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Navigating Course-Sequencing Decisions and Community College Pathways for Historically Underserved Student Populations

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Abstract

Course sequencing in higher education refers to the structured order of courses required for progressing toward a certificate or degree. Community college students, particularly those from historically underserved backgrounds, face a variety of challenges associated with meeting academic requirements and completing their degree. In this study, we draw from semi-structured interviews with 83 historically underserved students and 9 advisors from a high-enrollment community college to explore how historically underserved students and their advisors consider and implement course-sequencing strategies when building students' academic schedules. Taken together, our emergent themes revealed that (1) historically underserved community college students were concerned primarily with fulfilling degree audit requirements, (2) the importance and difficulty of navigating the first semester of college, (3) the role and influence of non-curricular barriers to students' academic success, and (4) the challenges and opportunities associated with taking online courses. Our findings suggest a potential need for institutional policies or requirements designed to ensure historically underserved students meet with their advisors at set intervals and receive evidence-based advising recommendations related to appropriate ordering and combinations of courses given their academic progress, degree program, and individual goals.

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Introduction

Community colleges in the United States educate over seven million students each year (Office of Economic & Demographic Research, 2023). A key aspect of the community college mission is related to improving access and educational attainment among historically underserved student populations, such as first-generation, racially minoritized, and low-income students. In alignment with their mission, community colleges enroll a disproportionate share of these subgroups of students (Bailey et al., 2015). This steadfast focus on increasing access and postsecondary attainment among historically underserved subgroups is designed to benefit individuals who may not pursue higher education without the community college pathway (Dougherty, 1994).

To narrow educational attainment gaps, community college students must persist and complete their certificate or degree program. Students who complete their associate degree or higher typically have greater lifetime earnings and employment rates than those who only obtain a high school diploma (Kahlenberg et al., 2018; Lovenheim & Smith, 2023). Prior work has outlined that many community college students fail to complete their degree due to poor course-taking decisions, such as taking unnecessary courses, failing to enroll in critical prerequisite coursework, or enrolling in too many challenging courses during the same semester (McKinney et al., 2019). These types of course-taking considerations for community college students and advisors are often referred to under the umbrella of course sequencing (Betancur et al., 2019).

Course sequencing in higher education refers to the structured order of courses required for progressing toward a certificate or degree. In other words, course sequencing in higher education encapsulates the enrollment decisions students make regarding the timing of courses, such as when

to take prerequisites and whether to take co-requisites during the same semester. This systematic arrangement of courses ensures that college students acquire the necessary foundational knowledge before progressing to more advanced topic areas of study (Bahr, 2012). Course-sequencing decisions are crucial considerations for college students seeking to optimize their likelihood of academic success and time to degree completion. While there are many paths to the same degree, this study considers *how* historically underserved community college students and their advisors consider and implement course-sequencing strategies when building students' academic schedules.

Research suggests that course sequencing has the potential to influence students' likelihood of academic success in a variety of ways. Studies have shown that taking gateway or required courses early in students' postsecondary careers, especially in STEM fields, has a positive impact on students' persistence and graduation rates (Wang et al., 2017). The timing of courses, including co-enrollment in multiple introductory courses, also plays a crucial role in students' academic performance (DeMonbrun et al., 2020). However, some challenges related to course sequencing, such as the negative impact of delaying developmental courses or retaking courses unnecessarily, have been identified as disproportionately harming racially minoritized and historically underserved subgroups of community college students (Bahr, 2012; Bicak et al., 2022). Guided by the concepts of rational choice theory and bounded rationality, this paper seeks to build upon prior findings by interviewing historically underserved students and their advisors at a high-enrollment community college in Florida to advance knowledge and better understand community college students' course-sequencing decisions.

Community college students, particularly those from racially minoritized or low-income backgrounds, face a variety of challenges associated with meeting academic requirements and

completing their degrees (Bailey et al., 2015). Disparities in completion rates between community colleges and more-selective four-year institutions can reinforce attainment gaps facing first-generation, racially minoritized, and lower-income students, who are overrepresented at community colleges (Carnevale & Strohl, 2010; Evans et al., 2020). More specifically, only 38% of students who started their postsecondary education at a community college completed either an associate or bachelor's degree within six years of their initial enrollment (Shapiro et al., 2017a), revealing a critical need to better understand the community college pathway and the specific course-sequencing decisions students and advisors navigate during students' various programs of study.

By interviewing historically underserved community college students and their advisors, this study offers important insights into the decision-making and rationale of course sequencing in a community college setting. To achieve this aim, we address the following research questions:

Research Question 1: How do historically underserved community college students and their advisors consider and implement course-sequencing strategies when building students' academic schedules?

Research Question 2: How do historically underserved community college students navigate potential barriers and challenges associated with course sequencing?

Drawing from semi-structured interviews with 80 historically underserved students and nine college advisors from a high-enrollment community college in Florida (hereafter Sunshine Community College or SCC), this study explores how historically underserved students and their advisors consider and implement course-sequencing strategies. We operationalize historically underserved community college students in this study context as individuals attending SCC who are identified as low-income, racially minoritized, or first-generation students. Taken together, our

emergent themes revealed that (1) historically underserved community college students were concerned primarily with fulfilling degree audit requirements, (2) the importance and difficulty of navigating the first semester of college, (3) the role and influence of non-curricular barriers to students' academic success, and (4) the challenges and opportunities associated with taking online courses.

Literature Review

College students typically have flexibility when choosing their sequence of courses given that the majority of courses either have no prerequisites or only one prerequisite; however, the specific order in which students take courses can have a significant influence on their performance (Gutenbrunner et al., 2021). In addition, previous literature on course-sequencing patterns and student outcomes has provided valuable insights into how additional factors related to course registration can affect college students' likelihood of academic success in higher education (Cox et al., 2016; Mishra, 2020). For example, students who delayed their course registration by one to two weeks, on average, have been found to have less-desirable course schedules and lower persistence rates (Gurantz, 2015).

Although strategic course sequencing can be associated with improvements in students' academic outcomes (Betancur et al., 2019), prior work has indicated that community college students are forced to choose among a seemingly endless number of course combinations (Crosta, 2014; Wang, 2016). Sporadic efforts to examine course sequencing in higher education have provided important insights pertaining to the timing of gateway courses (Zientek et al., 2022), the need to take math courses early (Wang et al., 2017), and the harm caused by taking unnecessary

entry-level courses (Roksa et al., 2009), but further research is needed to advance knowledge pertaining to college students' decision-making process when selecting their courses.

While empirical research exploring exact course sequences is relatively limited, there is some evidence supporting the implementation of broad course-sequencing practices, such as prioritizing a full-time course schedule, taking gateway and STEM coursework early, and, if required, completing developmental education quickly (Fike & Fike 2012; Wang et al., 2017). In addition to course requirements related to prerequisites and academic majors, students must navigate the conflicting landscape of university agreements and state policies, adding further complexity to their course-sequencing considerations (Grote et al., 2020).

Academic Advising and Students' Decision-Making

Academic advisors can play a major role in helping students choose the order of courses that best fit their individual goals and knowledge level (McKinney et al., 2024). High-quality advising that accounts for appropriate course sequencing can help students establish academic momentum as they begin their college career (McKinney et al., 2022). Academic advisors can have a positive influence on students' likelihood of academic success (Drake, 2011; Scott-Clayton, 2011a; Swecker et al., 2013). Academic advisors at community colleges are not only key sources of information about course-sequencing strategies, but they can facilitate students' integration into the community college culture and positively influence persistence (Strayhorn, 2015; White, 2015).

Previous literature has described a positive relationship between the frequency and satisfaction of advising and student outcomes, such as graduation rates, persistence, GPA, and a feeling of belonging on campus (DeRosa, 2023; Donaldson et al., 2016; Smith & Allen, 2014). McKinney and colleagues (2022) affirmed the positive relationship between academic advising and

several academic factors, particularly the relationship between course load and GPA. However, previous literature does not address how community college students, particularly historically underserved students, consider and pursue potential course-sequencing strategies or the ways in which they work with academic advisors to do so.

Even though community college advisors are important sources of information for students, they can also provide incomplete or inaccurate information to their students. The burden of receiving poor course-sequencing information may fall more heavily on historically underserved students who do not have the same level of access to social capital and trusted peer groups as their peers with built-in advantages when navigating the college-going process (Deil-Amen & Rosenbaum, 2003). When advising racially minoritized students and other students from historically underserved backgrounds, community college advisors often face the burden of seeking to challenge existing patterns of inequality and stratification while navigating a two-year sector that provides fewer resources to students with greater needs (e.g., Martinez & Elue, 2020; Ortagus et al., 2024).

As a consequence, academic advisors are often overwhelmed by large caseloads and bureaucratic checkpoints, and the inefficiencies associated with inadequate resources are often passed on to historically underserved subgroups of students (Martinez et al., 2024; Rosenbaum et al., 2006; Scott-Clayton, 2011b). Given that the majority of community college students aspire to earn a bachelor's degree (Shapiro et al., 2017b), community college students and advisors may need to navigate various vertical transfer policies when seeking to determine the best course sequencing strategies for students and their goals. Prior work has shown that institutions often

provide competing information about state transfer policies, leaving students unsure how to navigate complex policy requirements to achieve their transfer goals (Schudde et al., 2021).

The challenges associated with high student-advisor ratios at community colleges can lead to information asymmetries outlined in rational choice theory and bounded rationality that are more likely to harm historically underserved subgroups of students (Beekhoven et al., 2002; Scott-Clayton, 2011b). To address these challenges pertaining to academic advising at community colleges, recent research suggests that community colleges students would benefit from moving away from one-size-fits-all advising approaches in favor of developmental, tailored advising for individual students during one-on-one advising sessions (e.g., McKinney et al., 2024).

Academic Momentum in Higher Education

The speed or intensity of students' course-taking, also referred to as academic momentum, is an important aspect of the student success formula (Chan & Wang, 2018). Numerous studies have revealed that the number of credit hours taken has a positive influence on college students' likelihood of academic success (Attewell & Monaghan, 2016; Calcagno et al., 2007; Hodara & Jaggars, 2014). Academic momentum is an important consideration, but community college students who enroll as full-time students may still pick inefficient patterns and course sequences that negatively impact their academic outcomes (Fink et al., 2018). Additionally, full-time enrollment may not be practical for some community college students who face time or location constraints, such as those who work full-time or have family obligations (Attewell & Monaghan, 2016). Challenges associated with enrollment and course-taking decisions can be extremely complicated for any college student, but those challenges are exacerbated by first-generation, low-income, and racially minoritized students (Scott-Clayton, 2011a; Strayhorn, 2015).

Prior research has also revealed that certain course orderings were positively associated with students' academic performance. Using data mining techniques and a single institution's longitudinal data, Gutenbrunner et al. (2021) found that taking Chemistry 1 before Calculus 1, American History before Psychology, or Calculus 1 before Computer Science 1 had positive effects on students' course grades when compared to students who enrolled in those courses in a different order. Additional work focused on science coursework showed the odds of persisting in entry-level Chemistry lecture courses were, on average, 2.2 times greater for those taking them concurrently with the corresponding lab course rather than taking the lecture and lab consecutively (Matz et al., 2012). The influence of co-enrolled course-taking is complicated by the student's major and difficulty of courses being taken, suggesting that more research is needed to better understand course-sequencing decisions and their implications for college students (DeMonbrun et al., 2020).

Gateway and STEM courses

Previous literature has explored the influence of course sequencing in gateway courses, which are broadly defined as required entry-level courses needed to advance in a degree program (Janice & Voight, 2016). Prior research has generally shown a positive relationship between taking required gateway coursework as early as possible and student persistence (Fike & Fike, 2012; Zientek et al., 2022). Similar patterns emerge when examining the relationship between enrolling in required math coursework early on and students' likelihood of degree completion (Wang et al., 2017). For instance, first-semester math coursework has been found to be the most salient predictor of persisting in science, technology, engineering, and mathematics (STEM) degree programs (Wang, 2016). Additional work has indicated that the timing of courses and students' chosen

degree program play prominent roles in their likelihood of success in subsequent coursework (Betancur et al., 2019; DeMonbrun et al., 2020).

While most students do not major in STEM, numerous studies point to the importance of STEM courses for all community college students (e.g., Wang, 2016). A variety of math and science courses at community colleges have been found to be positively related to students' likelihood of achieving vertical transfer and graduation outcomes, and the average community college student's GPA was lower for those who did not take science or math courses (Cohen & Kelly, 2019). Previous research has reported that many community college students take additional entry-level math courses despite having already fulfilled the requirement to take the next required math course in the sequence, leading to lower GPAs, excess credits, and increases in time-to-degree (Bicak et al., 2022; Fink et al., 2018).

Students' first math course in college has been identified as a key predictor of how far they would advance as a college student (e.g., Bahr, 2012; Bailey et al., 2010; Crisp & Delgado, 2014). Those who began in lower-level introductory math courses, such as College Algebra, were less likely to advance through required math curricula than students who began even one level higher, such as Trigonometry. For many students, introductory college-level math classes marked the beginning and the end of their postsecondary math course-taking. Specifically, only 13 percent of community college students who engaged with the entry-level math curricula were able to advance to a second math course that would be accepted as a math credit at a four-year institution (Bahr et al., 2017).

Additional work has found even greater challenges with advancing to the next required math course when students were placed initially into developmental math courses, particularly

when students delay taking their developmental math courses (Zientek et al., 2022). Only 20 percent of students placed into developmental math complete a college-level math course within three years (Bailey et al., 2010). This pattern in math course-taking at community colleges disproportionately affects female students and individuals from minoritized backgrounds due in part to their higher likelihood of entering the curriculum at the lowest levels (Bahr, 2012; Crisp & Delgado, 2014).

The Role of Developmental Education

Previous studies have also focused on the integral role of developmental education when seeking to better understand the role of course sequencing in higher education. Developmental education is broadly defined in higher education literature as postsecondary coursework that is intended to fill in knowledge gaps for students who are not ready for college-level coursework (Jimenez et al., 2016). The majority of students enrolled at public community colleges have taken at least one developmental course (Campbell et al., 2019). Despite the prevalence of developmental education throughout community colleges in the U.S., the outcomes associated with taking developmental coursework are mixed (Calcagno & Long, 2008; Goldrick-Rab, 2010; Long & Boatman, 2013).

Developmental education is often characterized by high costs, a lack of consensus about effectiveness, and varying policies and implementing strategies across contexts (Bailey, 2009; Bettinger et al., 2013; Kurlaender & Howell, 2012). From a course sequencing perspective, prior research suggests that delaying the first developmental course is associated with a lower likelihood of passing the course, passing the next required course, and overall persistence (Bahr, 2012). In an earlier study, Bahr (2010) found significant racial gaps in the likelihood of successful performance

in developmental math coursework among Black and Hispanic students, highlighting that Black students, in particular, were 1.4 times more likely to fail or withdraw from developmental coursework when compared to White students.

Conceptual Framework

The conceptual framework of this study is guided by rational choice theory and the concept of bounded rationality. Rational choice theory asserts that individuals will make decisions that align with their own self-interested objectives when choosing among a set of options (Becker, 1968; Beekhoven et al., 2002). Applications of rational choice theory in higher education scholarship often focus on college choice and attendance decisions (Beekhoven et al., 2002; Iloh & Tierney, 2014; Perna, 2008). The underlying tenets of rational choice theory capture many of the complexities associated with course-sequencing decisions facing community college students and offer lenses through which to investigate and understand how students and advisors make course-sequencing decisions. However, rational choice theory might not capture all of the complexities that go into course-sequencing decisions for historically underserved subgroups of community college students. To address the complexities associated with the provision of a potentially overwhelming number of course options, we are integrating the concept of bounded rationality (Simon, 1976) to complement the use of rational choice theory.

Rational choice theory suggests that individuals calculate the costs and benefits associated with binary choices and proceed to make choices based on which option brings the greatest individual returns (Becker, 1968; Beekhoven et al., 2002). For historically underserved community college students and their advisors, course-sequencing decisions represent a variety of choices whereby students can use available information to weigh the costs and benefits of the order in

which they take a combination of courses in a given semester. In doing so, community college students and their advisors are seeking to maximize the student's likelihood of avoiding short-term failures and achieving long-term academic success along the pathway to degree completion.

Importantly, rational choice theory also posits that community college students should be centered in the course-sequencing decision-making process (Scott, 2000). However, individuals seeking to make optimal choices do not always have all of the information needed to make the most rational decision (DesJardins & Toutkoushian, 2005). Another tenet of rational choice theory highlights that each decision will likely have some degree of uncertainty due to limited information (Zocco, 2009). Many first-generation or low-income students do not have peer or familial networks with postsecondary experience and are forced to use limited information when making course-sequencing decisions (Bailey et al., 2005; Scott-Clayton, 2011b). In the case of course-sequencing decisions for community college students, advisors can reduce the uncertainty facing students in the decision-making process, but this rests on the assumption that advisors have the contextual information required to be able to dissuade students from pursuing an inefficient or even incorrect pathway to a postsecondary credential.

Although rational choice theory can help to explain the logical rationale of course-sequencing decisions, several scholars have highlighted its limitations, particularly among historically underserved subgroups. Prior work has emphasized that human capital theory, which is often linked to rational choice theory, can overlook structural challenges facing historically underserved subgroups and the systematic differences in individuals that may not allow for the universal application of rational choice (Beattie, 2002; Kiser & Hetcher, 1998). In response to the limitations of rational choice theory, we complement the use of rational choice theory by

incorporating the concept of bounded rationality to offer a richer and more nuanced outlook on decision-making processes that aligns nicely with complexities associated with historically underserved students' decision-making (e.g., Simon, 1976; Scott-Clayton, 2011). More specifically, bounded rationality reveals that individuals are not perfectly rational decision-makers, especially when they face cognitive overload and make choices based on various constraints and limited information (Scott-Clayton, 2011b).

The concept of bounded rationality can help to explain historically underserved students' decision-making by highlighting that individuals' preferences and decisions are influenced by the contexts in which they are situated, the available information at their disposal, and their mental and emotional constraints (e.g., Beshears et al., 2008; Harrison, 2016; Hernandez & Ortega, 2019). These decisions are especially challenging when course-sequencing decisions among historically underserved students must also weigh a variety of complicating factors, such as the medium of instruction, timing, and difficulty of each course (Scott-Clayton, 2011b).

Students weighing guidance from advisors when making course-sequencing decisions are often considering a host of factors, such as their family obligations, employment opportunities, advice from peers, availability of courses that fit their schedules, and more (Attewell & Monaghan, 2016; O'Neill & Sai, 2014; Zocco 2009). Unfortunately, some students fail to consult an academic advisor and merely rely upon the online degree audit that lists the required courses for their particular degree program, which can have detrimental effects on student outcomes (Tippetts et al., 2022). Degree audits are designed to supplement the work of advisors by assisting students in tracking the specific courses needed to graduate from their academic program. A degree audit tool can align nicely with rational choice theory given that it presents the requirements in order to earn a

degree, allowing students to weigh the costs and benefits of each potential course schedule option in a given semester. However, students who rely too much on a degree audit tool may have a false sense of selecting the optimal course schedule needed to meet degree requirements, without considering the order or combination of specific course sequences.

Rational choice theory represents a compelling mechanism to explain why making course decisions in a vacuum in alignment with degree audits may lead to inefficient course-sequencing patterns by failing to consider important contextual factors, such as the timing of prerequisites and multiple-semester course sequences (e.g., Chemistry alongside Calculus but before Physics) (Hechter & Kanazawa, 1997; Zocco, 2009). Rational choice theory also suggests that external structures should play an integral role in the cost-benefit analysis that individuals use to make the optimal decision (Hechter & Kanazawa, 1997), but bounded rationality acknowledges that individuals can be influenced by outside perspectives and there may not be an optimal choice when given an extremely large number of potential choices (Hernandez & Ortega, 2019). Both community college students and their advisors consider the varying factors identified previously and work within the rules and requirements of their specific institutions and academic program of interest when making course-sequencing decisions.

Relative to four-year students, community college students are often forced to make course-sequencing decisions without the same level of generational knowledge about higher education or discretionary time to plan for the future implications of their choices (Hechter & Kanazawa, 1997; Reyna & Farley, 2006). The underdeveloped support systems at many community colleges in combination with the structural barriers that can keep historically underrepresented subgroups, in particular, from fully accessing the benefits of higher education, are integral to further

understanding the course-sequencing decisions of historically underserved community college students (Bailey et al., 2015; Cadenas et al., 2020).

In alignment with recent research using rational choice theory to explain why community college students drop courses (McKinney et al., 2019) and work with advisors (McKinney et al., 2024), this study leverages the logical rationale of rational choice theory to inform our empirical decisions when exploring how historically underserved community college students and their advisors make course-sequencing decisions. This study complements rational choice theory by incorporating the concept of bounded rationality, which highlights that excessive choices in community college settings can lead to sub-optimal outcomes (Scott-Clayton, 2011b). The concept of bounded rationality helps to explain why online degree audits without personalized guidance for course sequencing may unintentionally harm historically underserved students by providing them with incomplete information and too many choices (e.g., Deil-Amen & Rosenbaum, 2003; McKinney et al., 2019; Scott-Clayton, 2011b).

Research Design

Methodology

To explore *how* historically underserved community college students and their advisors consider and implement course-sequencing strategies when building students' academic schedules, we employ a qualitative case study design (Merriam & Tisdell, 2015; Yin 2002). Qualitative inquiry allows researchers to use interviews with participants to center the individual and human experience to explore and describe a phenomenon, such as course sequencing, in depth within context (Merriam, 1998; Sandelowski, 2004). In this study, we use a qualitative case study at a single high-enrollment community college to facilitate an in-depth analysis of a single case study

site in order to answer a *how* question about a particular phenomenon (Merriam & Tisdell, 2015; Yin, 2002). In doing so, we center the experiences of historically underserved community college students and their advisors to explore course-sequencing decision-making processes within the boundaries of their contextual conditions (Yin, 2014).

To orient the epistemology of this qualitative case study, we use a constructivist approach, which allows researchers to acknowledge each individual's perspective through the lens of their interactions within their contextual environments (Merriam, 1998; Guba & Lincoln, 1989). Constructivism introduces the idea that knowledge is a product of a construction between "knower" and "known," which results in multiple versions of knowledge derived from the individual's experience within a given environmental condition, suggesting that there is not a single version of truth that applies across situations, individuals, and contexts (Esposito & Evans-Winters, 2021; Yazan, 2015, p.15). In alignment with the constructivist approach and broad tenets of qualitative research, we do not attempt to generalize the phenomenon being studied (Crotty, 1998) and coded the data with the understanding that the subjective interactions between researchers and participants lead to their own meanings in the interviews and data analyses (Charmaz, 2014).

Site and Sample Selection

This study is part of a multi-year initiative designed specifically to better understand course-sequencing strategies used by historically underserved community college students and their advisors. Sunshine Community College (SCC) was chosen as the case study site for this study because it is a high-enrollment institution with a disproportionate share of historically underserved subgroups of students. While recruiting target participants for one-on-one interviews, we used a combination of convenience sampling, purposeful sampling, and theoretical sampling (Lopez &

Whitehead, 2013). This included an email notice that was distributed to the entire student body at SCC, including a prompt to allow students to opt into participating in the study by completing a consent form. The consent form included all standard requirements, such as IRB approval letters, and a brief questionnaire for students to schedule an interview time, self-identify demographic characteristics, and provide basic information to receive compensation for completing an interview. In addition to focusing on the recruitment of historically underrepresented subgroups of students, all participants were required to have completed at least one semester of classes at SCC.

We accepted interviews with historically underserved SCC students, operationalized as first-generation, racially minoritized, and low-income students, after their consent form was received. The aim of the recruitment strategy was to have a broad and diverse sample of historically underserved students attending SCC. Students were offered a $50 virtual Amazon gift card in exchange for completing their one-on-one interview with a member of our research team. Out of the 247 SCC students who initially responded to the advertisement and signed consent forms, a total of 80 students participated in the interview process. Most of the students we interviewed were from racially minoritized groups, including 43.75% who identified as Hispanic and 16.25% who identified as Black. Around 46% of our sample participants were low-income students and 41% of first-generation students. Students were also from a wide variety of degree programs, with Nursing (19 students) and Computer Science (11 students) representing the most common areas of study (see Table 1 for the pseudonyms and background characteristics of all participants). The majority of SCC students are from historically underserved backgrounds, which reflects the background characteristics of the students who participated in this study. Although exploratory t-tests reveal that our sample does not have statistically significant differences relative to the population of SCC

students, our sample has a higher proportion of Hispanic students and lower proportion of White students when compared to SCC as a whole.

For the SCC advisors, we contacted the director of advising and used convenience and snowball sampling (Noy, 2008). During the data collection process, we interviewed 9 of the 36 full-time advisors employed by SCC (see Table 2 for information pertaining to each advisor who participated in the study). We focused specifically on full-time advising staff members due to their higher numbers of interactions with students seeking to navigate course schedules and course-sequencing decisions.

Data Collection and Analysis

Data were collected during Summer 2023, Fall 2023, and Spring 2024. Interviews lasted between 30 and 60 minutes, with the average interview lasting approximately 45 minutes. Every interview was conducted one-on-one via Zoom and recorded to allow for transcription. At the start of each interview, the interviewer reviewed the previously submitted informed consent form and confirmed that the participant wished to proceed with the recorded interview. During the interviews, the interviewer used a list of semi-structured, open-ended interview questions, which helped to provide consistency in the questions for all interviews while allowing for flexibility to explore new topics introduced by the respondent during the interview. The interview questions were informed by rational choice theory and critiques of rational choice theory, centering the lack of information available to students as they made their decisions surrounding course sequencing. In addition, we wanted to gauge how students weighed the costs and benefits associated with course-scheduling decisions, such as the external factors that influence students' decision-making given

that both rational choice theory and bounded rationality highlight that individuals' decisions are not made in a vacuum and are subject to a litany of external influences.

This level of flexibility provided by semi-structured, open-ended interview questions ensured that participants were able convey their sense of narrative authority when discussing their identities, academic schedules, and course-sequencing strategies. To increase trustworthiness, multiple research team members collaborated to write and develop the list of guiding interview questions used in the data collection process. Although the same general structure was followed throughout the interviews, the interviewer encouraged a conversational element in the interview and unpacked the salient elements of participants' course-sequencing experiences and strategies. Interview questions continually centered students' experiences pertaining to how they considered and implemented course-sequencing strategies when building their academic schedules, with follow-up questions to encourage expansion and reflection upon a particularly relevant or insightful topic the student or advisor mentioned during their initial response (see Appendix A for the list of guiding interview questions).

To protect the participants' identities, pseudonyms were assigned for each individual and all identifying information has been removed. Each interview was transcribed by one research team member and verified by another. This verification check allowed the researchers to review the content of the interviews and begin to iteratively reflect on ideas for the coding process throughout data collection. By using a qualitative case study methodology, we were able to leverage multiple procedures to analyze data and identify patterns or insights observed during the data collection process (Yin, 2018). During the data analysis process, members of the research team made decisions about coding, theming, decontextualizing, and recontextualizing the data (Starks &

Brown Trinidad, 2007), relying primarily on the constant-comparison approach to analyze and code the data (Erlandson et al., 1993; Glaser & Straus, 1967; Lincoln & Guba, 1985). To be clear, two members of the research team coded interview data. At each stage of coding, the codes, categories, and themes were continually discussed and peer-debriefed by both research team members (Spall, 1998). Any discrepancies between the two coders were resolved during a weekly research team meeting designed specifically to address any discrepancies in coding decisions.

When coding the interviews, the research team developed first-stage open codes, axial codes during the second stage, and a final grouping of broader selective codes (Major & Savin-Baden, 2010; Saldaña, 2009). To better understand the complexities associated with course-sequencing decisions, we intentionally incorporated key tenets of rational choice theory and bounded rationality, such as the costs, benefits, and complexities of course enrollment decisions, through our open, axial, and selective coding decisions. Appendices B and C provide detailed examples of coding decisions.

Following the interviews and in alignment with a case study design, our research team explored and analyzed documents referenced commonly in the interviews to increase trustworthiness. This secondary exploration included the SCC advising office's website, which lists academic advisors' contact information and the broad goals of academic advising at this institution. In addition, a Canvas site hosted by SCC revealed all of the general education degree requirements and a degree audit tool for students to use when building their course schedules. SCC students often referenced these lists of courses and degree audit resources as critical tools when implementing their course-sequencing strategies (see Appendices D, E, and F for additional SCC documents).

Trustworthiness

Trustworthiness in qualitative studies pertains to the credibility of the research established through rigor in data collection and analysis (Lincoln & Guba, 1986). To employ the constant comparative method, we navigated back and forth between data collection and analysis, ensuring that members of our research team were responsive to the data and maintained congruence with the research design (Morse et al., 2002). The interviews with advisors allowed us to triangulate the experiences of students and explore relevant advising resources provided by the college, such as the college's websites and key documents mentioned during interviews with students and advisors to confirm numerous findings and emergent themes. Through systematic reviews of relevant online materials, we leveraged multiple sources of information to converge lines of inquiry and establish a triangulation of data to enhance the accuracy and validity of our findings (Patton, 2002; Yin, 2014).

As another mechanism to ensure trustworthiness, we conducted member checks with advisors at SCC with contextual knowledge of course-sequencing strategies and the individual community college (Denzin, 1994; Greene, 1994). Through our primary and secondary cycle coding methods, we created a detailed process of data analysis, which, combined with peer-debriefing and investigator triangulation, enhances the credibility and trustworthiness of our study (Golafshani, 2003; Stake, 2010).

Results

Students Concerned Primarily with Fulfilling Degree Audit Requirements

The primary concern for historically underserved SCC students when selecting courses was fulfilling degree audit requirements. This approach often led to a lack of strategic planning in course sequencing due to limited information on SCC's check-list degree audit, as students focused on meeting immediate criteria rather than considering the long-term academic benefits of course-

sequencing order. Students' disproportionate focus on degree audit requirements is exemplified by David, a first-generation and low-income computer engineering student, who was asked about how he engages with course-sequencing strategies:

> I don't, I don't really know if there has been too much conscious, like, planning and whatnot, other than just looking at the degree audit and being like, okay, what should I - what should I take? What do I need to take?

Another student, Isaac, stated, "[Non-STEM courses] can be just in any order. Like, it doesn't matter when I took, I don't know, multicultural geography. First semester, the last semester, it didn't affect me at all in any of the other classes." Although many respondents noted the importance of course sequencing in STEM coursework, in particular, this was not deemed a critical consideration in non-STEM coursework.

Despite their focus on degree audit requirements, students occasionally weighed other considerations to navigate the course selection process, such as their level of interest in the course content, the professor's reputation, and the risks and rewards of course decision-making. For example, Kimberly, an Asian Healthcare Administration student, likened course sequencing to "shopping on Amazon," suggesting a preference for comfort over challenging herself when making course-sequencing decisions. In this example, students shop for preferred courses based on their comfort level and delay enrolling in courses deemed more challenging (i.e., STEM-related courses). SCC students often referenced being more comfortable with courses that piqued their interest or built off prior coursework in high school from which they had already built a solid foundation.

Some SCC students expressed frustration with incomplete or inconsistent information and the process associated with securing an advisor appointment. Stephanie, a low-income, first-generation student, used the degree audit tool to identify a batch of potential courses before meeting with an advisor; however, she noted that not being able to meet with the same advisor caused confusion and inconsistency regarding advisors' recommendations pertaining to course-sequencing decisions. This led Stephanie to return to the degree audit tool rather than following the advisors' recommendations. Some students were lulled into a false sense of security by the degree audit resources and found value in advisor meetings, noting that they ran into some non-trivial issues by not supplementing the degree audit tool with advisor meetings. Natalie, a Black, low-income, first-generation student, captured this tension:

> I really didn't understand the degree audit. It's not until last year that when I met up with an advisor, she informed me about…the reasons why I was not able to actually apply to [the Pharmacy program] because I overlooked the electives, such as chem[istry] or biology, that were needed.

The challenges students faced when relying too heavily on the degree audit tool highlight the importance of the human element in advising and course-sequencing decisions.

SCC advisors shared students' frustration with advising policies and procedures. Morgan, an advisor at SCC, discussed the dangers of student self-advising and the institutional policies that sometimes leave students at a disadvantage. "We have students that technically aren't even required to meet with advisors before they register for classes…and then you're trying to kind of, like, reframe things and fix challenges that they experienced earlier." Lauren, a first-generation and Hispanic pre-nursing student, indicated that she was unaware that she needed to take Anatomy and

Physiology earlier in her sequencing, which led her to struggle in advanced science coursework and unintentionally delay when she was able to start nursing school. Similar course-sequencing issues arose when historically underserved SCC students referenced challenges they faced when taking additional STEM coursework. As one example, many respondents noted that they performed poorly in Physics because they were learning Calculus while taking Physics, and they would have performed substantially better in Physics if they took Calculus during the preceding semester.

Students repeatedly described the complexities and barriers they faced when choosing their courses. In addition, Tara, a first-generation pre-nursing student, and several other participants asserted the importance of expanding beyond degree audits and reviewing information about professors when deciding which courses to take and when to take their courses. “I will put off taking a class, push it to a different semester to take [it] with a different professor. Absolutely. Without question. Yes, if a professor I want isn't available, absolutely. I will.” Some SCC students even turned to informal online rankings of professors to inform their course-sequencing decisions.

Regarding the available degree audit tools at SCC, students noted that they were only able to view a list of courses that are required to graduate for all students or within a given concentration or academic program. As a result, SCC students relying too heavily on online degree audits did not receive guidance on course-sequencing decisions via the degree audit tool. SCC provides degree audits for a variety of broad program areas but does not inform students which combination or order of courses would be beneficial or detrimental to their academic success. Appendix E highlights an example of a degree audit for a general Associate in Arts (A.A.) degree at SCC. Degree audits typically provide specific degree completion requirements and a list of potential courses that can be taken to meet those requirements. In addition to degree audit tools, SCC

students are able to navigate a learning management site to access a model semester plan for their concentration or academic program, but this is a one-size-fits-all model that does not consider students' academic backgrounds or individual pathways. Appendix F provides a generic example of a model semester plan for a Nursing student at SCC who intends to transfer to a four-year institution.

Risk and Reward in Accelerated Courses

With participants focused on fulfilling requirements to earn a degree or transfer vertically to a four-year institution, one subtheme that emerged is the dilemma of risk versus reward in course-sequencing strategies. This became apparent when discussing accelerated courses, which are typically defined as courses delivered in an abbreviated amount of time relative to the typical fall or spring semester (Lee & Horsfall, 2010; Scott & Conrad, 1992). Many students opt for accelerated courses in Summer A (first half of summer), Summer B (second half of summer), or abbreviated periods during the Fall and Spring semesters. Several SCC students noted that they wanted to "fast-track" their graduation date or transfer requirements to be able to transfer to their preferred four-year institution more quickly. Sally, a Hispanic, first-generation, low-income, Computer Science student, notes, "Of course, it required a lot of work… but because it was fast-paced, like, you didn't forget…and I really enjoyed the class and did well in it." The potential benefits of accelerated coursework were reiterated by Sally and others, indicating that some students' learning styles may be better suited for accelerated courses rather than traditional course offerings.

However, not all participants experienced such positive outcomes, as other historically underserved SCC students noted that they faced setbacks in accelerated coursework, such as failing a course and delayed graduation. An accelerated course format can bring the benefits associated

with scheduling and completing more courses at a faster pace, but students may face difficulties due to the condensed and fast-moving nature of the format. Ash, a Black, low-income pre-nursing student, said, “If I’m taking a pretty complicated subject or a subject that’s going to require for some time to understand… I tried to take them for a full semester” but felt comfortable taking “English, history, or simple math in half a semester.” While students prioritized degree requirements, their secondary considerations related to when accelerated courses were acceptable reflect an understanding of the pragmatic elements of course sequencing.

Importance and Difficulty in Navigating the First Semester of College

The first semester of college was repeatedly outlined by SCC students and advisors as a critical time for students. This particular semester brought various challenges to navigate. As one example, Ethan, a Native Hawaiian digital media student, grappled with inconsistent advising upon entering college:

> The only challenge I ever had was just trying to keep track of…what I needed. Because I would go to different advisors, and sometimes they would miss a course here and there. And then I have to compare [what] that previous advisor had said a year ago…just kind of trying to map that out…like, who's right? Who's wrong?

Conflicting information from advisors upon entering college led to occasional messages of mistrust in advising and suboptimal decisions by students who decided to advise themselves. Several respondents, such as Lauren, a Hispanic, first-generation, low-income, sonography student, expressed regret in their self-advising: “Maybe if I had talked to someone [who was an advisor], I wouldn't have, you know, had to go through, like, you know, multiple classes or unnecessary classes that didn't serve me, like, you know, any purpose.” SCC academic advisors repeatedly

mentioned their heavy caseloads, often as high as 500 students, and their maximum appointment windows of 30 minutes as limiting factors that could explain how SCC students received conflicting information early on.

By taking courses that were not needed during the first semester or two, students' academic goals pertaining to transferring vertically or earning an associate degree became challenging to reach. These experiences underpin the folly of self-advising for entering community college students. This self-advising approach often backfired for students seeking to make course-sequencing decisions. For example, numerous students noted that they would attempt to navigate the degree audit independently without fully understanding it, which led to enrollment in unnecessary courses. Both students and advisors repeatedly highlighted the critical need for personalized, one-on-one advising during the first semester of college to empower students with the information needed to confidently and efficiently navigate which courses to take and when to take them.

Students expressed their desire for more tailored suggestions about what to take during the first semester of college, in particular. Kevin, a Black, low-income, pre-medical student, described his experience sharing: "Certain classes are more challenging, and I wish that, like, there would have been a warning or another class that told me that, like, 'Hey, you're not ready to take Physics [during] your first semester in college.'" Kevin's experience underscores the importance of individualized advising based not only on prerequisites and required courses but also on academic preparedness and challenges associated with the timing of course-sequencing decisions.

In addition, student respondents reported a steep learning curve during their first semester of college, leading them to juggle optimal course selection decisions and the need to further develop

essential academic skills and competencies. Charlie, a first-generation Hispanic sonography student, recalled her struggles during her first semester, during which she took six courses, including Anatomy and Physiology. “It was, like, really difficult… to develop, you know, the study habits and, you know, time management skills and discipline that I needed.” Charlie suggested that any new student entering a community college setting could benefit from targeted, personalized information related to course sequencing and how to navigate the adjustment between high school and college.

Foundational courses, such as introductory English and public speaking, were described as pivotal courses to be taken during the first semester of college, allowing entering students to foster written and oral communication skills deemed to be useful when seeking to tackle the rigors of more challenging courses later in their academic journey. As we highlighted in the first theme, which pertains to an overreliance on degree audits, historically underserved SCC students indicated that they would have benefitted from prioritizing not only course-sequencing strategies but also strategic development of academic skills and competencies early on. Several students noted they regretted blindly following SCC’s degree audit tool by taking more advanced, difficult courses during their first semester when they were not necessarily prepared to take those courses upon arrival.

Non-Curricular Barriers to Academic Success

Students reported facing various external challenges in which they felt like they had little control over the financial or time-related factors impeding their momentum toward earning an associate degree or transferring to a four-year institution. More specifically, participants repeatedly struggled with balancing optimal course sequencing (or course scheduling in general) with their

work and financial obligations and the negative impact of irregular course offerings that may not be offered during the window in which they can attend an in-person class. As Kevin, a Black, low-income student, noted:

> I have to wait until they're offering [required courses] as a night class. So, like, I think next semester, one of the chemistry classes I wanted to take, they don't have it after 5:30 p.m. And I get to work at 5:00 p.m., so I have to wait another semester to take it. And the same thing with U.S. [history]. If I work… and the class is during the time I work, I can't really take the class.

Regarding why students made suboptimal course-sequencing decisions, such as delaying when they took a required math or foreign language course, students reiterated that unwanted delays in course-taking were often due to external factors, such as being unable to take a class due to a conflicting work schedule or being unable to afford taking an additional course and needing to work more hours to take the course in question during a later semester.

Despite the scheduling challenges facing many of our student respondents, they demonstrated adaptability in reshaping their course plans around their work schedule. Many participants expressed that it was a burden to continually craft their course schedules around work. In contrast, others found this issue manageable, given that most semesters allowed for other course options that met their time requirements and could count toward their degree requirements. This type of course-scheduling flexibility, though, becomes increasingly difficult as students progress toward advanced coursework in later semesters. Kevin discussed this overarching issue and how it affects him and his family members at SCC. “I do know, like, people I know have had that experience, like my cousin…He has to wait a whole semester extra just to take that one specific

course [he needs to transfer].” Due to this dynamic, many SCC students, such as Dawson, a low-income Hispanic Business student, prioritized transfer requirements for their target degree program at a four-year institution, noting that these transfer requirements were the “main goal” that would supersede any general education requirements or course-sequencing strategies associated with optimal timing or combinations of courses.

Several other student respondents communicated frustration with their institution’s limited availability of STEM courses during the summer semester. Limited STEM offerings during the summer semester forced time-constrained students to delay taking their required STEM coursework until a future fall or spring semester. However, some students noted that they needed to take numerous STEM courses in a single semester due to taking all of their electives early on, which created course-sequencing challenges and led to poor academic outcomes. For instance, one participant, Stephanie an American Indian or Alaska Native, low-income, and first-generation sociology student, shares her experience with poor course-sequencing decisions:

> I had done all the electives, and all I had were, like, the more intensive kind of, like, weed-out courses. So, I was taking anatomy and physiology, microbiology, biology [in the same semester] … I wish I would have known not to do that. Because I think I kind of shot myself in the foot…having to take all the really tough classes together. And that's what led me not doing so well. And, you know, eventually dropping out of school.

Stephanie’s experience related to a less-than-optimal sequence of courses was reiterated by numerous student respondents and demonstrates that the timing of course-taking matters. Students who reported taking too many “easy” courses early on were later forced to take all of their

"difficult" courses toward the end, leading to highly challenging semesters, poor grades, and student attrition.

Many student respondents and most advisors noted the importance of balancing course decisions by taking easier electives and more challenging required courses, with no more than two or three "difficult" courses per student in a given semester. Another pitfall from self-advising that participants outlined was the difficulties faced after switching degree programs. When students switched degree programs or changed their academic major after a few semesters, they occasionally ran out of financial aid. This financial issue was due to students being unable to use their financial aid to cover the remaining required courses for their new degree program, leaving them with unnecessary credits and an inability to afford the classes they needed to graduate.

The Challenges and Opportunities Associated with Online Courses

Online courses have become a powerful scheduling tool for SCC students with busy schedules, offering unparalleled flexibility and allowing time-constrained students to work at their own pace each week. Diego, a low-income and first-generation computer science student, reinforced this point: "My timeline didn't really line up. The easiest thing for me to do was, like, an online class. And, you know, you have the freedom to just do it whenever you have the time." Some SCC students preferred to take their non-required courses online because they did not want their electives to disrupt their work or familial schedules. Meanwhile, other students prioritized taking challenging courses in an online setting to maximize the benefit of being able to work at their own pace. As Sara, a Hispanic computer science student, noted, "I like that [online classes] are on my own schedule…I can wake up really early today and just do this. Or I can go to sleep

really late today and do this." This flexibility allowed Sara and numerous respondents to fit a variety of courses into their busy schedule.

However, many students highlighted that these online courses have trade-offs and can be a double-edged sword. Several historically underserved SCC students indicated that taking too many online courses at one time led them to feel less connected to their peers and the college experience, which aligns with prior work reporting greater levels of social isolation in online courses (Ali & Smith, 2015). Oscar, a low-income, Hispanic, Organizational Management student, said, "I don't know if the word is regret. But in a sense, like, I don't feel like I lived my college experience as fully as other students." Respondents also described online courses as requiring higher levels of responsibility and self-directed learning, which led some SCC students to suggest that online courses were more challenging and required a learning curve to understand how to succeed. Frank, a Hispanic Electrical Engineering student, highlighted the difficulties of this requirement by stating:

> It was my first online course, so it was different than what I expected…a lot of reading, which I think takes even more time than attending a lecture. That's something I know now and [am] careful about now. I prefer to take in-person classes. If I can, I'll take all of my classes in person, but [a specific course], in particular, was full. There was only the online version, so that's why I [couldn't take the in-person version]. But I don't plan on taking any more online courses, if I'm honest.

Frank found online courses to be more difficult and even more time consuming than face-to-face courses. Student respondents' preference for online courses also revolved around their ability to

take the perfect combination of required courses each semester, which would not have been possible if they enrolled only in face-to-face courses.

This propensity to leverage online coursework as a scheduling tool was especially prominent among working students and those with familial responsibilities. Students who did not complain about online coursework often noted that optimal course sequences were only possible by leveraging online course options. In contrast, students who preferred in-person classes typically cited a strong desire for higher levels of peer-to-peer and faculty interaction, indicating that online coursework occasionally made them feel as though they were working alone on an island.

Discussion

Based on semi-structured interviews with 80 historically underserved students and nine college advisors from SCC, our findings reveal that many historically underserved SCC students do not strategically approach course sequencing to bolster their experiences and outcomes when taking required coursework. Many student respondents described a pragmatic approach, focusing on checklists and requirements associated with their degree audits to a further extent than course-sequencing strategies. However, numerous students indicated that they regretted not thinking strategically about course sequencing, suggesting that such an approach could have led to a more positive collegiate experience and improved academic outcomes. This aligns with the tenets of rational choice theory, which emphasizes the pursuit of self-interested objectives when choosing among a set of options (Becker, 1968; Beekhoven et al., 2002), and underscores the critical need to incorporate the concept of bounded rationality given that respondents are often forced to make sub-optimal course-sequencing decisions due to incomplete information, a lack of individualized advising, and a host of built-in, non-curricular barriers (Simon, 1976; Scott-Clayton, 2011b).

Student respondents reported being confused about how to create optimal academic schedules and regretting not working with their advisors from the outset to create a better plan that centers course-sequencing strategies and sets them up for success in future semesters. Previous literature has shown that more individualized guidance and less flexibility around course sequencing can produce better outcomes, particularly at private open-access colleges (Rosenbaum et al., 2010). The logical rationale of the above findings are better explained through the lens of both rational choice theory, which suggests that individuals will seek to make optimal decisions by weighing the costs and benefits of available information (i.e., online degree audits), and the concept of bounded rationality, which reinforces the bounds of rationality in course-sequencing decisions due to the sheer volume of choices made available to students choosing among hundreds of course options with varying timing, difficulty, and modalities (Scott-Clayton, 2011b). In other words, students reviewing a degree audit will have access to a checklist of all required courses but will not be able to leverage dynamic, personalized recommendations or interact with an advisor who can offer clear guidance and structured support to accommodate different student needs and aspirations (e.g., Rosenbaum et al., 2009).

This relatively consistent takeaway across 80 interviews with historically underserved community college students highlights the need for individualized, developmental, data-driven advising practices to further emphasize the role and influence of course sequencing when seeking to identify best practices for SCC students, particularly individuals from historically underserved subgroups. Historically underserved SCC students' self-advising was repeatedly identified as an ineffective course-taking strategy, leading to a disregard for evidence about optimal course sequencing and a higher risk of inefficient pathways and poor academic outcomes. However, this

could stem from the notion that students are not presented with all of the necessary information to make optimal choices for their course-sequencing decision-making, indicating the importance of complementing degree audit tools and available online information with interactions with advisors who can make evidence-based, individualized recommendations and reduce students' uncertainty about the optimal course-sequencing pathway.

Implications for Research, Policy, and Practice

Overreliance on degree audits simplifies the course selection process but comes at the cost of course-sequencing strategies. This suggests a need for a more integrated, individualized advising policy that balances the use of the degree audit tool with advisor meetings to ensure community college students are enrolling in an appropriate sequence of courses. Prior literature has found that individualized advising practices lead to better outcomes for students, including higher levels of persistence, higher GPA, and higher rates of transfer, while the generic one-size-fits-all prescriptive advising approach does not carry those benefits for students (Donaldson et al., 2016; McKinney et al., 2022, 2024). For community colleges, degree audit tools should be used to supplement but not supplant individualized student advising.

Targeted changes in institutional policy regarding course sequencing and academic scheduling could positively influence students, especially among historically underserved community college students. Meaningful changes could include updating degree audit tools to be more interactive so that students can see the multiple paths they could take to their degrees and different suggested combinations of courses. Another significant change could come from altering the cadence and requirements associated with the student-advisor relationship at SCC and

potentially other community colleges. More specifically, each student can be assigned an academic advisor to contact and build a rapport over the course of their general education curricula.

This study builds upon prior work that has shown the positive effects of requiring or incentivizing students to meet with advisors to avoid a situation in which students do not receive any advising or go years without advice from an expert on course-sequencing decisions that account for institutional context (Weiss et al., 2023). Many students, when asked to reflect on what they would have done differently, wish they had worked with their advisors earlier or more frequently throughout their time at SCC. Importantly, community colleges are historically underfunded and would need increased levels of state funding to be able to address capacity constraints and overwhelming caseloads among advising personnel (Kahlenberg, 2015). In numerous interviews with both SCC students and advisors, respondents noted that students would benefit from meeting with a designated advisor rather than the general advisors with greater availability. Advisors, in particular, indicated that high caseloads were the norm, but SCC students would benefit if advisors were not stressed in ways that leave some students feeling rushed and occasionally confused regarding optimal course-sequencing decisions.

Our findings reveal the critical importance of the first semester of college on historically underserved community college student's likelihood of academic success in later semesters. This particular finding was often repeated by both students and advisors and aligns with extant literature about the positive influence of achieving academic momentum in the first semester on students' downstream academic performance (Chan & Wang, 2018; Hodara & Jaggars, 2014), particularly among low-income and first-generation students (Bailey et al., 2005; Scott-Clayton, 2011b). In addition, student respondents repeatedly referenced non-academic barriers that interfered with their

ability to navigate the pathway to a degree, including overwhelming work schedules and lofty familial responsibilities, which created substantial complications as they sought to build their course schedules and identify the optimal course-sequencing strategies and pathway to graduation.

Students also repeatedly referenced the integration of accelerated courses to fast-track their academic journey or the need to take online courses that were not offered in a face-to-face setting during the semester. This aligns with previous research outlining historically underserved students' reliance on enrolling in some online courses when building their course schedules (e.g., Ortagus, 2020). In both cases—with accelerated coursework and online coursework—SCC students sought to leverage these courses for prerequisites and entry-level courses but expressed hesitation in taking either option for advanced or especially challenging coursework. More specifically, SCC students wished to take required STEM prerequisites as early as possible via traditional, face-to-face course modalities, which affirms prior literature on the importance of taking math courses early (Wang et al., 2017) and the poor outcomes of community college students in introductory math and English courses offered online (Xu & Jaggars, 2011).

Regarding online course-taking, which repeatedly surfaced as a major consideration in course-sequencing decisions, many respondents discussed the potential for online courses to help and potentially hinder their academic goals. Specifically, online courses allowed for considerable flexibility in taking what students deemed to be ideal course schedules, but students expressed a preference for face-to-face courses when they were able to take either and noted a level of discomfort when taking math or science courses in an online setting. Additionally, some of the historically underserved students at SCC felt that they needed to supplement their schedules with online courses due to the lack of availability of courses they needed to take in person. In other

words, these SCC students were forced to take some online courses due to limited offerings of required courses to be delivered on campus rather than external time or location constraints. Given that prior research has provided mixed evidence on the effectiveness of online education in community college settings (Ortagus, 2018, 2023; Xu & Jaggars, 2013), further research is needed to explore the implications of being forced to take online courses when seeking to optimize course-sequencing decisions.

Students did not consistently consider any particular course-sequencing strategies when creating their academic schedules on their own, suggesting a potential need for institutional policies or requirements designed to ensure students meet with their advisors at set intervals and receive evidence-based advising recommendations related to appropriate ordering and combinations of courses given their academic progress, degree program, and individual goals. While advisors repeatedly described their desire to tailor data-driven recommendations to students' individual circumstances and needs, those efforts will not benefit students if students do not seek out advising appointments or if advisors are forced to give hurried or generic insights due to extremely high caseloads.

This study also highlights the importance of the first semester of college for historically underserved SCC students seeking to make optimal course-sequencing decisions and build academic momentum toward degree completion. Future research could explore the ways in which community college students and advisors consider the role and influence of course sequencing in the first semester of college or the ways in which orientation shapes students' perceptions of course-sequencing decisions within the first semester. Additionally, future studies could explore how online degree audits, in particular, shape students' academic schedules and progression toward

degree completion. Although degree audit tools are often merely listing the required courses for each degree or certificate, some online degree audits may be more dynamic and integrate current course options or offerings, which might, in turn, have a positive impact on a given student's likelihood of academic success.

Future initiatives can also inform course-sequencing strategies by examining which specific online courses benefit students and which online courses cause more harm than good. This will allow community college students and advisors to leverage the flexibility of some online courses while seeking to integrate specific face-to-face offerings as they seek to identify the optimal sequence or combinations of courses. As historically underserved community college students and their advisors continue to pursue the optimal sequence of courses along their pathway to a degree, further work is needed to implement the evidence-based support and services students require to move toward improved course-sequencing strategies and away from self-advising practices that often yield inefficient course-sequencing decisions and poor academic outcomes.

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Tables

Table 1

Historically Underserved SCC Student Participants

Name	Major	Race/Ethnicity	First Generation	Low-Income
David	Computer Engineering	White	Yes	Yes
Ana	Clinical Lab. Science	Hispanic	No	Yes
Ashley	Medical Technologist	Hispanic	No	No
Alexis	Zoology	White	Yes	Yes
Adam	Sociology	Black	No	No
Maria	Clinical Lab. Science	White	Yes	Yes
Amanda	Nursing	Hispanic	No	No
Ash	Nursing	Black	No	Yes
Beatriz	Nursing	Hispanic	No	No
Bianca	Microbiology (pre-med)	Hispanic	No	No
Caroline	Exercise and Sports Science	Black	No	No
Frank	Electrical Engineering	Hispanic	No	No
Christina	Computer Science	White	Yes	Yes
Parker	IT	White	No	Yes
Charlie	Sonography	Hispanic	Yes	No
Carmen	Prerequisites for Med. School	Asian	No	No
Diego	Computer Science	Asian	Yes	Yes
Enrique	Clinical Lab. Science	Hispanic	No	No
Barbera	Sonography	Hispanic	No	No
Ethan	Digital Media Production	Native Hawaiian or Other Pacific Islander	No	Yes
Stephanie	Sociology	American Indian or Alaska Native	Yes	Yes
Clara	Medical Billing & Coding Cert.	White	No	No
Erica	Nursing	White	Yes	No
Francesca	Clinical Lab. Science	Black	Yes	Yes
Fernando	Welding	Hispanic	No	No
Felipe	Computer Science	Hispanic	Yes	No
Dylan	Computer Engineering	Hispanic	No	No
Cade	Nursing	Hispanic	No	No
Danielle	Nursing	White	No	Yes
Gabriel	Computer Science	Hispanic	No	Yes
Henry	Nursing	Native Hawaiian or Other Pacific Islander	Yes	No
Isaac	Aerospace Engineering	Hispanic	No	No
Jessica	Nuclear Medicine	Two or More Races	Yes	Yes
Jackie	Advertising	Hispanic	Yes	Yes

Name	Major	Race/Ethnicity	First Generation	Low-Income
Jenna	Health Science	Black	No	Yes
Dawson	Business	Hispanic	No	Yes
Michael	Business	White	Yes	Yes
Jacob	Computer Science	Asian	No	No
Joshua	Psychology	Hispanic	Yes	Yes
Catherine	English	Hispanic	Yes	No
Kevin	Prerequisites for Med. School	Black	No	Yes
Kayla	Business	White	Yes	No
Laura	Exercise and Sports Science	Hispanic	Yes	No
Lauren	Ultrasound	Hispanic	Yes	Yes
Fernando	Applied Physio. And Kinesiology	Asian	No	No
Lauren	Nursing	Black	No	No
Lucas	Accounting	Hispanic	No	No
Marleigh	Nursing	White	No	Yes
Helen	Nursing	Black	Yes	Yes
Miguel	Computer Engineering	Hispanic	No	No
Melissa	Journalism	Hispanic	Yes	Yes
Madison	Nuclear Medicine	White	Yes	Yes
Matthew	Nursing	Hispanic	No	No
Kate	Nursing	Black	No	No
Mia	Health Science	White	Yes	No
Natalie	Nursing	Black	Yes	Yes
Nicholas	Industrial & Systems Engineering	Hispanic	No	Yes
Sally	Computer Science	Hispanic	Yes	Yes
Oscar	Organizational Management	Hispanic	No	Yes
Paula	Nursing	Hispanic	Yes	No
Patrick	Computer Science	Hispanic	No	No
Ricardo	Computer Science	Hispanic	No	No
Rachel	Education Sciences	White	Yes	Yes
Reina	Applied Physio. And Kinesiology	Asian	No	No
Roberto	IT	White	Yes	Yes
Rosa	Nursing	Hispanic	No	No
Santiago	Computer Engineering	Hispanic	No	No
Steven	Musical Theater	White	Yes	Yes
Samuel	Computer Science	White	Yes	Yes
Sierra	Sociology	Black	Yes	Yes
Sophia	Materials Engineering	White	Yes	No
Sara	Computer Science	Hispanic	No	No
Kimberly	Healthcare Administration	Asian	No	No
Tiffany	Paramedic Certificate	Asian & Hispanic	No	No
Tyler	Nursing	White	No	Yes

Name	Major	Race/Ethnicity	First Generation	Low-Income
Taylor	Accounting	Black	Yes	Yes
Thomas	Business	Other: West African, Mali	No	No
Tara	Nursing	White	Yes	No
Vanessa	Nursing	Two or More Races	No	No
Bradley	Mechanical Engineering	White	No	Yes

Table 2

SCC Advisor Participants

Name	Title	Race/Ethnicity
Taylor	Academic Advisor	White
Alex	Academic Advisor	White
Morgan	Academic Advisor	White
Jordan	Academic Advisor	White
Casey	Honors Program Coordinator	White
Drew	Associate Director of Advising	Black
Peyton	Academic Advisor	White
Sydney	Academic Advisor	White
Avery	Academic Advisor	White

Appendix

Appendix A

Example Interview Questions

Sample Interview Questions

1. Can you walk me through the process of how you decide on your courses every semester?
2. Did you prioritize certain courses or subjects early on?
3. Did you delay taking any courses and if so, why?
4. In your experience, are there any courses you should take at the same time?
5. Are there any courses that you wish you took before others because it would have been beneficial to do so?
6. Can you walk me through your experience with online courses, what did you like and what did you not like about them?

Sample Follow-Up Questions:

1. Were there any specific strategies used in deciding which transfer requirements get picked for each semester?
2. Did you face any challenges or regrets for prioritizing/delaying certain courses over others?
3. If you could go back and do it all over again with what you know now, would you change the order or your approach to taking courses?
4. Does it matter how many online courses you take in a single semester?

Sample Advisor Interview Questions:

1. Opening Question: Can you briefly share a little bit about your role as an advisor?
2. What kind of obstacles do students face in deciding their courses?
    a) Is there any difference between various student populations?
3. Are there any existing course sequencing patterns that you recommend to students, and why?
    a) What courses should students prioritize?
    b) How did the recommended course sequencing pattern come to be?
4. Do you think it matters when a student completes general education courses that are not directly related to their major?
5. Do students perform differently in online courses than in-person courses?
    a) Do you recommend them to take online courses? When?
    b) Do you think taking multiple online courses changes anything?
    c) Any differences between student groups?

Appendix B

Example of Open Coding Raw Interview Data

Raw Interview Data:	**Open Codes:**
I tried to reach out to two, if not three different advisors. And I had no response ever. It was very hard to get in contact with someone, it was very hard to get the advising track that I needed. When I was starting my Bachelor's it was very, very frustrating. And what happened is that none of these people were any help. You know, anyone that was there listed as my advisor, no help. I kept checking. I'm very consistent with things. So I kept checking all the time. And I remember I see a new name pop up. I'm like, wow, we have somebody else. And is the current advisor at the moment It really is because she did everything in such a short period of time, and really did a lot. You know, somebody else would have said, we don't offer it. I'm sorry this happened to you. We'll see you again next fall. And she did she really helped me through everything we met with her. I was more anxious, I think and anxious in the sense of I don't want to keep messing up things. I don't want miscommunication. I finally found somebody that I can talk to, I'm not gonna miss this. So I will meet with her maybe once a month or every two months, just to make sure I was on track to what I wanted to accomplish. And I was pretty intense. Like I wanted to make sure this is right. Are you sure. You know I was very nervous because of that gap. Where I have no sense of advising whatsoever, and I think I came back from that. And I was like, really nervous and tense and just anxious overall, that I didn't want anything else to mess up with my stuff.	Frustrated: Not all advisors are the same and frequently change Bad advising increased anxiety Advisors: Lack of Relationship with Students Advisor: Helpful & Reassuring Advisors are inconsistent Lack of Trust in Advisors
Raw Interview Data:	**Open Codes:**
So for that one it was more so I see here, I would like statistics. And that was when I struggled within like a chemistry and because I've kind of struggled there too. So I think beginning of that year, like, when I was getting my AA, and that was like, that was a while ago. It was a lot of the hard classes. Like for spring, I didn't take anything like the math or, or science, it was all which I shouldn't have done. And I didn't know. But all of like the beginning, I took like, technical communication, music appreciation, Intro to philosophy, American national government. So looking at now, I would have never took those classes in that sequence. Because they're all easy classes	Regret: Delaying Math Regret: Delaying Science Regrets taking all easy classes early Frontloading easy courses leads to difficult, heavy course schedules

Appendix C

Example Coding Rubric

Open Codes	Axial Codes	Selective Codes
• Course Requirement Planning: Choose easier courses if not required for major • Course Requirement Planning: Degree Audit • Course Requirement Planning: Family • Course Requirement Planning: Independent w/ SFC website • Course Requirement Planning: Peers • Course Sequencing: Followed Advisor • Course Sequencing: Gen Eds picked by interest and availability • Course Sequencing: Professor heavily influenced • Course Sequencing: Worked with Advisor • Non-Major Courses: Picked Easiest Ones • Non-STEM Courses act as filler • STEM Course Ordering: Picked out of interest • Course Requirement Planning: Choose easier courses if not required for major • Course Sequencing: Gen Eds picked by interest and availability • Does not matter when you take a non-prerequisite course • General Education Courses Feel like Highschool	Semi-Focused Course Selection Strategy	Pragmatic Course Selection Based on Requirements
• Prioritize Difficult Courses • Prioritize Math Courses • Prioritize STEM Prerequisites • Prioritize: Writing Courses • Prioritized Transfer Prerequisites • Prioritize Chemistry • Course Balancing: 2-3 'hefty' classes / semester • Course Balancing: Overwhelmed w/ Science & Math Concurrently • Course Balancing: Reduced Load for retaking difficult courses	Course Prioritization Logic	
• Regrets not planning to take related courses consecutively • Major Change: Set student back • Barrier: Taking the wrong courses due to self-advising • Regrets taking all easy classes early • Barrier: Math / Science Courses should be taken early	Student Driven Barriers	Confronting Educational Barriers

Appendix D

Advisement Online Resources: Website and Canvas Page

Development

Home

Modules

Canvas 101 for Students

SF Resources

Microsoft OneDrive

Library Guide

FlexEd

Purchase Course Materials

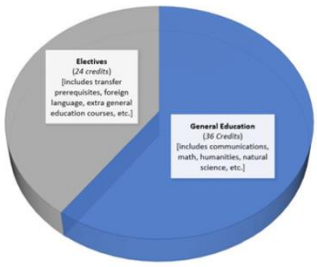
Tutor.com Online Tutoring

Pathful Explore

Academic Planning and the A.A. Degree Overview

The Associate in Arts (A.A.) degree prepares students to transfer to a four-year college or university. Full-time students will typically complete the 60 credit hours that make up an A.A. over the course of about two years. Of those credit hours, 36 credits will be from general education classes, and the remaining 24 credits will be from electives classes taken to fulfill the specific prerequisites of your intended transfer institution's program. If you graduate from [redacted] A.A. degree, your diploma will say **Associate of Arts**. Even though you'll have picked an advisement track so that you're prepared for your upper division coursework, [redacted] doesn't identify this as an individual "major." There is just one A.A. degree.

A.A. DEGREE OVERVIEW



Because A.A. degree and transfer requirements vary based on when you first enrolled at [redacted], and on your academic goals, the [redacted] Academic Advisement Center has developed general education handouts and suggested academic plans that you can use as a guide. Students also have access to a degree audit within their [redacted] account.

In addition to using general education handouts, academic plans, your degree audit, and the Academic Planning Tool, it is also recommended that you consult with your academic advisor (listed in on your degree audit page) at least once per semester to make sure that you are still on track for your goals. Your advisor can help you determine the correct classes to take each semester, and learn how to follow your online degree audit, so that you have a smooth and successful transfer to one of our Guaranteed Transfer partners or to another institution of your choosing!

Appendix E

Example of SCC Associate in Arts (A.A.) Degree Audit

COMMUNICATION

A. Composition (6 Hours)		*B. Applied Communication (3 Hours)*	
ENC1101	[W] College Composition I (3)	ART1001C	Art Fundamentals (3)
ENC1102	[W] College Composition II (3)	ASL2510	D Deaf Culture (3)
		DAA1000	D Dance Fundamentals (3)
		ISS2270	N Multicultural Communications (3)
		MMC2004	Mass Media Studies (3)
		MMC2100	Journalism-Mass Media (3)
		MUT1001	Music Fundamentals (3)
		SPC2300	Interpersonal Communication (3)
		SPC2608	Public Speaking (3)
		TPP1100	Acting Fundamentals (3)
ENC1101:____Planned_____In Progress_____Completed_____		**Course B:____Planned_____In Progress_____Completed_____**	
ENC1102:____Planned_____In Progress_____Completed_____			

MATHEMATICS

6 Hours (Choose either 6 hours from A or 3 hours from A & 3 hours from B)

A. State Core Mathematics		*B. College Core Mathematics*	
MAC1105	College Algebra (3)	MAC1114	Trigonometry (3)
MAC2311	Calculus I/Analytic Geo w/lab (4)	MAC1140	Precalculus Algebra (3)
MGF1130	Mathematical Thinking (3)	MAC1147	Precalculus Algebra and Trig (5)
STA2023	Statistics (3)	MAC2233	Survey of Calculus (3)
		MAC2312	Calculus II/Analytic Geo w/lab (4)
Course 1:____Planned_____In Progress_____Completed_____		MGF1121	Formal Logic (3)
Course 2:____Planned_____In Progress_____Completed_____		MGF1131	Mathematics in Context (3)

HUMANITIES

6 Hours (Choose either 6 hours from A or 3 hours from A & 3 hours from B)

A. State Core Humanities		*B. College Core Humanities*	
ARH1000	Art Appreciation (3)	ARH2050	[NW] Art History I (3)
HUM2020	[W] Introduction to Humanities (3)	ARH2051	[NW] Art History II (3)
LIT1000	[W] Literature Appreciation (3)	DAN1120	[N] World Dance (3)
MUL1010	Music Appreciation (3)	HUM2210	[NW] Ancient World to Renaissance (3)
PHI2010	[W] Introduction to Philosophy (3)	HUM2230	[NW] Renaissance - Enlightenment (3)
THE1000	Introduction to Theater (3)	HUM2250	[NW] Eighteenth Century - Present (3)
		HUM2410	[N] Asian Humanities (3)
		HUM2420	[N] African Humanities (3)
		HUM2461	[N] Latin American Humanities (3)
		MUH2019	American Popular Music (3)
		MUH2501	[N] Introduction to World Music (3)
		PHI2600	[W] Introduction to Ethics (3)
Course 1:____Planned_____In Progress_____Completed_____		REL2000	[NW] Introduction to Religion (3)
Course 2:____Planned_____In Progress_____Completed_____		REL2121	[D] Religion in America (3)
		REL2315	[N] Religions of Asia (3)

NATURAL SCIENCES

6 Hours (Choose at least 3 hours from A & at least 3 hours from B)

A. Biological Sciences		*B. Physical Sciences*	
BSC2005/L	General Biology w/lab (4)	AST1002	Introduction to Astronomy (3)
BSC2010/L	Core Biology I w/lab (4)	CHM1020	Chemistry in Society (3)
BSC2085/L	Anatomy & Physiology I w/lab (4)	CHM1030/L	Elements of Chemistry w/lab (4)
EVR1001	Introduction to Environmental Science (3)	CHM2045/L	College Chemistry I w/lab (4)
		ESC1000	Earth & Space Science (3)
		ESC1000L	Earth & Space Science lab (1)
		GLY2010	Physical Geology (3)
		MET2010	Meteorology (3)
		OCE1001	Oceanography (3)
		PHY1020	Physics and Society (3)
Course 1:____Planned_____In Progress_____Completed_____		PHY2048/L	Physics I with Calculus w/lab (4)
Course 2:____Planned_____In Progress_____Completed_____		PHY2053/L	General Physics I w/lab (4)

SOCIAL SCIENCES

6 Hours (Choose either 6 hours from A or 3 hours from A & 3 hours from B)

AMH2020 or POS2041 or AMH2010 **and** assessment required for Civics Literacy

A. State Core Social Sciences		*B. College Core Social Sciences*	
AMH2010	[CW] US History to 1877 (3)	AMH2091	[D] Survey of African American History (3)
AMH2020	[CW] US History Since 1877 (3)	ANT2301	[N] Human Sexuality & Culture (3)
ANT2000	General Anthropology (3)	ANT2410	[N] Cultural Anthropology (3)
ECO2013	Principles of Macroeconomics (3)	CPO2001	[NW] Comparative Politics (3)
POS2041	[CW] American National Government (3)	EUH2000	[NW] Western Civ. 1: Ancient World (3)
PSY2012	General Psychology (3)	EUH2001	[NW] Western Civ. 2: Medieval to Enlightenment (3)
		EUH2002	[NW] Western Civ. 3: Eighteenth Century-Present (3)
		GEA2000	[N] World Regional Geography (3)
		GEO2420	[N] Cultural Geography (3)
		POT2002	[W] Introduction to Political Theory (3)
		SYG2000	[W] Principles of Sociology (3)
		SYG2010	[D] Social Problems (3)
Course 1:____Planned_____In Progress_____Completed_____		SYG2430	[N] Marriage & the Family (3)
Course 2:____Planned_____In Progress_____Completed_____		WOH2012	[NW] World History to 1500 (3)
		WOH2022	[NW] World History since 1500 (3)

WRITING ACROSS THE CURRICULUM

3 Hours (Choose 1 course)

AMH2035	[W] US in Mod World Since 1945 (3)	HUM2450	[DW] American Humanities (3)
AML2010	[W] Survey of American Literature I (3)	INR2002	[NW] International Relations (3)
AML2020	[W] Survey of American Literature II (3)	LIT2620	[W] Writing About Sustainability(3)
AML2600	[DW] Survey of African American Literature (3)	PHI2102	[W] Applications of Logic (3)
ANT2511	[W] Human Origins (3)	PHI2635	[W] Biomedical Ethics (3)
BSC2862	[NW] Global Change (3)	POS2112	[W] State and Local Government (3)
ENC2210	[W] Technical Communications (3)	REL2300	[NW] Contemp. World Religions (3)
ENG2102	[W] Movies as Narrative (3)	SOP2002	[W] Psychology of Social Behavior (3)
ENL2012	[W] Survey of English Literature I (3)	SYG2323	[W] Introduction to Criminology (3)
ENL2022	[W] Survey of English Literature I (3)	THE2300	[W] Dramatic Literature (3)
ENL2330	[W] Introduction to Shakespeare (3)	WOH2040	[NW] Contemporary World History (3)
GEO2200C	[NW] Physical Geography (3)	**Course:____Planned_____In Progress_____Completed_____**	

ELECTIVES

Course:_____ Course:_____ Course:_____ Course:_____

Course:_____ Course:_____ Course:_____ Course:_____

- 24 credits required for A.A; extra credits in any general education category can count as an elective.
- Many transfer prerequisite courses also count as elective credit. Consider the admission requirements for your intendedtransfer program when choosing electives (many can be viewed from the Transfer Requirements link in your Degree Audit).

[N] INTERNATIONAL OR [D] DOMESTIC PERSPECTIVES COURSE REQUIREMENT

[N] International Perspectives and [D] Domestic Perspectives designate courses that help students develop knowledge of global or domestic conditions and issues, awareness of different world views, and understanding of and respect for cultural differences. International Perspectives courses can also be used for partial fulfillment of the Global Scholars Program requirements. This degree requirement can be met by completing one [N] International Perspectives course **or** one [D] Domestic Perspectives course.

International Perspectives or Domestic Perspectives Course: _____

[W] WRITING INTENSIVE COURSE REQUIREMENT

[A total of 12 hours are required as per state rule 6A-10.030 | [W] Writing Intensive Courses require a grade of "C" or higher]

1. ENC1101 2. ENC1102 3. Writing Across the Curriculum course:_____ 4._____

FOREIGN LANGUAGE COMPETENCY REQUIREMENT

This degree requirement ***(refer to state rule 6A-10.02412 Foreign Language Competence and Equivalence)*** can be met by:

- Presenting a high school transcript showing two credits earned in the same foreign language **OR**
- Earning a grade of "C" or better at SCC in a foreign language course of at least level 2 (ASL1150, CHI1121, FRE1121, SPN1121) **OR**
- Presenting an official transcript from an accredited college showing credit earned with a grade of "C" or better in a foreign language course at least equivalent to level 2 at SCC **OR**
- Submitting proof of a score sufficient to earn foreign language level 2 credit via CLEP, SAT II, AP, AICE, IB, or other appropriate exam accepted for credit or placement at SCC **OR**
- Presenting an evaluated transcript indicating that a high school degree has been earned from an institution where the primary language of instruction is something other than English **OR**
- Present an evaluated transcript showing at least 12 college-level credits earned at an institution of higher education where the primary language of instruction is something other than English

Do you meet the foreign language requirement? _____Yes _____No _____Unknown

Appendix F

Model Semester Plan for the Nursing Pathway

AA Suggested Academic Plan: [Transfer] Nursing

Semester One **Term_____ Year**

Course
ENC1101 [W] (Communications)
MAT1033 (Elective)
Applied Communications (SPC2608 **or** REL2121 [D] **or** MUT1001 recommended)
PSY2012 (Social Science – [Transfer] requirement)
Total

Semester Two **Term_____ Year**

Course
ENC1102 [W] (Communications)
MAC1105 (Math)
State Core Humanities (HUM2020 [W] **or** PHI2010 [W] recommended)
DEP2004 (Elective– [Transfer] requirement)
Total

Semester Three **Term_____ Year**

Course
BSC2085/L (Biological Science – [Transfer] requirement)
CHM1030/L (Physical Science – [Transfer] requirement)
AMH2020 [CW] **or** POS2041 [CW] (Social Science/Civic Literacy)
STA2023 (Math – [Transfer] requirement)
Total

Semester Four **Term_____ Year**

Course
BSC2086/L (Elective –[Transfer] requirement)
MCB2010/L (Elective – [Transfer] requirement)
Humanities (HUM2461 [N] **or** REL2121 [D] recommended) – Consult with advisor
Writing Across the Curriculum (ENC2210 [W] **or** PHI2635 [W] **or** SOP2002 [W] recommended)
Total

Semester Five **Term_____ Year**

Course
HUN1201 (Elective – [Transfer] requirement)
Elective (HSC2531 recommended)
SYG2000 (Elective – [Transfer] requirement)
Total

Using the Suggested Plan

This is a general suggestion for when to take your courses to fulfill both AA and current university admission requirements. Courses which are required or suggested for transfer are bolded in blue. You should consult with your academic advisor and refer to your Degree Audit in your [SCC] account for your specific requirements.

***** NOTE: It may take more than 60 hours to complete both AA requirements and [transfer] requirements. Make sure to*** plan your finances ***accordingly. *****

Other Considerations

- **Initial math, reading, and writing placements may vary**. Consult with your advisor for more information.
- **You must complete courses from each General Education area to graduate**– View your Degree Audit for course listings. We recommend consulting with your advisor each semester to stay on track.
- **Writing Intensive [W] Course Requirement -** A total of 12 hours (hrs.) are required: 6 hours in Communications, and 6 hours from other categories as per state rule 6A-10.030.
- **Do you meet the AA Foreign Language Competency Requirement?** If not, speak with your academic advisor regarding how to include it in your plan.
- **Civics Literacy [C] Requirement**– AMH2020, POS2041, AP Government and Politics: United States (score of 3 or higher), AP United States History (score of 4 or higher), **or** CLEP American Government (score of 50 or higher) are required as per Florida Statute section 1007.25(4). Students entering [SCC] in the 2021 catalog year or later will also need to satisfy the Civic Literacy assessment requirement. For more details visit: Florida Civic Literacy Exam and Graduation Requirements.

*This is an example of an academic plan for nursing students at SCC who want to transfer vertically to a four-year university. They provide model semesters, but do not account for which courses may not be offered, specific course sequences, or the most optimal combinations of courses.