzner (1985), who emphasized that academic and environmental factors were the most influential in dropout decisions, particularly for nontraditional students. The research conducted in this study has found that environmental factors such as work-study conflict and family responsibilities, along with academic factors such as course availability, are the most significant in determining if a student will withdraw and not return or withdraw and transfer.

As determined by this study, students across all classes reported that scheduling their courses in a certain way is important. Furthermore, it was found that while some students were likely to enroll in another course if a required course was unavailable, others would wait to see how it was offered next semester or enroll in the class anyway, regardless of whether or not it increased their time to graduation. Other students reported not knowing what they would do, while 8% reported taking the course at a different institution. These findings prove that students understand that the course schedule is essential to their academic goals; however, they might be willing to extend their time to graduation if a required course is unavailable. Students willing to delay their progress due to institutional oversight should be unacceptable to all campuses; the responsibility of providing accessible scheduling resides in the university's hands.

The course schedule is an assurance made to students by the university at admission, a vow that students will have available courses required to graduate on time.

The accountability of creating a suitable course schedule falls solely on the institution. Hence, it is paramount that universities focus on a student-centered scheduling model to ensure that courses are (a) offered in a way that allows students to earn their degree quickly, (b) offered flexibly around personal and professional commitments, (c) offered in a preferred format and (d) strategically scheduled so that required courses meet student demand.

Hanover Research (2018) found that some university administrators have noted that managing the schedule with the student's needs in mind is critical for student retention. The findings of this study support this idea. Course availability is the pillar of student success; without it, students fail to meet their degree requirements promptly, causing countless issues for the student to deal with. This impact is precisely why this research is so fundamental to the future of higher education: The course scheduling process is a primary institutional practice that will never go away. Understanding the underlying importance of the course schedule and its wide-ranging effects can save universities from losing students unnecessarily. In the end, isn't the goal of any successful institution to retain and graduate their students?

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APPENDIX A: COURSE SCHEDULING SURVEY INSTRUMENT

Start of Block: Introduction

Q1 Academic Affairs, Student Affairs, and the Office of the Registrar would like to thank you for taking the time to answer this brief survey regarding class scheduling priorities and preferences.

The survey should only take you approximately 5-10 minutes to complete and is entirely anonymous and confidential.

End of Block: Introduction

Start of Block: Demographics

Q2 What is your class standing at [REDACTED]?

- Freshman (1)
 - Sophomore (2)
 - Junior (3)
 - Senior (4)
 - Graduate Student (5)
 - Non-Degree Seeking Student (6)
-

Q3 How many credit hours are you enrolled in this semester?

- 1 to 3 credit hours (1)
 - 4 to 6 credit hours (2)
 - 7 to 9 credit hours (3)
 - 10 to 12 credit hours (4)
 - More than 12 credit hours (5)
-

Q4 What is your current or intended primary academic area of study?

▼ Accounting (1) ... Other (33)

Q5 Please indicate your age:

- 18 - 24 years old (1)
 - 25 - 34 years old (2)
 - 35 - 44 years old (3)
 - 45 - 59 years old (4)
 - 60+ years old (5)
-

Q6 Do you live on-campus or off-campus?

- On Campus (1)
 - Off Campus (2)
-

Q7 Are you a first-generation college student? (A student from a family in which your parents did not earn a 4-year degree)?

- Yes (1)
- No (2)
- Unsure (3)

End of Block: Demographics

Start of Block: Key Measures

Q8 How do you register for classes?

- Advisor (1)
 - Schedule Planner (2)
 - Self-Service Student Center in [REDACTED] (3)
-

Q9 What type of course delivery do you prefer?

- Face-to-face (1)
- 100% Online (2)
- Partially Online (75-99% online) (3)
- Blended (30-74% online) (4)
- No Preference (5)
- Depends on the class (6)

Display This Question:

If What type of course delivery do you prefer? = Depends on the class

Q10 You selected "depends on the class" for the previous question. Can you please elaborate on your response?

Q11 If you are taking an online class, do you prefer asynchronous or synchronous?
(Asynchronous means not having to login at a specific day/time, whereas synchronous means logging in at a specific time/day).

- Synchronous (1)
- Asynchronous (2)
- No Preference (3)
- Depends on the class (4)
- Not applicable (I prefer in-person courses) (5)

Display This Question:

If If you are taking an online class, do you prefer asynchronous or synchronous? (Asynchronous means... = Depends on the class

Q12 You selected "depends on the class" for the previous question. Can you please elaborate on your response?

Q13 What type of three-credit hour Blended (30-74% online) course do you prefer?

- One that meets weekly in person (always on the same day) (1)
 - One that meets weekly in person (on different days) (2)
 - One that meets monthly in person (3)
 - One that meets on various dates throughout the semester, but no more than 5 times in person (4)
 - Other (5)
-

Q14 Once you have determined which courses you need to take, please order the following responses by importance of the below considerations when scheduling your classes to take each semester (1 being the most important and 7 being the least important).

- _____ Family obligations (1)
 - _____ Work obligations (2)
 - _____ Cost (tuition, supplemental fees) (3)
 - _____ When the classes are offered (e.g., the preferred days and times) (4)
 - _____ Professor teaching it (5)
 - _____ How the classes are offered (online versus in-person) (6)
 - _____ Parking availability (7)
 - _____ Other (8)
-

Q15 Please rank the scenarios below to indicate when you would prefer to attend a 3 credit hour course. Please drag and order the options listed below (1 = highest preference):






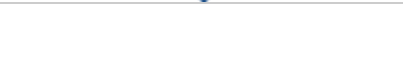
- _____ In a 50 minute session, three days per week (1)
- _____ In a 75 minute session, two days per week (2)
- _____ In one 2 hour and 30 minute session, one day a week (3)
- _____ 100% Online (Asynchronous) (4)
- _____ 100% Online (Synchronous) (5)
- _____ Blended (both online and on campus) (6)

Q16 What days and times of the week best describe when you would PREFER to attend courses with an in-person component? Select all that apply.

	Monday (1)	Tuesday (2)	Wednesday (3)	Thursday (4)	Friday (5)	Saturday (6)
Never (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8am-10am (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10am-12pm (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12pm-2pm (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2pm-5pm (5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After 5pm (6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None (I prefer asynchronous online) (7)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q17 If you were enrolled in a required course and it was changed after you were enrolled, please rate how important the following modifications would be to you on a scale of 1-10 with 10 being extremely important:

	0	1	2	3	4	5	6	7	8	9	10
--	---	---	---	---	---	---	---	---	---	---	----

The mode of delivery (online versus in person) ()	
The meeting pattern (days/times) ()	
The instructor ()	
The session (16 week or 8 week course) ()	
Room Change ()	
Online modality (asynchronous versus synchronous) ()	

Q18 Since you have been a student at [REDACTED], how many times have you had a course changed (i.e. updated to a different meeting pattern, instructor, session, etc.) after you were enrolled for an upcoming semester?

- 0 (1)
 - 1 (2)
 - 2 (3)
 - 3 (4)
 - 4 (5)
 - 5 or more (6)
-

Q19 How many times have you been waitlisted for a required course and ultimately NOT been enrolled from the waitlist?

- 0 (1)
 - 1 (2)
 - 2 (3)
 - 3 (4)
 - 4 (5)
 - 5 or more (6)
-

Q20 SCENARIO: You are waitlisted for a course and it is the week before the course is supposed to start, which of the following are you most likely to do?

- Stay on the waitlist for the course (1)
 - Drop myself from the waitlist and enroll in another course (2)
 - Drop myself from the waitlist and wait until next semester to see how it is offered (3)
 - Drop myself from the waitlist and take the course at a different institution (4)
 - It depends/unsure of what I would do (5)
-

Q21 If you attempted to register for a required course, and discovered it was not offered on the days/times that you needed it, or in the format that you prefer, what would you do?

- Enroll in the course anyway (1)
 - Enroll in another course (2)
 - Wait until next semester to see how it is offered (3)
 - Take the course at a different institution (4)
 - It depends/unsure of what I would do (5)
-

Q22 Which of the following session formats would you prefer?

- All 8 week courses (1)
 - All 16 week courses (2)
 - A blend of both 8 week and 16 week courses (3)
 - Depends on the class (4)
-

Display This Question:

If Which of the following session formats would you prefer? = Depends on the class

Q23 You selected "depends on the class" for the previous question. Can you please elaborate on your response?

Q24 Please indicate the importance of the following to your overall [redacted] experience.

	Not at all Important (1)	Slightly important (2)	Moderately important (3)	Very important (4)	Extremely important (5)
Ability to schedule courses in a way that will allow me to earn my degree quickly (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to schedule my classes around my work schedule (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to schedule my classes around family obligations (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to schedule my classes in a preferred format (online versus in-person) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q25 Is there any other feedback you would like to give about your course scheduling experience at [redacted]?

End of Block: Key Measures

APPENDIX B: INITIAL SURVEY

The Student Government Association would like to thank you for taking the time to answer this brief survey regarding class scheduling priorities and preferences.

The survey should only take you approximately 5 minutes to complete and is completely anonymous and confidential.

Once you have completed the survey you will have the chance to enter a drawing for prizes, including an iPad Mini!

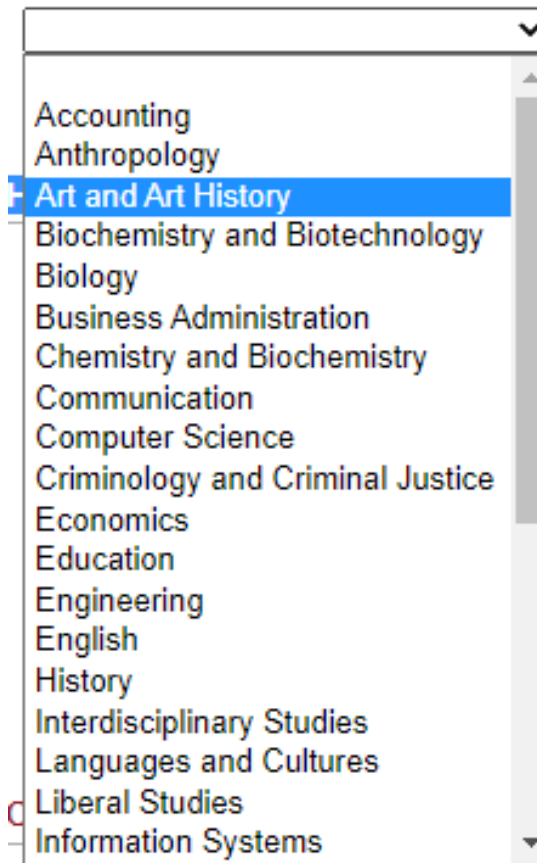
What is your class standing at [REDACTED]?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate student
- Non-Degree Seeking Student

In how many ON CAMPUS credit hours are you enrolled this semester? Please do not include the credit hours you take online.

- 1 to 3 credit hours
- 4 to 6 credit hours
- 7 to 9 credit hours
- 10 to 12 credit hours
- more than 12 credit hours

What is your current or intended primary academic area of study?

- 
- Accounting
 - Anthropology
 - Art and Art History**
 - Biochemistry and Biotechnology
 - Biology
 - Business Administration
 - Chemistry and Biochemistry
 - Communication
 - Computer Science
 - Criminology and Criminal Justice
 - Economics
 - Education
 - Engineering
 - English
 - History
 - Interdisciplinary Studies
 - Languages and Cultures
 - Liberal Studies
 - Information Systems

English
History
Interdisciplinary Studies
Languages and Cultures
Liberal Studies
Information Systems
Mathematics
Media Studies
Music
Nursing
Philosophy
Physics and Astronomy
Political Science
Psychology
Public Policy Administration
Social Work
Sociology
Theater and Dance
Undecided
Other

How many days a week are you on [REDACTED]'s main campus this semester?

- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- more than 5 days
- I have ZERO class on [REDACTED]'s main campus

On which portion of [REDACTED]'s main campus do you attend *most* of your classes?

- North Campus
- South Campus
- Equal number of classes are on both campuses

Do you live on-campus or off-campus?

- On campus
- Off campus

Do you come to campus in the middle of the day (i.e., between 11am and 2pm) for purposes other than attending classes?

- Yes
- No

Once you have determined which courses you need to take, please order the following responses by importance of the following considerations when scheduling your classes to take each semester (1 being the most important and 7 being the least important).

- Family obligations

- Work obligations

- Cost (tuition, supplemental fees)

- When the classes are offered (e.g., the preferred days and times)

- Professor teaching it

- Parking availability

- Other

Please rank the scenarios below to indicate when you would prefer to attend a 3 credit hour course. Please drag and order the options listed below (1 = highest preference):

- In a 50 minute session, three days per week

- In a 75 minute session, two days per week

- In one 2 hour and 30 minute session, one day a week

- 100% Online

- 5 Blended (both online and on campus)

What days and times of the week best describe when you would PREFER to attend classes? Select all that apply.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8am-10am	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10am-12pm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12pm-2pm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2pm-5pm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After 5pm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SCENARIO:

You need to register for a required course. If that class was offered on the days and times below, what would you do? Select only ONE answer for each scenario.

<p>The class is only available at 8:00 a.m., two days a week</p>	<p><input type="radio"/> Register for the course</p>	<p><input type="radio"/> Wait until next semester to see if it is offered on a different day/time</p>	<p><input type="radio"/> Wait until next semester to see if it is offered online</p>	<p><input type="radio"/> Take the course at a different institution</p>
--	--	---	--	---

<p>The class was only available on Friday as a 2 hour 30 minute block class</p>	<p><input type="radio"/> Register for the course</p>	<p><input checked="" type="radio"/> Wait until next semester to see if it is offered on a different day/time</p>	<p><input type="radio"/> Wait until next semester to see if it is offered online</p>	<p><input type="radio"/> Take the course at a different institution</p>
---	--	--	--	---

<p>The 50 minute class has required sessions at 11am Monday, Wednesday, and Friday</p>	<p><input type="radio"/> Register for the course</p>	<p><input type="radio"/> Wait until next semester to see if it is offered on a different day/time</p>	<p><input type="radio"/> Wait until next semester to see if it is offered online</p>	<p><input type="radio"/> Take the course at a different institution</p>
--	--	---	--	---

<p>A 75 minute class is only available two days a week at 3:30pm</p>	<p><input type="radio"/> Register for the course</p>	<p><input type="radio"/> Wait until next semester to see if it is offered on a different day/time</p>	<p><input type="radio"/> Wait until next semester to see if it is offered online</p>	<p><input type="radio"/> Take the course at a different institution</p>
<p>A 75 minute class is only available two days a week at 5:30pm</p>	<p><input type="radio"/> Register for the course</p>	<p><input type="radio"/> Wait until next semester to see if it is offered on a different day/time</p>	<p><input type="radio"/> Wait until next semester to see if it is offered online</p>	<p><input type="radio"/> Take the course at a different institution</p>

A weekday evening 2 hour 30 minute block	<input type="radio"/> Register for the course	<input type="radio"/> Wait until next semester to see if it is offered on a different day/time	<input type="radio"/> Wait until next semester to see if it is offered online	<input type="radio"/> Take the course at a different institution
--	---	--	---	--

SCENARIO:

You are preparing to register for classes. There are two consecutive 8 week linked courses such as Econ 1001 and 1002, Criminology 1100 and 1110, or another paired sequence you need to complete your degree being offered. Enrolling in both courses would allow you to complete 3 credits of the first course during the first 8 weeks of the semester, and an additional 3 credits the last 8 weeks of the semester. How likely would you be to utilize this option?

Extremely likely <input type="radio"/>	Moderately likely <input type="radio"/>	Slightly likely <input type="radio"/>	Neither likely nor unlikely <input type="radio"/>	Slightly unlikely <input type="radio"/>	Moderately unlikely <input type="radio"/>	Extremely unlikely <input type="radio"/>
---	--	--	--	--	--	---

Since you have been a student at [REDACTED], how many times have you had a course conflict where two required courses have been offered on the same day at the same time and you were forced to only take one required class.

- 0
- 1
- 2
- 3
- 4
- 5 or more

Please indicate the importance of the following to your overall [REDACTED] experience.

Ability to earn your degree quickly	<input type="radio"/> Not at all Important	<input type="radio"/> Slightly Important	<input type="radio"/> Moderately Important	<input type="radio"/> Very Important	<input type="radio"/> Extremely Important
Ability to schedule my classes around my work schedule	<input checked="" type="radio"/> Not at all Important	<input type="radio"/> Slightly Important	<input type="radio"/> Moderately Important	<input type="radio"/> Very Important	<input type="radio"/> Extremely Important

Ability to schedule my classes around family obligations	<input type="radio"/> Not at all Important	<input type="radio"/> Slightly Important	<input type="radio"/> Moderately Important	<input type="radio"/> Very Important	<input type="radio"/> Extremely Important
Affordability	<input checked="" type="radio"/> Not at all Important	<input type="radio"/> Slightly Important	<input type="radio"/> Moderately Important	<input type="radio"/> Very Important	<input type="radio"/> Extremely Important

What type of course delivery do you prefer?


- Face to Face
- 100% online
- Blended (partially online, partially face to face)


Please indicate your age:

Please indicate your gender:

Please indicate your race:

- White
- African American
- Asian
- Pacific Islander
- Latino
- Native American
- If the race with which you identify is not listed above, please enter below

Thank you for taking the time to complete this survey. To enter the drawing to win an iPad Mini please follow this link: <https://orgsync.com/90860/> 

Information entered after following the link is in no way connected to your responses recorded for the survey. If you have any questions please contact .edu">sga@.edu

We appreciate your time and feedback!



President
Student Government Association

APPENDIX C: WITHDRAWAL SURVEY QUESTIONS

WHICH TERM ARE YOU WITHDRAWING FROM?

*If the semester you are withdrawing from is not an option in the list below, please **check the semester calendar** to determine if the last date to withdraw has already passed. If it is past the last date to withdraw, but you have exigent circumstances and still need to withdraw, you must be able to provide documentation to your dean's office. Please contact your dean's office for assistance.*

- 2023 Summer Semester – Graduate

Please note: If a withdrawal survey is completed for the current term, you are still eligible to register for the next term.

1A. PLEASE INDICATE IF YOU ARE WITHDRAWING FOR ONE OF THE FOLLOWING REASONS:

- Permanent disability
- Service in the armed forces (including being called to active duty)
- Service with a foreign aid service of the federal government, such as the Peace Corps
- Service on official church mission
- None of the above

1B. IS COVID-19 AT LEAST PART OF THE REASON YOU ARE LEAVING THE UNIVERSITY?

- Yes
- No

2. WHEN YOU BEGAN YOUR STUDIES AT [REDACTED], WHICH DEGREE DID YOU PLAN TO COMPLETE?

- 1st Bachelor's degree
- 2nd or more Bachelor's degree
- 1st Master's degree
- 2nd or more Master's degree
- Doctoral Studies (PhD, Ed.D., etc.)
- Teacher Certification
- Certificate Program
- Non-degree seeking student

3. TO HELP US BETTER UNDERSTAND THE PRESSURES THAT STUDENTS FACE WE WOULD LIKE TO KNOW ABOUT YOUR EMPLOYMENT STATUS. ARE YOU CURRENTLY EMPLOYED?

- No

- Yes

4. ARE YOU RECEIVING FINANCIAL AID?

- No
 Yes

5. HOW MANY TIMES HAVE YOU MET WITH AN ADVISOR FOR ACADEMIC PLANNING/MAPPING?

- None
 1-2
 3-4
 5 or more

6. PLEASE LIST ADVISOR'S NAME: IF THE ADVISOR YOU HAVE BEEN WORKING WITH IS NOT LISTED OR IS INCORRECT, PLEASE SELECT OTHER AND ENTER THE ADVISORS NAME.

- *Advisor's Name*
 I do not recall
 OTHER

7A. IN AN EFFORT TO INCREASE COMMUNICATION AND OPTIONS FOR STUDENT SUPPORT SYSTEMS, PLEASE CHECK ALL OF THE SERVICES BELOW THAT YOU HAD KNOWLEDGE OF AS AVAILABLE FOR STUDENTS.

- Counseling Center
 Career Services
 Student Enrichment & Achievement Services
 Multicultural Student Services
 Tutoring Center
 Financial Aid
 Health Services
 Disability Access Services
 Student Social Services
 None of the Above

7B. IF YOU HAVE UTILIZED ANY OF THE FOLLOWING STUDENT SERVICES, PLEASE INDICATE BELOW BY CHECKING ALL THAT MAY APPLY.

- Counseling Center
 Career Services

- Student Enrichment & Achievement Services
- Multicultural Student Services
- Tutoring Center
- Financial Aid
- Health Services
- Disability Access Services
- Student Social Services
- None of the Above

8. ARE YOU TRANSFERRING TO ANOTHER UNIVERSITY, COLLEGE, OR TECHNICAL SCHOOL?

- Yes
- No
- Unsure

9. PLEASE CHECK ALL THAT APPLY BELOW.

- I am not planning on transferring at this time
- Transferring to pursue degree program unavailable at [REDACTED]
- Transferring to improve academic preparation
- I was planning on transferring out of [REDACTED] when I began my studies here
- Transferring for other reasons

10. ARE YOU PLANNING TO RETURN TO [REDACTED]?

- Yes
- No
- Unsure

PLEASE PROVIDE ADDITIONAL DETAIL REGARDING THE REASON(S) WHY YOU ARE WITHDRAWING FROM [REDACTED]. YOU MAY SELECT MORE THAN ONE.

- 11. Financial Aid problems
- 12. Work/studies conflict
- 13. Family responsibilities
- 14. Personal issues
- 15. Medical/physical/mental health illness
- 16. Financial issues
- 17. Academic dissatisfaction or difficulty
- 18. Moved/moving out of area

- 19. Difficulties navigating [REDACTED] system/processes
- 20. Unsure of major/career path
- 21. New job
- 22. Connection or sense of belonging to the [REDACTED] campus
- 23. Campus life / student experience

24. I FELT LIKE I WAS PART OF THE [REDACTED] CAMPUS COMMUNITY.

- Strongly Agree
- Agree
- Somewhat/neutral
- Disagree
- Strongly Disagree

Please explain why or why not:

25. PLEASE INDICATE ANY CONNECTIONS YOU HAD WITH [REDACTED]. PLEASE CHECK ALL THAT MAY APPLY.

- Residential Student – attended classes and lived on campus
- Commuter Student - commuted to and from home for classes
- I only took online classes
- Was a member of campus organizations
- Worked on campus (including federal work study and NextSteps)
- Spent social time on campus when I was not in classes
- I was a Student Athlete

26. IS THERE ANYTHING [REDACTED] COULD HAVE DONE TO HELP YOU STAY ENROLLED THIS SEMESTER?

▲

■

▼

27. ADDITIONAL COMMENTS:

By checking this box, I am indicating that I have read and understand that I will be withdrawn from the term selected at the top of this form. If enrolled in classes at other [REDACTED] campuses, ([REDACTED]), I understand this withdrawal request only applies to [REDACTED] classes, and I will need to notify the Registrar's Office at the other campuses if also withdrawing from classes at another [REDACTED] campus.

APPENDIX D: EMAIL INVITE FOR ASSOCIATE DEANS AND DEANS

Good morning!

I hope you are all doing well!

I wanted to reach out and let you know that the below email went to all [REDACTED] Students yesterday inviting them to submit feedback on our Course Scheduling Survey. We are excited to hear what our students have to say and have already received quite a few responses. I am reaching out, personally, to see if you would be willing to share with your faculty who might be interested in giving time during class this week for students to complete the survey? This would be if the faculty are willing and there is time during the class period, of course. If not, no worries at all.

Thank you so much for your time and all that you do, I greatly appreciate you all!

APPENDIX E: SURVEY INVITE SENT TO STUDENTS

Greetings [REDACTED]!

Academic Affairs, Student Affairs, and the Office of the Registrar would like to invite you to take a Course Scheduling Survey regarding your class scheduling priorities and preferences. This survey is being conducted to gain insight into your experiences surrounding the course schedule as [REDACTED] students. ***Your voice matters!***

This survey is open to currently enrolled students, so please feel free to share this link with other students who would be interested in providing their input. Please note, you can only take the survey once but you can go back and edit your responses if needed, until you submit.

The link to the survey is: [https://\[REDACTED\].az1.qualtrics.com/jfe/form/SV_5d31lv7GlxonMH4](https://[REDACTED].az1.qualtrics.com/jfe/form/SV_5d31lv7GlxonMH4)

The survey should only take you approximately 5-10 minutes to complete and is entirely anonymous and confidential. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. **Please respond to this survey by XXX.**

Additionally, this study is being conducted as part of a dissertation for the principal investigator (Danielle Faucett) where the purpose of the study is to explore course scheduling and the impact it has on student retention. Therefore, information collected on this survey may be published but all responses will remain anonymous. Please note:

1. There are no known risks associated with this research (other than the potential for mild boredom or fatigue).
2. There are no direct benefits for you participating in this study. However, your participation will contribute to existing knowledge about the experiences of students with the course schedule and how that may have the ability to impact student retention.
3. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You will NOT be penalized in any way should you choose not to participate or withdraw.
4. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication that may result from this study. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for

Human Research Protection) that would lead to disclosure of your data as well as any other information collected by the researcher.

5. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, (Danielle Faucett, 314-516-5406) or the Faculty Advisor, (Dr. E. Paulette Isaac-Savage, 314-516-5303). You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research, at 516-5897.

We greatly appreciate your time and feedback and look forward to hearing your thoughts!

Academic Affairs, Student Affairs, and the Office of the Registrar

APPENDIX F: EMAIL REMINDER TO STUDENTS TO COMPLETE SURVEY

Greetings [REDACTED]!

This is a friendly reminder that the Course Scheduling Survey closes tomorrow, December 3rd. If you have not done so already, please tell us what you think! Thank you!

Academic Affairs, Student Affairs, and the Office of the Registrar would like to invite you to take a Course Scheduling Survey regarding your class scheduling priorities and preferences. This survey is being conducted to gain insight into your experiences surrounding the course schedule as [REDACTED] students. ***Your voice matters!***

This survey is open to currently enrolled students, so please feel free to share this link with other students who would be interested in providing their input. Please note, you can only take the survey once but you can go back and edit your responses if needed, until you submit.

The link to the survey is: [https://\[REDACTED\].az1.qualtrics.com/jfe/form/SV_5d31lv7GlxonMH4](https://[REDACTED].az1.qualtrics.com/jfe/form/SV_5d31lv7GlxonMH4)

The survey should only take you approximately 5-10 minutes to complete and is entirely anonymous and confidential. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. **Please respond to this survey by XXXX.**

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1. There are no known risks associated with this research (other than the potential for mild boredom or fatigue).
2. There are no direct benefits for you participating in this study. However, your participation will contribute to existing knowledge about the experiences of students with the course schedule and how that may have the ability to impact student retention.
3. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You will NOT be penalized in any way should you choose not to participate or withdraw.
4. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication that may result from this study. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection) that would lead to disclosure of your data as well as any other information collected by the researcher.

5. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, (Danielle Faucett, 314-516-5406) or the Faculty Advisor, (Dr. E. Paulette Isaac-Savage, 314-516-5303). You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research, at 516-5897.

We greatly appreciate your time and feedback and look forward to hearing your thoughts!

Academic Affairs, Student Affairs, and the Office of the Registrar