First-Year Semester Abroad at Georgia Institute of Technology:

A Focus on First-Year Student Success and Matriculation Pathways

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LLO 8910 Capstone Seminar II

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Abstract

Georgia Tech's First-Year Semester Abroad program, or FYSA, launched in 2021, providing students with an opportunity to begin their Georgia Tech career abroad. After a short three weeks of learning and preparation on the Atlanta campus during the summer, participants in FYSA study abroad at either the Georgia Tech Europe campus or Oxford campus during the fall semester before returning to the Atlanta campus in the spring. For many college students, the first semester is often critical to building the academic and social foundations of their college career. Students who study abroad experience many personal and professional gains; however, they may not have access to the same traditional resources and programs available to students on the main campus.

Given the infancy of FYSA, Georgia Tech has not had the opportunity to measure or analyze first-year student success. Through this capstone project, we were able to provide FYSA program administrators with more insight into program participants' success in comparison with two other matriculation pathways, including the summer iGniTe program and those students beginning their academic career with a traditional fall start. In this mixed methods study, we were able to measure student success across three factors - academics, relationships, and intercultural sensitivity. Furthermore, we were able to make recommendations based on the literature surrounding student success and study abroad to improve student success outcomes for program participants.

We analyzed qualitative and quantitative data from five administrative interviews, 75 student survey responses, and a data set compiled by the Office of Institutional Research and Planning. The following three research questions guided our study:

1. What are the gains in student success that are unique to students who participate in FYSA?
2. What are the similarities and differences of first-year success for students who begin their GT career through FYSA, the summer iGniTe program, and the traditional fall start?
3. What factors or measures for student success are unique to each of the three student cohorts?

Through our qualitative and quantitative analyses of the data, we discovered several key findings, including:

1. Administrators and students define first-year student success similarly; however, administrators tend to look beyond the core areas of academics, mental health, and relationship development to include a sense of belonging and comfort on campus.
2. Although FYSA students experienced the highest average cumulative GPA across the three matriculation pathways, they scored lower in aspects of academic support and resources.
3. FYSA students found their reintegration to campus to be difficult upon their return to Atlanta in the spring semester.
4. FYSA students, on average, scored highest among the matriculation pathways in areas of relationship development with the exception of developing relationships with their peers.

Drawing on these findings and existing literature, we developed three recommendations for FYSA administrators. These recommendations include capitalizing on virtual academic

support while abroad, developing a mentorship program, and moving the orientation course, GT1000, to the spring semester.

Acknowledgements

Thank you to Vanderbilt University - Peabody College for the opportunities to grow and learn as doctoral students and candidates. The support and encouragement from our professors throughout the program helped prepare us to tackle challenges, notably this final capstone project, and to become leaders in our organizations and beyond.

Thank you to Dr. Erin Henrick for being an encouraging, realistic, and supportive capstone advisor. Thank you for staying positive and providing a constant guiding light when many roadblocks appeared!

Thank you to Georgia Tech, the Office of International Education, and the Office of Undergraduate Education for making our capstone project possible. We learned so much during this process – thank you for your willingness to let our team in with open arms.

From Stephen Doak

To my family, this three-year process was a team effort. You mean the world to me, and I could not have accomplished this milestone without your love and support. Thank you for always teaching me to "do the job right."

Thank you, Jacob, for being my reason "why." I wish for you to enjoy life and to go after your dreams wherever they may take you. I will always be your biggest fan. I love you!

Lastly, thank you, Emma Hanna and Jennifer Whitlow, for your teamwork, dedication, and effort. You were the best partners to go through this process alongside and together we made a difference. I am forever thankful to you both and look forward to lifelong friendships!

From Emma Hanna

Thank you to my fellow cohort members of the Fall 2022 class. I learned so much from each of you in and outside of class. I'm grateful for your unending support, realism, and humor. I could not have completed this program without you.

Thank you to my family for making this program possible and for helping me achieve my goals. You have instilled in me enthusiasm, motivation, curiosity, and a love of learning. Thank you for always believing in me and showering me with love and encouragement.

Finally, thank you to my capstone team, Jen Whitlow and Steve Doak, for being incredible teammates and partners for the capstone project and also throughout this program. We played to

our strengths and asked for help when we needed it. I'm eternally grateful for your commitment to the project, open feedback and honesty, and encouragement.

From Jennifer Whitlow

To my family, thank you for your ongoing love and support as I've continued my passion for learning and for understanding when I had to bring schoolwork along with me on various trips and to family events. Knowing that I always had your support and encouragement kept me going as I worked towards this lifelong goal.

To my friends, students, and colleagues, thank you for your support and encouragement as I tried to find balance between life, work, and school.

To Dr. Ayanna Howard, thank you for encouraging me to go for it and submit my application to the program four years ago. Without that push, I would not have had the confidence to apply and pursue this degree.

To my fellow cohort members, thank you for being the best part of this program. I have learned so much from each of you over the past three years and look forward to continuing to learn from all of you as we begin the next phase. Your encouragement, willingness to share your personal experiences, and all of the laughs we shared made this an amazing experience.

To Stephen and Emma, thank you for being the best partners for this project. It has been a pleasure to do life along with the two of you as we've worked our way through this program and capstone project. I am so appreciative of the support, encouragement, and understanding that you've both shown me throughout this process. I look forward to many years of continued friendship and cheering you both along as you move forward in the next phases of your personal and professional journeys.

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Introduction

In 2021, Georgia Institute of Technology launched its First-Year Semester Abroad program, or FYSA. The goal of FYSA is to provide undergraduate students with an opportunity to begin their enrollment at Georgia Tech with an international and experiential learning experience. Specifically, incoming first-year students enrolled in FYSA spend their first semester abroad, studying at one of Georgia Tech's international campuses.

As the program only launched in fall 2021, student success has not yet been measured or analyzed by program administrators in the Office of International Education and the Office of Undergraduate Education. The novelty of the program provided us with the opportunity to critically examine and analyze FYSA as our capstone project. Accordingly, we identified three key goals for our study: First, to develop a deeper understanding and familiarity with the FYSA program and its purpose. Second, to determine key student outcomes by examining student success measures of academic achievement, relationship development, and intercultural sensitivity for FYSA students as compared to two other matriculating pathways (specifically, students enrolled in a summer-start program called "iGniTe," as well as traditional fall start students). And third, to use our findings and analyses to provide Georgia Tech with data-driven recommendations to improve student success outcomes for future FYSA cohorts.

To determine the factors and gains in student success, we analyzed qualitative and quantitative data from five interviews, seventy-five student surveys, and a data set compiled by Georgia Tech's Office of Institutional Research and Planning. Using means and standard deviations, we identified similarities and differences among academic factors and scores from student surveys in relation to academic success, relationships, and intercultural sensitivity. Our study revealed, among other things:

1. Both FYSA and traditional fall start students saw a slight drop in GPA from the fall to spring semester.
2. The effectiveness of each pathway on the facilitation of academic support varied between pathways; however, on average, FYSA students scored lower in aspects of academic support compared to traditional fall-start students.
3. FYSA students felt that reintegration to Georgia Tech in the spring was difficult.
4. The success of relationship development, on average, was scored highest by FYSA students, except in developing relationships with peers.

Drawing on findings and literature, we recommend that Georgia Tech make certain modifications to the FYSA program, specifically: increase or leverage virtual academic support offerings for FYSA students, develop a mentorship program to help facilitate FYSA student reintegration in the spring semester, and move the new student orientation course (coded "GT1000") to the spring semester.

Context: Partner Organization

Georgia Tech is the 15th ranked public university and 44th ranked national university by U.S. News and World Report (2022-23 rankings).. Located in downtown Atlanta, Georgia Tech is widely known for both academic rigor and tough admission standards. Among other competitive programs, the school's engineering and computer science programs are world-renowned. The university is also home to a global community of students, faculty, and staff across its three campuses: the main campus in Atlanta, Georgia, as well as international campuses in France and China. In addition to its international campuses, more than 2,000 students participate annually in 90 exchange programs and 30 faculty-led programs.

Furthermore, students have the opportunity to participate in Georgia Tech's global internship programs in more than 40 countries. These opportunities provide 52% of all students with an international experience before they graduate. However, many Georgia Tech students cannot go abroad either because of coursework requirements for their major(s) or participation in internships, in addition to other socioeconomic factors that make it difficult for some students to study abroad. Through the implementation of FYSA, Georgia Tech is offering more students the opportunity to expand their learning beyond the Georgia Tech campus early in their undergraduate careers.

FYSA is a selective program, accepting up to 50 students at each international campus location from the incoming first-year class, which averages around 3,000 students. The executive leadership team for FYSA comprises the interim Vice Provost for Undergraduate Education, the Vice Provost for Enrollment Management, and the Executive Director for the Office of International Education. Providing further leadership for the program are faculty directors for each international campus location. Additionally, Georgia Tech is currently in the process of hiring a program and operations manager to support operational requirements of FYSA.

In Fall 2021, the first FYSA cohort of 39 students spent their first semester on Georgia Tech's Europe ("GTE") campus in Metz, France. Prior to traveling abroad, however, students were required to complete two courses during a six-week summer session at Georgia Tech's Atlanta campus: GT1000, a one-credit orientation or "introduction to college"-type course, and APPH1040, a two-credit class called "Scientific Foundations of Health." Together, GT1000 and APPH1040 fulfill the orientation requirement prior to students' fall semester coursework. In

addition, the summer orientation provided FYSA students the opportunity to make connections, select fall classes, and prepare for the semester on Georgia Tech's Europe Campus.

Georgia Tech implemented two changes to FYSA in advance of the program's second cohort in fall 2022. First, Georgia Tech added a second location in Oxford, England to accommodate more participants. The Oxford program includes courses taken on campus at the University of Oxford, followed by several weeks continuing their courses as they travel across Europe. Second, Georgia Tech condensed the summer courses taken on the Atlanta campus from six to three weeks. Because our study focused on the inaugural cohort, we did not have the opportunity to evaluate the impact of these programmatic changes.

While our primary focus was on evaluating FYSA student success measures, we also looked at two other student cohorts, iGniTe and traditional fall start students, to determine similarities and differences among the three matriculation pathways (see Appendix A). iGniTe participants begin their undergraduate careers at Georgia Tech in the summer. Over five weeks of summer instruction, iGniTe participants enroll in six or seven credits of core or elective courses, including GT1000. The intention of iGniTe is to help prepare students for their college courses, learn about the campus, and make friends and connections ahead of the traditional fall start. In summer 2021, the first cohort of FYSA students participated in summer courses on the Atlanta campus alongside students enrolled in the iGniTe program. Traditional fall-start students arrived on Georgia Tech's campus in mid-August and began their coursework during the first semester, which also includes the GT1000 course.

Problem of Practice

The first semester of college is often a critical time in which first-year students begin to build the social and academic foundations of their undergraduate career, including via exposure to programs and services focused on academic, personal, and professional support; the fostering of relationships with faculty, teaching assistants, advisors, and classmates; and the ability to engage in activities like student organizations and career development opportunities. Although FYSA is based on a cohort model with a low faculty-to-student ratio and provides students with unique opportunities, students who begin their undergraduate careers abroad do not always enjoy the same level of access to the more traditional college experience.

Having just completed its first cohort, Georgia Tech did not have the opportunity to evaluate FYSA student success across different dimensions and instead focused on making adjustments to program logistics and the student experience during the course of the program. By partnering with FYSA, we are able to provide program administration with a deeper understanding of the student success outcomes for FYSA participants compared to their peers. It is our hope that this will provide program leadership with the information needed to ensure that FYSA students experience equal, or greater, success across the three dimensions evaluated as their peers who begin their Georgia Tech career through one of the other first-year options.

Research Synthesis

The purpose of this capstone project was to evaluate gains in student success for FYSA participants, as compared to iGniTe and traditional fall-start students. Therefore, we investigated student success factors unique to study abroad participants as well as factors unique to summer orientation programs. For our research, we first needed to understand and conceptualize student success. Through our conversations with FYSA administration and our examination of the

literature, we conceptualize student success through the lens of academic achievement, relationship development, and intercultural sensitivity in order to gauge how FYSA participants compare to other first-year student groups.

Student Success

Achieving success in college is the ultimate goal for all undergraduate students, regardless of matriculation pathway. Baum and Ma (2007) highlight that success in college helps students meet long-term personal and career goals, and also provides monetary and psychosocial benefits for the present and future. Given the many definitions and facets of student success in the literature, ranging from academic to psychological to economic, conceptualizing "student success" can be challenging. Traditionally, higher education institutions use grades as the most important indicator of college success (Lounsbury et al., 2009). However, GPA as a predictor of student success does not paint a complete picture. Pascarella and Terenzini (2005) integrate existing literature on the effects of college on students, underscoring both performative criterions (such as GPA), and affective criterions (such as life satisfaction). For institutions to retain students, it is crucial that students achieve both progress towards academic goals and overall satisfaction with the school (Braxton et al., 2007). When students fail to maintain a minimum GPA and do not report a positive college experience, retention rates decrease (Wright, 2008; Yu & Kim, 2008).

Krumrei-Mancuso et al.'s (2013) research finds six psychosocial factors that predict first-year college student success: academic self-efficacy, organization and attention to study, stress and time management, involvement with college activity, emotional satisfaction with academics, and class communication. The authors found that academic self-efficacy and organization and attention to study were predictive of first-semester GPA and that the three

strongest predictors of life satisfaction were stress and time management, involvement in college activity, and emotional satisfaction with academics (Krumrei-Mancuso et al., 2013). Additionally, as we look at psychosocial factors, we recognize the demographic characteristics and motivations with which each student enters university. Braxton and Hirschy (2005) explain that student entry characteristics, such as gender, racial/ethnic background, socioeconomic status, academic preparedness, and first-generation and legacy status, shape students' initial goal of degree attainment as well as initial commitment to the institution. In turn, the authors argue that a student's initial positive commitment to the institution yields a higher level of psychosocial engagement (Braxton & Hirschy, 2005). For the purpose of our project, we examine student success through the prism of relevant demographic factors, academic achievement measured through GPA as well as progress towards graduation, and student life satisfaction measured through relationships developed.

Existing literature also highlights factors that inhibit student success in higher education, notably due to food insecurity, homelessness, health and mental health issues, high number of hours working, disability, caregiving responsibilities, and trauma (Guzzardo et al., 2020). Unfortunately, our data collection for this project did not explicitly capture whether our student groups experienced any of these factors. Nonetheless, it is important to recognize their potential significance on measures of student success.

Academic Achievement

College academic achievement is the strongest predictor of educational attainment, with college grades being consistently and strongly related to retention, persistence, and graduation (Pascarella & Terenzini, 2005; Mayhew et al., 2016). The strong connection between grades and student persistence also holds when controlling for pre-college attributes such as high school

GPA and high school curriculum rigor (Mayhew et al., 2016). Even though grades do not always indicate student learning or level of mastery, they are the primary means by which institutions make judgements about each student's academic performance. As it relates to educational attainment, students with low grades are less likely to persist or graduate compared to students with average grades, whereas the difference between students with average and high grades in persistence is much less noticeable (Mayhew et al., 2016). Lastly, Pascarella and Terenzini (2005) found the link between academic achievement and student persistence was strongest among first-year students. As we evaluate first-year students through the lens of academic achievement, GPA as a measure serves as a strong indicator of success.

Recent studies have also explored the connection between studying abroad and college completion. Malgram and Galvin's (2008) research dispels the myth that studying abroad delays graduation, finding a statistically significant difference in graduation favoring those who study abroad versus those who did not. Additionally, students who study abroad had overall higher graduation rates, holding for constants such as demographics, student preparedness, and risk for attrition (Malgram & Galvin, 2008). Bhatt et al. (2022) lend further support to the body of literature showing higher student success for those who study abroad, demonstrating that studying abroad fosters student engagement and promotes college completion. Metzer (2006) even contends that studying abroad is a recommended intervention to enhance retention for high-risk students. There are three factors that may complicate establishing a conclusive link between study abroad and college completion: academic selectivity, higher academic achievement, and influence of academic advising (Bhatt et al., 2022). Even controlling for these factors, however, Bhatt et al. (2022) found that students who studied abroad were 8% more likely to graduate within 6 years, and 14.8% within 4 years, as opposed to those who did not.

Furthermore, students who studied abroad had a 0.12 higher GPA upon graduation and earned 1.7 more credit hours than students who did not study abroad (Bhatt et al., 2022).

Relationship Development

Research over the past twenty years finds that quality interactions and relationships with college friends are often positively related to student retention and persistence (Mayhew et al., 2016). We conceptualize interactions and relationships through personal and professional connections. We want to understand how first-year students connect with each other and faculty as well as examine the benefits of those connections. Astin (1999) argues that student involvement is the key to understanding student persistence. Environmental factors such as student residence on campus, participation in social and extracurricular activities, and even on-campus jobs develop students' strong identification and attachment to undergraduate life (Astin, 1999). Astin's student involvement theory maintains that student learning increases when students are more involved in both academic and social aspects of the college experience (Krumrei-Mancuso et al., 2013).

Tinto's (1975) Model of Persistence for college students emphasizes the value of social networks, arguing that students who are able to fully integrate socially are more likely to thrive in a college environment. Braxton and Lee (2005) support this framework, finding a high level of reliability between students' social integration and institutional commitment, which in turn leads to higher student persistence. Furthermore, Tinto (1997) suggests that institutional characteristics, such as the classroom environment or cohort-based learning, can positively benefit students' social integration. Stadtfeld et al. (2018) specifically measured three dimensions of student relations: positive interaction, friendship, and studying together and found

that students who remained isolated within the social network performed worse and were at higher risk of academic failure, even accounting for individual and socioeconomic factors.

Similarly to peer relationships developed within cohorts, we also sought to examine how students make connections with faculty and staff and to assess the potential benefit of such connections. Felten and Lambert (2020) highlight the importance of faculty-student relationships and underscore their impact on student learning, sense of belonging, and persistence. Authors Guzzardo et al. (2020) explain that faculty can help counterbalance structural inequities and challenges when they build relationships with students, engage them in learning, and connect them to university resources. Most crucially, faculty interactions begun in the first-year influence the levels of mentorship students receive their senior year, particularly for high or at risk students (Fuentes et al., 2014).

Intercultural Competence

As the world has become increasingly diverse and interconnected, and with heightened emphasis in the education sphere on diversity and inclusion, there is a greater need for global citizenship and intercultural education at all levels. Intercultural learning refers to the development of awareness of one's own culture and other cultures with the intention of equipping students with skills to navigate an ever-increasing global society. Intercultural sensitivity refers to the ability to think and act in interculturally appropriate ways (Hammer et al., 2003). A survey conducted by Daniel et al. (2014) underscores the importance of developing intercultural sensitivity among American students, noting that almost 40% of companies missed out on international business opportunities due to a lack of internationally competent personnel. Globalization across industries has increased the need for individuals who can creatively problem solve (Cho & Morris, 2015). Study abroad is one way in which higher education

institutions can help prepare students for living and working successfully in a multicultural world.

While successful future employment of students is a long-term goal of higher education institutions, we want to underscore the skills developed during study abroad. Such skills can benefit students in the short-term (academic achievement) and long-term (employment and personal success). One such skill that applies in both venues is interculturality. Fong (2020) proposes evaluating students' intercultural competence with the cross-cultural adaptability inventory (CCAI) to quantitatively measure four dimensions: emotional resilience, flexibility/openness, perceptual acuity, and personal autonomy. The dimensions of cross-cultural adaptability can positively contribute to students' ability to manage new and/or stressful situations, cognitive flexibility, creative problem solving, interpersonal communication, respect for other cultures and perspectives, and self-confidence (Cho & Morris, 2015; Fong, 2020; Kim, 2001). Munoz et. al (2006) argue that such intercultural skills are challenging to teach and build in a traditional classroom setting due to the lack of concrete experiences with other cultures. Study abroad programs allow students to build intercultural skills in real-life situations.

Matriculation Pathways

Beyond the traditional fall start, Georgia Tech offers incoming first-year students two matriculation pathways: iGniTe summer program and FYSA. We wanted to better understand what the literature says about these types of programs, especially as it relates to first-year student success. Choate and Smith (2003) explain that first-year students, in particular, need to build confidence, develop skills, learn financial management, and receive social support. Pike et al. (2010) critique causal claims about outcomes of first-year programs because of students' self-selection into the programs. The authors found that those participating in learning

communities do report higher GPA when controlling for demographic criterion; yet, when accounting for self-selection variables, the connections were insignificant. The concern in drawing causal conclusions is that on the basis of self-selection, the groups studied cannot be equal because they do not share the same motivations nor are they selected at random (Pike et al., 2010). Even as we evaluate three groups of students' success after the first year, it is imperative that we recognize the differences in motivation from students' self-selection into the different matriculation pathways.

Summer orientation programs differ greatly by institution. The majority of programs, however, share a common goal to provide early academic and social support to students, to develop study and time management skills, to learn to utilize university resources, and to provide exposure to college coursework and faculty (Cabrera et al., 2013). Orientation programs seek to ease the transition from high school to college and to academically and socially prepare students for successful college careers. Deggs (2011) argues that higher education orientation programs are one of the most effective strategies in promoting student persistence and retention. However, authors Cabrera et al. (2013) find that while participation in summer orientation programs predicted first-year GPA and retention, it did not find a significant relationship when controlling for first-year college experiences and student development. Burgett and Magon-Jackson's (2008) longitudinal study further found that while summer orientation programs had a positive impact on first-year and second-year GPA, especially among black students, it did not show impact beyond the second year. While the research is mixed on the quantifiable and longitudinal benefits of orientation programs, persistence among students exists from the first to second year and students who participate can benefit academically and socially (Burgett & Magon-Jackson,

2008). Most notably, students from first-generation, low-income, and minoritized communities show the greatest gains through orientation programs (Cabrera et al., 2013).

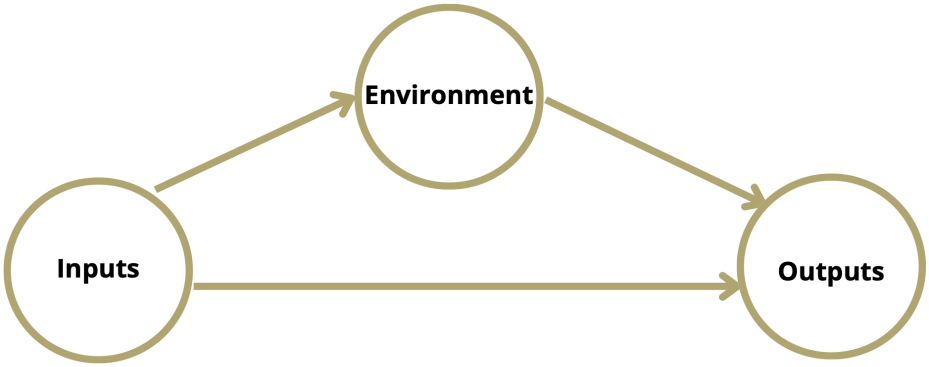
When considering the effects of orientation programs, we also wanted to better understand what motivates students to participate in programs outside of a traditional fall start. When considering self-selection bias, students demonstrate high levels of intrinsic and extrinsic motivation when they make the choice to study abroad. Petzold and Moog (2017) explain that "the intention to study abroad is shaped by students' evaluation of expected benefits of studying abroad, resources and restrictions regarding its realization, and normative aspects" (p. 35). A student's past experience, culture, familial expectations, personal interests, and so on can be considered normative factors. For instance, Lörz et al. (2016) note that students with a higher socioeconomic background demonstrate greater intent to study abroad. Petzold and Moog (2017) highlight the multistage processes that students undertake in determining the value of studying abroad, predominantly its perceived benefits, such as future employment, personal growth and development, and travel. Both underlying demographic factors and motivational criterion underscore differences between FYSA participants and students from the other two matriculation pathways.

Conceptual Framework

We ground our research in Astin's (1984) theory of involvement. Astin's framework underscores various factors that affect college students' experience and success. He conceptualizes student involvement to be "the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1999, p. 518). What differentiates Astin's theory of involvement from other theories of retention and persistence is the focus on the relationship between student behaviors and the role of the learning environment, in and out of the

classroom (Astin, 1984). Pascarella and Terenzini (2005) provide a visual representation of Astin's 1984 framework, showcasing the relationship between environment and outcomes, as well as the relationship between the two as it relates to student input.

Figure 1: Astin's (1984) Theory of Involvement



Astin's framework identifies three interconnected elements as critical for assessing and understanding student engagement: inputs, environments, and outcomes. We chose this theory because it encompasses all three facets of student success that we are exploring. First, inputs include student characteristics, such as relevant demographic characteristics, prior academic achievement, and predispositions. Inputs are what students are equipped with when they begin their careers at Georgia Tech. Second, the environment describes the first-year student experience and available matriculation pathways. It also encompasses the communities where students live and the interpersonal relationships, both personal and professional, that students develop within their pathways and communities. Finally, outputs highlight student success factors, such as academic achievement and success in developing interpersonal relationships. We also consider the opportunities available to students at Georgia Tech as outputs because those opportunities are determined by academics and relationships developed in their first year. It is

worth noting that we classify intercultural sensitivity as both an input, based on student predispositions, and an output, as a result of environmental experiences.

Data Collection and Analysis

Using our conceptualization of student success, we looked at data tied to the areas of academic success, relationship development, and intercultural sensitivity to answer the following investigative questions:

1. What are the gains in student success that are unique to students who participate in the three different matriculation pathways?
2. How does first-year student success for FYSA participants compare to those who begin their Georgia Tech career through one of the other first-year matriculation pathways?
3. What are the student success factors that are unique to study abroad participants?

First, to determine academic success, we used measures of GPA and progress towards graduation. Using students' cumulative GPAs, we hoped to learn if there were direct impacts on GPA from participation in one of the three examined matriculation pathways. Similarly, we reviewed students' attempted cumulative credit hours to identify similarities and differences that arose among students along various matriculation pathways as they progressed towards graduation in their first year at Georgia Tech. In addition to these quantitative measures, we further evaluated the perceived effects of these factors on student success through a series of open-ended and Likert scale survey questions. Furthermore, we identified ways in which a student's participation in a particular matriculation pathway impacted their perspective on the academic resources and support received, including tutoring, available office hours, and relationships with faculty and peers.

Second, we aimed to explore the interpersonal relationships students develop among their peers in their matriculation pathway and across other programs, as well as relationships with faculty and staff members through open-ended and Likert scale questions included in the student survey. The data gathered from the survey provided a better understanding of the ways in which the various pathways fostered personal and professional relationships, as well as their effectiveness or limitations.

Finally, as a leader in global education, one of Georgia Tech's goals is to develop students' intercultural competence through study abroad and other international opportunities. Using survey results from questions that focused on a student's comfort engaging with and understanding those from other cultural backgrounds, we learned more about how participation in the various matriculation pathway programs affected student's intercultural sensitivity. Additionally, the survey results underscored differences and similarities between the various pathways.

Data Collection

We collected data from student participants in each of the three matriculation pathways, as well as from campus and program administrators. We employed two methods – student surveys and a data report provided by Georgia Tech's Office of Institutional Research and Planning (IRP) – to collect student data. Interviews with campus and program administrators also helped identify the definition of student success used when designing each of the pathways in addition to providing background and context for the surveys and data reports. Lastly, the report provided by IRP included important information pertaining to basic student demographics, such as ethnicity, gender, first-generation status, residency status, living learning community participation, and major. Furthermore, this report provided key academic information with the

inclusion of GPA and credit hours, along with each student's matriculation pathway – iGniTe, FYSA, or traditional fall start.

Throughout the data collection process, we encountered several hurdles, including delays in receiving the data, changes to survey distribution, and scheduling conflicts for administrator interviews. Despite these hurdles, we were able to complete the data collection and analysis process by early November 2022.

Institute Data Report

Georgia Tech's Office of Institutional Research and Planning provided a data report on October 13, 2022 containing matriculation, demographic, and academic data for 2915 students who began their first year at Georgia Tech in summer or fall 2021. Although the entering class totaled more than 3400 students, 559 students were excluded from the report due to being under the age of 18 at the time of matriculation. Student data was anonymized with a randomly generated identification number and filtered by their matriculation type. Included in the report were 2386 students matriculating in fall 2021, 487 students participating in the iGniTe summer program, and 10 students who participated in FYSA. One concern that arose with the data report is the inclusion of only 10 participants in the FYSA program despite the program administrators informing us that there were 39 participants in the first cohort. We know that at least one student was under the age of 18 at matriculation, but were unable to account for the remaining students in the way in which they were classified in the report at the time of submitting the paper.

In addition to the three matriculation cohorts that we are evaluating, 30 students were identified as being participants in the Challenge program, a 5-week residential summer bridge program hosted by The Office of Minority Educational Development, or OMED. Even though students participating in the Challenge program do not receive credit for the courses taken during

the summer, it was important to identify these students separately from the traditional fall start students as they do have a different experience matriculating into Georgia Tech. We chose not to include these students as a fourth matriculation pathway due to student demographics and the non-credit based aspect of the program. While all incoming first-year students are eligible to apply to participate in the Challenge program, the program is historically targeted at students from underrepresented minority groups. Additionally, the Challenge program offers courses taught by Georgia Tech professors that cover subjects ranging from lab science to computer science. While these courses are taught by Georgia Tech professors and are equivalent to one or more Georgia Tech courses, there may be slight differences in course expectations or the content taught compared to official courses. Moreover, Challenge participants are not considered to be officially enrolled in the university during the program.

The data report we received included 30 data points within the categories of matriculation, demographics, and academic information. While we originally included living learning communities within the academics category, we chose to create a separate category for this information in the final analysis. Table 1 includes the individual data points within each category of data. For the final analysis, we chose to exclude the randomized identification number and the living learning communities available only to upperclassmen as they did not apply to the participants in our study. The exclusion of these resulted in a report containing a total of 26 data points for each student.

Table 1: Institutional Data Report

Matriculation Information:	• First Term • Term Start Date	• Student Type
Demographics:	• Gender • Race/Ethnicity • Residency • Citizenship • Legacy Information	• Underrepresented Minority Indication • First Generation Indication
Academics:	• Major Code • Major Description • Cumulative GPA (Summer 2021, Fall 2021, Spring 2022)	• Credit Hours at Matriculation • Attempted Cumulative Credit Hours (Summer 2021, Fall 2021, Spring 2022)
First-Year Living Learning Communities:	• Explore • Global Leadership • Grand Challenges • Honors Program	• Impact • First-Year Semester Abroad • iGniTe

Institute Data Report Analysis For the quantitative analysis of the institutional data report, we divided the data into four sets – all members of the class of 2025, fall start, FYSA, and iGniTe. The first analysis focused on the demographics of each cohort in an effort to identify relevant differences within the demographics across each cohort of students, including gender, ethnicity, residency, and first-generation status. We calculated the total number of students for each classification within a data point and converted each total into a percentage for that cohort. For the underrepresented minority, legacy, and first-generation indicators, we looked at the percentage of students who indicated they identified with this indicator. Gender, race/ethnicity, residency, and citizenship included additional classifications within each category (see Table 2). In the final analysis and findings, students who were classified as "Alien, Non-Resident" were identified as international students. All others were identified by their residency status of in-state or out-of-state.

Table 2: Data Classifications

Gender	• Male • Female	
Race/Ethnicity	• American Indian or Alaska Native • Asian • Black or African American	• Hispanic or Latino • Two or more • Unknown • White
Residency	• In-State Resident • Out-of-State Resident	
Citizenship	• US Citizen • Alien, Resident • Alien, Non-Resident	

The second analysis focused on academic success, specifically looking at cumulative GPA for each semester, the total number of credit hours at the time of matriculation (from advanced placement (AP), international baccalaureate (IB), or dual-enrollment courses), and the cumulative attempted credit hours for each semester. With the cohorts, we calculated the mean for each data point. Additionally, we calculated standard deviation to identify any outliers or extremes within each. Finally, we calculated the delta between each semester in regard to cumulative GPA and cumulative attempted credit hours to identify changes that may be correlated to matriculation pathways.

Student Surveys

Using Qualtrics, we designed a survey (see Appendix D) to collect quantitative and qualitative data from students through the use of Likert scale and open-ended response questions adapted from Chen and Startosta's Intercultural Sensitivity Scale and the "Student Integration, Persistence, & Satisfaction (SIPS) Survey" developed by the John Gardner Institute. The Likert

scale questions focused on the student's perceived effects of their matriculation pathway on academic success, relationship development, and intercultural sensitivity. The open-ended questions focused on selection of pathways, the student definition of first-year success, if they felt they had a successful first year and why, and the factors they felt most contributed to their first-year experience.

Due to unforeseen circumstances, we were unable to send the survey out to the entirety of the class of 2025 through official channels within the Office of Undergraduate Education. In an effort to receive survey responses prior to our collection deadline, we had to modify our distribution plan methods using a convenience sample. Surveys were distributed via the Class of 2025's WhatsApp group and Discord server, as well as two mailing lists. For email distribution, an initial request and reminder were sent out by FYSA and operations manager to the members of the first cohort of FYSA students (see Appendix B). An additional email request was sent by a teaching assistant to a mailing list for first-year students who took CS 1100, a first-year seminar course for students majoring in computer science or computational media, in fall 2021.

At the close of the student survey deadline, we received 75 responses, a response rate close to 2%. Included in the 75 responses were 12 from FYSA participants, 9 from iGniTe program participants, and 54 from traditional fall start students. Despite the low response rate to the survey, we received valuable data for our analysis.

Survey Analysis We took a quantitative approach in analyzing student responses to the Likert scale questions. Students responded to each question in this section of the survey using a scale of answers ranging from "strongly disagree" to "strongly agree." Each response was converted to a numeric scale of 1-5 where "strongly disagree" equaled 1 and "strongly agree" equaled 5.. We then used means and standard deviation to analyze the effects of the matriculation

pathways across three areas. For academic success, we looked at factors including GPA, tutoring and faculty support, and academic resources. Relationships looked at connections developed with students/peers, faculty and staff, as well as overall relational growth. Students participating in the FYSA cohort also received an extra question about the reintegration process upon their return to the Atlanta campus in spring 2022. Finally, intercultural sensitivity explored concepts like interactions with individuals from other cultures and skills such as flexibility and open-mindedness towards other cultures.

In addition to the Likert scale questions, a quantitative analysis was completed for the open-ended question "Did you feel successful in your first-year at Georgia Tech? Why or why not?" For this question, we totaled the number of responses that fell into each of the following categories – successful, somewhat successful, and not successful – for each cohort of students. A successful or unsuccessful first-year was defined by responses that were definitive in their experience as being successful or unsuccessful across all dimensions. Somewhat successful was defined by those responses that indicated they felt successful in one area but not another. For example, a student may have felt successful in the development of friendships and getting involved in student organizations; however, they felt that they experienced a poor academic performance or GPA.

For all four open-ended response questions, we did a qualitative analysis using inductive and deductive coding. Our deductive codes of academic, relationships, and intercultural sensitivity stemmed from the literature. Our inductive codes of belonging and engagement, as well as mental health, came from the administrator interviews in addition to the student responses to the open-ended questions. To code the questions from the student surveys, all responses were copied into a document separated by student matriculation cohort. All of the

deductive and inductive codes were assigned a color, and we created a list of terms and phrases associated with each main code (see Table 4). A separate spreadsheet was created with the codes, as well as the terms and phrases used for each, and a total was calculated for each occurrence in the student responses broken down by matriculation pathway.

Table 4: Qualitative Analysis Codes - Student Survey Responses

Deductive Codes:	**Academics:**	• Acceptance or Pathway • Resources • Course-load	• Coursework • Grades or GPA • Major or Class Selection
	Relationships:	• Friendships • Professors • Mentorship	• Networking • Cohorts
	Intercultural Sensitivity	• Intercultural Growth • Open-mindedness	• Respect
Inductive Codes:	**Belonging and Engagement**	• Reintegration • Extracurriculars	• Internships • Professional
	Mental Health	• Time Management • Stress • Work/Life Balance	• Transition • Individual Growth • Financial

Administrator Interviews

Semi-structured interviews were conducted with various program and university administrators from across the Georgia Tech campus from September into early November 2022 (see Table 5). We chose to interview administrators from the Office of Undergraduate Education, Office of International Education, Office of Undergraduate Admission, and Office of Enrollment Management because they were intimately involved (either from a design perspective or operationally) with first-year student initiatives and all three first-year matriculation pathways offered at Georgia Tech.

During each interview, individuals were asked a series of semi-structured, open-ended questions (see Appendix E). The first set of questions asked participants to describe their role at

Georgia Tech and their engagement with various first-year student initiatives and matriculation pathways. The second set of questions dove deeper into the definition of student success used when designing each initiative or pathway, as well as what measures were used to evaluate student success. Lastly, each participant was asked for their personal definition of first-year student success based on their role and experience throughout their career in higher education.

Table 5: Schedule of Administrator Interviews

Participant:	Title:	Interview Date & Platform:
Dr. Paul Kohn	Vice Provost of Enrollment Management	Thursday, September 22, 2022 - Zoom
Amy Henry	Executive Director of International Education	Monday, October 3, 2022 - Zoom
Rick Clark	Asst. Vice Provost of Enrollment Management and Executive Director of Undergraduate Admission	Monday, October 3, 2022 - In-person
Dr. Cynthia Jennings	Asst. Dean of Students and Director of New Student & Transition Programs	Tuesday, October 4, 2022 - Zoom
Dr. Steven Girardot	Vice Provost of Undergraduate Education	Tuesday, November 1, 2022 - Zoom

Interview Analysis Similar to the open-ended questions on the survey responses, we performed a qualitative analysis using inductive and deductive coding. We chose to use the same deductive codes of academic, relationships, and intercultural sensitivity based on our initial conversation with our client and student surveys. However, through the interviews, we identified the inductive codes of program administration and belonging and engagement. To code the interviews, interview transcripts were downloaded from Zoom and their contents verified via review of Zoom recordings to ensure the most accurate transcript for analysis. As with the surveys, each of the deductive and inductive codes were assigned a color, and a list of terms and phrases associated with each main code was developed (see Table 6). A spreadsheet was created using the table of codes, as well as the terms and phrases used for each, and a total was calculated for each occurrence throughout all of the interviews.

Table 6: Qualitative Analysis Codes - Administrator Interviews

Deductive Codes:	**Academics:**	• Retention • GPA	• Progress towards Graduation
	Relationships:	• Peers • Professors	• Teaching Assistants • Mentors
	Intercultural Sensitivity	• Admission • Orientation or Transition	• Sustainability • Problem Solving • Communication
Inductive Codes:	**Belonging and Engagement**	• Living Learning Communities	• Student Organizations • Community
	Program Administration	• Teamwork • Data • Recruitment	• Improvement • Program Oversight

Findings

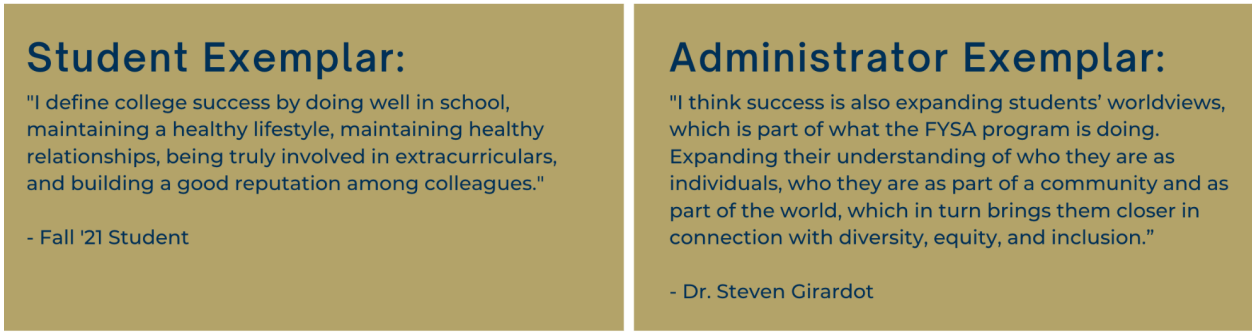
Several key findings surfaced from our quantitative and qualitative analyses of the data collected through the surveys, data reporting, and administrator interviews. These findings include a consensus definition of student success and notable findings across academic success, relationship development, and intercultural sensitivity. Our findings not only guide our recommendations for FYSA, but have brought attention to other areas that may be of interest for additional studies by Georgia Tech's Office of Undergraduate Education.

General Findings

Defining Success To help guide our findings, it was necessary to first understand the definitions of student success from both the administrative perspective and the student perspective. It was important to understand if the definition of success used when designing various matriculation pathways aligned with the student definition of those experiencing those pathways. Through our qualitative analysis of the administrator interviews and the open-ended survey response questions, we discovered that the students and administrators defined first-year student success similarly. The student definition focused on academic growth, cultivation of

relationships, and mental health and wellbeing under a single umbrella of success. While administrators defined first-year success similarly, they focused more squarely on students' sense of belonging and comfort on campus. Figure 2 provides examples of both a student and administrator definition of success, highlighting the slight difference between the two.

Figure 2: Defining Success

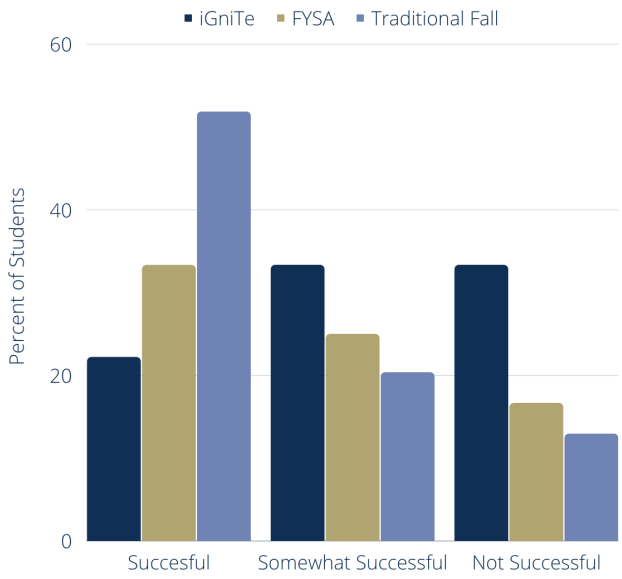


Demographics After analyzing the makeup of each cohort of students, we discovered that the traditional fall start and FYSA cohorts aligned more closely with each other, particularly as compared to those in the iGniTe summer program (see Appendix F). The iGniTe program was 75.77% in-state residents, whereas other cohorts had more diversity across in-state, out-of-state, and international students. Additionally, around 25% of the iGniTe program identified as an underrepresented minority. Comparatively, 16.64% of the fall cohort identified as an underrepresented minority student and even less in the first-year semester abroad cohort. For these reasons, we made the decision to focus our findings on the FYSA and traditional fall start cohorts. The final demographic of note is that 13 students in FYSA (33.33%) were international students, a result most likely due to lingering COVID-related travel restrictions for individuals outside of the United States.

Student Success Through our qualitative analysis of the open-ended questions on the student survey surrounding defining success, feeling successful, and the factors that most

affected the students' experience, three themes were prevalent across all three matriculation pathways. The factors that were found to lead to a student feeling successful in their first-year were academic resources, friends and relationships, and experiences. Furthermore, after quantifying how many students felt their first-year was successful, we found that participants in the traditional fall start cohort of students felt most successful with 51.85% of them reporting their first-year was successful. On the other hand, less than 50% of students in the FYSA and iGniTe programs felt their first year was successful at 33.33% and 22.22% respectively (see figure 3).

Figure 3: First Year Success



Academic Success

Progress Towards Graduation We broke down academic success into two factors, the first of which was progress towards graduation. When evaluating progress towards graduation, specifically cumulative attempted credit hours, we found that both FYSA students and traditional fall start students matriculated into Georgia Tech with a similar amount of incoming credit hours from AP, IB, and dual enrollment courses. FYSA students began their academic careers with an

average of 27.60 credit hours, only slightly above their fall-start peers, who enter Georgia Tech with on average 26.30 credit hours. As we shift our findings to the progress made through the fall and spring semesters of their first year (see Table 7), we found that FYSA students ended the fall 2021 semester with slightly fewer cumulative attempted credit hours at 13.9, compared to their fall-start peers who had a higher average of 15.07. Yet despite ending the fall semester with an average difference of almost two credit hours, by the end of the spring 2022 semester, FYSA students had made up for that deficit, with less than a one credit hour difference with an average of 29.40 credit hours in comparison to the fall students' average of 30.06.

GPA GPA was the second factor of academic success we explored in our study (see Table 7). Despite the fact that the entire class of 2025 had an average cumulative GPA of 3.64 in both the fall 2021 and spring 2022 semesters, the participants in the first-year semester abroad program had the highest average GPA of all cohorts in both the fall and spring semesters. In the fall semester, FYSA students out scored their fall peers with an average of 3.84 versus an average of 3.65 correspondingly. Between the fall and spring semester, both cohorts had a slight drop in GPA with FYSA students falling to a 3.82 and traditional fall students to a 3.64.

Table 7: First-Year Academic Success

Matriculation Pathway	GT Class of 25	FYSA	Traditional Fall Start
Fall Credit Hours:	16.09	13.90	15.07
Fall GPA	3.62	3.84	3.65
Spring Credit Hours:	30.96	29.40	30.06
Spring GPA:	3.62	3.82	3.64

Effects of Matriculation Pathway

Academic Success The student survey explored student perspectives on the effects of each matriculation pathway on academic success. Across all questions focused on the effects of each pathway on aspects of academic success, the traditional fall start students gave a higher average score for each in comparison to the first-year semester abroad students (see Table 8). Of particular note was how students felt their pathway program facilitated academic support, with FYSA students giving an average score of 2.4, more than a one-point difference below the fall students.

Table 8: Academic Success Scores

Question:	First-Year Semester Abroad:	Traditional Fall Start:
Support of Academic Needs	3.40	3.98
Facilitated Academic Support	2.40	3.59
Help with Achieving Academic Success	3.30	3.80

Relationship Development Looking at the effects of matriculation pathways on the development of relationships, students who participated in the first-year semester abroad program, in general, found their program to be more effective in facilitating strong relationships and providing opportunities for relational growth (see Table 9). However, in regard to the facilitation of relationships with peers, FYSA students gave an average score of 4.0 compared to that of the fall students with an average score of 4.30 – the only area in which the fall students scored higher than the FYSA students. Another significant finding highlighted the negative experience the FYSA students had with reintegration upon returning to the Atlanta campus for the spring semester, giving an average score of only 2.10.

Table 9: Relationship Development Scores

Question:	First-Year Semester Abroad:	Traditional Fall Start:
Facilitate Relationships with Faculty & Staff	3.80	3.43
Facilitate Relationships with Peers	4.00	4.30
Facilitated Stronger Relationships	4.20	3.71
Facilitated Opportunities for Relational Growth	4.30	4.06

Intercultural Sensitivity The last area we explored to assess the effectiveness of matriculation pathways was intercultural sensitivity, an area of particular interest to program administration. When it came to interacting with, learning about, and respecting and being open-minded towards other cultures, both FYSA and fall start students felt their pathway had a positive effect. Yet, those who participated in FYSA had a higher average score across all aspects (see Table 10). Conversely, when we look at those aspects that have a more negative view towards other cultures, including disliking individuals from or getting frustrated interacting with other cultures, both cohorts of students gave lower scores. As predicted, FYSA students gave a lower average score than their fall peers.

Table 10: Intercultural Sensitivity Scores

Question:	First-Year Semester Abroad:	Traditional Fall Start:
Enjoy Interacting with Other Cultures	4.90	4.43
Open-minded to Other Cultures	4.90	4.50
Respect the Values of Other Cultures	4.80	4.42
Obtain Information about Other Cultures	4.20	3.94
Think my Culture is Better than Others	1.60	2.08
Get Upset when Interacting with Other Cultures	1.20	1.61

Additional Findings of Interest

Although we focused on recommendations on the above findings, as they were the ones of greatest interest for the FYSA, there were a few additional findings that may be of interest to administrators working with first-year student success at Georgia Tech, specifically for those matriculating through the iGniTe summer program. The first of these findings was in regard to academic success for those students participating in the summer iGniTe program compared to their peers in the other two matriculation pathways. Despite the program's design to "ignite" participants' academic career at Georgia Tech by offering an early opportunity for students to familiarize themselves with the academic rigor of Georgia Tech and set themselves up for success in the fall semester, this population of students had the lowest average GPA for the fall (3.51) and spring (3.48) semesters among the three cohorts of students. Additionally, of note is the drop in GPA between the summer (average GPA: 3.77) dropped a total of 0.27 points to an average of 3.51 in the fall.

The second finding of interest with the iGniTe students was the scores given in the student survey regarding intercultural sensitivity. Although the general feeling of this cohort of students was disagreement with the statements around thinking their culture was better than others or getting easily upset with people from different cultures, they had the highest average score of all three cohorts of student participants in regard to these statements with a 2.33 and 2.00 respectively. Given the percentage of students participating in this matriculation pathway are more than 75% in-state students, it may be of interest to program administrators to further explore the intercultural sensitivity of the students participating and identify ways to increase intercultural sensitivity through diversifying the participant demographics and/or introducing intercultural programming.

Summary of Findings

Returning to the research questions that guided our evaluation of the First-Year Semester Abroad program, we made several key findings. Our first research question asked what gains in student success are unique to students participating in the three different matriculation pathways. In general, FYSA students felt positively about the effects of their matriculation pathway on their success in their first year, with a strong emphasis on the effects in areas of intercultural sensitivity and the development of relationships. However, those students participating in the traditional fall matriculation felt more successful overall compared to the others, specifically in areas of academic success and building relationships with their peers.

Our second research question focused on understanding how FYSA participants compared to those who began their Georgia Tech career through one of the other matriculation pathways. Demographically, FYSA participants did not differ much from their peers in the traditional fall start cohort, including the number of credit hours (from AP, IB, and dual enrollment courses) with which they entered Georgia Tech. Additionally, while many of the FYSA students did not feel that the program had a positive effect on the academic support and resources received, their progress towards graduation and average GPA indicates that overall these students were academically successful. Students in the FYSA program completed their first year with GPAs higher than the overall average GPA for the class of 2025. Furthermore, although they completed the fall semester with slightly fewer cumulative credit hours, by the end of the spring 2022 semester, their cumulative attempted credit hours were in line with peers from the traditional fall cohort.

Our final research question focused on the student success factors unique to study abroad participants. The most significant key finding that was unique to the FYSA students was their

dissatisfaction in their reintegration to campus upon their return to Atlanta in spring 2022, even despite spending six weeks on campus in summer 2021 and going through the same orientation program as all other incoming first-year students.

Many of these key findings are borne out of feedback we received from students. There were two quotes from first-year semester abroad students that we felt corroborated key aspects of our quantitative and qualitative findings. One FYSA student wrote, "[S]ocially and culturally, FYSA was such a unique and memorable experience. Academically though, there wasn't much support [...] There are much fewer academic resources…academic advisors, TAs, tutoring, PLUS sessions. Also the available math classes did not fulfill our needs. Calc 1 and Calc 2 were not available, and linear algebra was only made available at the last minute." Another FYSA student focused their comments on access to opportunities, reflecting "I felt I was missing a lot of things that I wasn't able to get involved with from the start and I have been trying to catch up ever since. Such as clubs, organizations, research, internship opportunities etc." While our key findings suggest that academics, relationships, and opportunities all affect a student's evaluation of success within their first year, they indicate that FYSA students experience a perceived lack of resources and support across various areas in comparison to their peers.

Recommendations

Based on the analysis of our findings, we have three recommendations for Georgia Tech to consider for future FYSA cohorts. Each recommendation enhances specific areas of need, as justified by the data and grounded in proven research strategies. The goal of these recommendations is to improve student success through academic outputs as well as life satisfaction on campus.

Mentorship Program

We first recommend implementing a mentorship program for current and former FYSA students to help build a greater sense of community and more effectively facilitate reintegration. FYSA students felt that reintegration back onto Georgia Tech's campus in the spring was difficult. In the FYSA students' survey results, they registered a score of 2.10 on the current reintegration plan, demonstrating a need for improvement. By implementing a mentorship program, FYSA will better assist with student transitions and create stronger peer relationships upon return to campus.

Mentor communities have been widely used and beneficial in supporting individuals within an organization. The mentor-mentee dynamic provides critical technical information, support, and general overarching wisdom for mentees, thus enhancing their experience and fostering greater longitudinal ties to a given organization (Moberg & Velasquez, 2004). Additionally, students who participate in successful mentorship programs enjoy academic advantages, including greater academic performance as measured by GPA, a greater number of classes passed, and a decreased likelihood of leaving the university/program they are enrolled in (Leidenfrost et al., 2014). The FYSA program would enhance student success by developing one such mentorship initiative. Mentorship programs foster a greater sense of connectedness to the organization and offer the promise of future relationships among mentees with a relatively low impact on the greater organization as a whole (Moberg & Velasquez, 2004). Creating such a program would require relatively low social investment from current students while providing a high-impact service to learners returning to the Atlanta campus.

Peer guidance is described as one of the biggest components of mentorship (Ward et al., 2014). A multigenerational approach connecting upperclassmen to first-year students will help

incoming students feel more supported and connected as they transition back to the Atlanta campus. Specifically, mentors can help mentees identify pressing needs, discuss a plan for their remaining undergraduate studies and set goals, and then work to anticipate potential roadblocks to achieving student goals. In turn, this dynamic promotes higher achieving students with a greater sense of understanding of how to problem solve (Ward et al., 2014). Furthermore, successful mentorship programs offer all participants, but especially mentees, emotional support and encouragement that runs parallel to academic or career-focused guidance and advice (Nora & Crisp, 2007).

Successful mentoring programs draw from a shared knowledge base and similar experiences as a way to facilitate connection and encourage the trust required for mentees to develop and attain both interpersonal and academic/professional goals (Nora & Crisp, 2007). Upon acceptance into the FYSA program, students will be offered the opportunity to join the mentorship program and have an upper-level, former FYSA student serve as a guide. The mentors and mentees will be matched by the major of each student, if possible, as the shared commonality within this partnership will build a greater sense of belonging and understanding. The mentor will share their experiences and advice at all stages, but most importantly, will consult on what to expect and how to leverage available resources when returning to the Atlanta campus. Pairing students with a peer who has already reintegrated back onto campus will provide an opportunity to share their experiences and success. Mentorship programming will help alleviate the low reintegration and transition score (2.10) from the student survey. Additionally, this critical transition time can also be leveraged to enhance academic outcomes, and course performance as students re-engage on the Atlanta campus (Leidenfrost et al., 2014).

Academic Coursework Pathway Shift

As our second recommendation, we propose a shift in the timeline of required student coursework, namely GT1000. Presently, FYSA students are enrolled in GT1000 during the orientation summer session before going abroad. The goal of GT1000 is to prepare students to transition from high school to college and familiarize them with utilizing Georgia Tech's available resources. However, the findings from the survey questions on how FYSA, (1) "[s]upported my academic needs," and (2) "is a premier program on campus because of the academic support offered to its students," were rated lowest for the FYSA participants in comparison to that of iGniTe and the traditional fall start. To address students' concerns, we recommend that returning GT1000 be offered to FYSA students during the spring semester, in order to more directly benefit students as they reintegrate back onto the Atlanta campus. Shifting this course to the spring will allow students to capitalize on local support immediately.

Research on episodic memory supports the need to move GT 1000 to the spring. Episodic memory is made up of events and episodes. Students build long-term memory through the interconnectedness of information (Ormrod, 2016). Episodes are the sequences in which things occur, while events are the experiences endured (Horzyk et al., 2017). Leveraging GT1000 to create episodes for students without a six-month gap will only enhance student learning. Retrieval cues such as buildings, staff, and other supports seen on a daily basis will create further episodes within a student's memory. It is no wonder that FYSA students reported a lack of support upon return to campus when students could not benefit from information learned in their orientation course. Providing an introductory class about Georgia Tech while the students are on campus supports episodic memory research and reinforces the concepts taught during GT1000.

Additionally, adjusting the timing of when GT1000 is offered will allow students greater in-person access to faculty directors with whom they already have an established relationship. FYSA students reported feeling less successful due to a lack of available resources. Currently, students engage with faculty directors throughout their semester abroad but have yet to have the opportunity to connect with these individuals in person during their GT1000 course experience. Through these in-person connections, students will be better able to take advantage of academic and professional resources that they may not remember or have known how to leverage without timely, practical experience. Adjusting the placement of GT1000 in their academic pathway will allow students to meet with, discuss, and further relationships with these individuals, as they are likely more readily available during the traditional fall and spring semesters rather than summer course schedules.

Leveraging Online Resources while Abroad

Our final recommendation is to leverage available online resources for FYSA students abroad. Georgia Tech provides nationally renowned tutoring, faculty advising, and career coaching departments. These services are readily available to all on-campus learners, and students frequently take advantage of these opportunities to enhance their experiences at Georgia Tech. Programs such as these offer students the opportunity to engage in critical conversations surrounding academic and professional goals as well as engage with faculty to establish a framework for how to achieve those goals strategically and effectively (Nora & Crisp, 2007). It is no surprise that matriculated students cite the benefits of these programs and experience greater success after participating in coaching or advising sessions as a direct result of these offerings.

As cited by FYSA students in the survey, FYSA participants currently do not have access to tutoring, coaching, or advising support as they are traditionally made available on campus and in person. However, by expanding the opportunities for communication and virtual appointments, students will be better able to access and take advantage of these services, even while abroad. Given the ease and accessibility of virtual platforms such as Zoom, extending the opportunity for online appointments in addition to the traditional, in-person sessions available to on-campus learners would require little added effort but provide maximum benefits to all involved. The hybrid of both online and eventual face-to-face support sessions will bolster not only academic performance, but also strengthen students' connection to the university itself (Leidenfrost et al., 2014). Organizations that invest in support initiatives build off of shared experiences and common knowledge and interests to foster trusting and secure relationships that, in turn, allow stakeholders the opportunity to reach their individual goals (Nora & Crisp, 2007).

Additionally, scaffolding a multi-tiered system of support through both peer mentors and faculty-led appointments provides a deeper sense of guidance and belonging (Nora & Crisp, 2007). By offering these appointments virtually while students are engaged abroad, participants in the FYSA program will benefit from the opportunity to connect and develop relationships with on-campus faculty and staff. Students will gain a greater sense of connection to the Atlanta campus while abroad and establish contacts that can strengthen their experience upon return for the spring semester and beyond. This interconnectedness will not only foster a sense of belonging within the greater Georgia Tech community, but it can also promote greater success both academically and in terms of personal development for all participants.

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Appendix A

Georgia Tech Matriculation Pathways

Appendix B

Student Recruitment Email

Dear Georgia Tech Student,

We invite you to participate in our capstone project for the Leadership, Learning and Organizations program at Vanderbilt University in which we are evaluating first-year student success in relation to matriculation pathways at Georgia Tech. We have identified you as a potential interviewee for this project because of your participation in the {*insert matriculation pathway*}.

Because you participated in the {*insert matriculation pathway details*}, your participation in this brief survey will provide valuable insight to our group as we evaluate student success data from students across each of Georgia Tech's matriculation pathways - First-Year Semester Abroad, iGniTe, and a traditional fall start. This brief survey will take around 15 minutes to complete. The survey is confidential and all identifying information will be removed prior to our report; however, we will ask you to provide your unique Georgia Tech id so that we are able to connect your survey results to other student success data provided by the Office of the Registrar. Your participation in this survey is completely voluntary, and you will have the option to not respond to any questions that you choose. At the beginning of the survey, you will be asked to confirm your agreement to participate in the survey and that you are at least 18 years of age. At the end of the survey, you will be given the opportunity to opt into a drawing for a $50 Amazon gift card.

Please click the following link to participate in our study about First-Year Student Success and Matriculation Pathways. This survey will remain open until Friday, October 14.

{*Insert Link to Qualtrics Survey*}

If you have any questions about the project, please contact Jennifer, Stephen, or Emma (emails below) or our faculty advisor, Dr. Erin Hedrick at erin.henrick@vanderbilt.edu.

Thank you,
Jennifer Whitlow (jennifer.n.whitlow@vanderbilt.edu),
Stephen Doak (stephen.doak@vanderbilt.edu), &
Emma Hanna (emma.a.woodworth@vanderbilt.edu)

Appendix C

Administrative Recruitment Email

Dear {*Administrator*},

We invite you to participate in our capstone project for the Leadership, Learning and Organizations program at Vanderbilt University in which we are evaluating first-year student success in relation to matriculation pathways at Georgia Tech. We have identified you as a potential interviewee for this project because of your position as {insert Georgia Tech title}.

Because of your role at Georgia Tech, your participation in this interview will provide valuable insight to our group as we evaluate student success data from student cohorts in each of Georgia Tech's matriculation pathways - First-Year Semester Abroad, iGniTe, and a traditional fall start. Should you agree to participate in this interview, we will reach out to schedule a time to meet either on-campus or via Zoom at a time that works with your schedule. The interview should last between 30-45 minutes, and your participation is completely voluntary. You will have the option to not respond to any questions that you choose. Scheduling your interview will be interpreted as your agreement to participate and that you are at least 18 years of age.

If you have any questions about the project, please contact Jennifer, Stephen, or Emma (emails below) or our faculty advisor, Dr. Erin Hedrick at erin.henrick@vanderbilt.edu.

Sincerely,
Jennifer Whitlow (jennifer.n.whitlow@vanderbilt.edu),
Stephen Doak (stephen.doak@vanderbilt.edu), &
Emma Hanna (emma.a.woodworth@vanderbilt.edu)

Appendix D

Georgia Tech First-Year Student Matriculation Survey

The following questions were included in a qualtrics survey distributed to students that matriculated into Georgia Tech in summer 2021 through the iGniTe program, fall 2021 through the FYSA program, or fall 2021 as a traditional fall start. Following the informed consent question, all students had the option to skip any questions that they wished with the exception of their matriculation pathway. Students were shown personalized questions based on the matriculation pathway selected.

Informed Consent: By participating in this survey, I confirm that I am 18 years or older and agree for the information shared to be used for the sole purposes of this program evaluation project. I understand the data collected in this survey will be de-identified and summarized in any published reports or presentations. I am also aware that all data collected will be destroyed upon the completion of the project.

- ☐ Yes, I agree to participate in this survey
- ☐ No, I do not agree to participate in this survey

Survey Drawing: I would like to opt in to the drawing for the Amazon gift card. If I win the raffle, please send the digital gift-card to the following email address: _____

Student Info:

1. Please enter your GTid in the following format, filling in only the last 6 digits: _ _ _ _ _ _
2. Please enter your GT login username (ex: gpburdell85): _____
3. Have you ever traveled or lived abroad?
    a. Yes - Traveled Abroad
    b. Yes - Lived Abroad
    c. Yes - Both Traveled and Lived Abroad
    d. No
4. When did you start your first year at Georgia Tech?
    a. Fall 2021 as a traditional fall semester first-year student
    b. Summer 2021 as a summer iGniTe participant
    c. Summer/Fall 2021 as a participant in the First-Year Semester Abroad Program
5. Why did you choose to start your first year at Georgia Tech in the semester and/or program that you did?

Relationships: To what extent do you agree or disagree with each of the following statements?

Strongly Disagree (1) - Disagree (2) - Neither Disagree/Agree (3) - Agree (4) - Strongly Agree (5)

1. Being a part of Georgia Tech's {insert program} has helped me build successful relationships with faculty and staff
2. Being a part of Georgia Tech's {insert program} has helped me develop successful relationships with students and peers.
3. My relationships here at Georgia Tech are stronger because of the {insert program}.
4. Georgia Tech's {insert program} facilitated opportunities for relationship growth.
5. Georgia Tech's {insert program} is a premier launching pad on campus.

The following questions were only asked if a student selected participation in the first-year semester abroad program:

6. FYSA's summer orientation established a successful launching point for the program.
7. FYSA's reintegration plan back to campus made the transition smooth and effortless.

Academic Support: To what extent do you agree or disagree with each of the following statements?

Strongly Disagree (1) - Disagree (2) - Neither Disagree/Agree (3) - Agree (4) - Strongly Agree (5)

1. Being a part of Georgia Tech's {insert program} has supported my academic needs.
2. Being a part of Georgia Tech's {insert program} has helped me become a successful academic student.
3. My GPA is stronger because of the support from Georgia Tech's {insert program}.
4. Georgia Tech's {insert program} facilitated opportunities for tutor/faculty support in areas of need.
5. Georgia Tech's {insert program} is a premier program on campus because of the academic support offered to its students.

Intercultural Sensitivity: To what extent do you agree or disagree with each of the following statements?

Strongly Disagree (1) - Disagree (2) - Neither Disagree/Agree (3) - Agree (4) - Strongly Agree (5)

1. I enjoy interacting with people from different cultures.
2. I am open-minded to people from different cultures.
3. I think my culture is better than other cultures.

4. I try to obtain as much information as possible when interacting with people from different cultures.
5. I respect the values of people from different cultures.
6. I get upset easily when interacting with people from different cultures.

Summarization: To what extent has Georgia Tech's {insert program} played a role in creating a successful college experience?

Not at All (1) - To a Small Extent (2) - To a Moderate Extent (3) - To a Great Extent (4)

1. To what extent has Georgia Tech's {insert program} played a role in building relationships?
2. To what extent has Georgia Tech's {insert program} played a role in building academic support?
3. To what extent has Georgia Tech's {insert program} played a role in building intercultural sensitivity?
4. To what extent has Georgia Tech's {insert program} played a role in relationships, academic support, and intercultural sensitivity?

Short Answer Questions:

1. How do you define college success?
2. Did you feel successful in your first year at Georgia Tech? Why or why not?
3. What aspects of your first-year experience led (or didn't lead) to your success?

Appendix E

Interview Questions

Interviews will take place one-on-one, either in-person on the Georgia Tech campus or through Zoom. Each interview will last 30-45 minutes and will be recorded. Each interview will include the following questions, as well as any appropriate follow-up questions or questions needed to gain further clarification of an interviewee's responses.

Introduction Script:
Thank you so much for taking the time to meet with us today. The goal of this interview is to learn about the programs that you engage with at Georgia Tech and your specific role in those programs, as well as to learn about how your program affects student success, relationships, and intercultural sensitivity. This interview should last about 30 minutes. Is it okay if we record this meeting?

- Could you please describe your role at Georgia Tech?
- Do you engage in the iGniTe summer program? If so, please describe your role.
- Do you engage in the First-Year Semester Abroad program? If so, please describe your role.
- Do you engage with first-year students? If so, please describe your role.
- Do you engage in the admissions process for incoming first-year students? If so, please describe your role.
- Do you engage in new student transition programs? If so, please describe your role.
- Do you engage in undergraduate student success programs? If so, please describe your role.

After asking the above questions, use the following script to set up the next set of questions for those interviewees who held a leadership role or participated in the development of the program:
I am now going to ask you a few additional questions about each of the programs we just spoke about where you have a leadership role or assisted in the development of the program.

- What were the strategic goals of the {first-year semester abroad, iGniTe, new student transitions, admissions, student success, or first-year student} program?
    - What specific goals were related to the development of student relationships?
    - What specific goals were related to student success?
    - What specific goals were related to Intercultural sensitivity?
    - Do you have measures of success related to that goal?
    - Based on these measures of success, how would you say the program is going in regards to that goal?

    - What are the outcomes you've seen for this program?

For all interviews (leadership and non-leadership roles), use the following script for learning more about the programs in which they are involved:
We'd now like to learn more about the challenges and success that you've seen with each program where you play a specific role.

- In your role with each program, how would you personally define first-year student success?
- What challenges has the program faced in achieving its goals?
- What challenges have you seen students face because of their involvement in your program?
- What successes has the program achieved related to its goals?
- What benefits have you seen students experience because of their involvement in your program?

Appendix F

Student Demographics

The chart below includes the demographic breakdown of the Georgia Tech class of 2025 by matriculation pathway based on the results from the institutional data report provided by the Office of Institutional Research and Planning. It is important to note that this report only classified 10 students as participating in the First-Year Semester Abroad program; however, we do know from FYSA program administrators that there were a total of 39 participants, 13 of which classified as international students. This number is not included in the chart below.

Matriculation Pathway	iGniTe	FYSA	Traditional Fall	Challenge
Total Students	487	10	2386	30
% Female:	41.89%	30.00%	41.32%	40.00%
% Male:	58.11%	70.00%	58.68%	60.00%
% Out-of-State Resident	22.18%	100.00%	39.48%	33.33%
% In-State Resident	75.77%	0.00%	50.29%	63.33%
% Alien, Non-Resident	2.05%	0.00%	10.23%	3.33%
% American Indian/Alaskan Native	0.00%	0.00%	0.08%	0.00%
% Asian	25.46%	50.00%	34.91%	3.33%
% Black or African American	10.88%	0.00%	6.66%	50.00%
% Hispanic or Latino	13.35%	0.00%	8.84%	40.00%
% Two or More	4.31%	10.00%	4.32%	6.67%
% Unknown	1.03%	0.00%	1.59%	0.00%
% White	44.97%	40.00%	43.59%	0.00%
% Underrepresented Student	25.05%	0.00%	16.64%	96.67%
% Legacy	20.94%	0.00%	17.94%	10.00%
% First Generation	5.54%	20.00%	5.74%	3.33%