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First Generation Students at the University of Massachusetts Amherst

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UMass Amherst | College of Education

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A report prepared by

CSSR
Center for Student Success Research

1ST GEN

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Executive Summary

First generation (First Gen) students—those who do not have a parent or guardian who attained a four-year degree—represent a third of all college students in the United States. At the University of Massachusetts Amherst (UMass), a quarter of the undergraduate student body is First Gen. Nationally as well as locally, First Gen students often experience lower rates of academic success due to factors such as a lack of family familiarity with the college going process, lower levels of academic preparation, and limited finances.

UMass Amherst is undertaking efforts to improve conditions for success for First Gen students. As part of a steering committee focused on First Gen issues, the Center for Student Success Research (CSSR) led a mixed methods study of First Gen students on campus during the 2018-2019 academic year. The aim of the study is to better understand who First Gen students at UMass are, the experiences they are having, and how to better serve them.

FIRST GEN IDENTITY

Based on institutional data, about half of First Gen students are low-income. Approximately a quarter of First Gen students are from underrepresented minority groups. In combination, about one in five First Gen students are both low-income and underrepresented minorities. Additionally, approximately a quarter of First Gen students are transfer students.

These facts are important to understand because many First Gen students find their other identities more salient in their student experiences than their First Gen status. Students often foreground being low-income, being a Student of Color or being a transfer student instead. First Gen status may be related to these experiences, but is often not perceived as having a direct impact.

Students see First Gen status as important at key times, however. During times of transition, including coming to college and preparing to join the workforce after college, the experience of being First Gen is more relevant to students. First Gen students experience multiple challenges related to that status—lack of precedent, loneliness, pressure, academic preparation, and stigma—even as they identify personal assets to build on—work ethic, responsibility, resourcefulness, pride, and gratitude.

STUDENT EXPERIENCE

Academically, First Gen students enter UMass with similar average GPAs compared to other students, but with lower average SAT scores. As a key part of the academic transition, major choice is an important yet confusing aspect of college for many First Gen students. Knowledge of academic programs and supports available is inconsistent among this group. Even when resources are available, First Gen students do not always use them due to a lack of awareness, or do not use them to their full extent. Perhaps

due to these factors, First Gen students experience lower rates of retention in year one, as well as in four- and six-year graduation rates, compared to non-First Gen students.

Beyond academics, First Gen students have financial concerns more often than other students. They report being depressed, anxious or overwhelmed in the year prior to college more often than others. When First Gen students attempt to address such concerns, they find specific services, such as Financial Aid and the Center for Counseling and Psychological Health as vital, but also as potential sources of stress and confusion. Students largely see residence halls as a supportive environment, although some First Gen students report the experience to be isolating.

STUDENT RECOMMENDATIONS

One in four UMass Amherst students does not have a parent or guardian who attained a bachelor's degree. This fact alone emphasizes that university policies and procedures must be structured so as not to assume pre-existing college knowledge among the students on campus. However, the extent to which First Gen status should be a specific, targeted emphasis in programs and resources provided to students is a trickier issue.

Many First Gen students expressly prefer programming that is not First Gen-specific. As First Gen status is not a salient part of many First Gen students' identities, some do not realize that they are First Gen at all while others find it to be relevant only at certain times in their college trajectory. The relative lack of importance of the First Gen label is supported by findings showing that degree completion gaps between First Gen and non-First Gen are minimized when statistically adjusted by other factors such as race/ethnicity and Pell status.

This perspective is in tension, however, with the fact that First Gen students recognize that they experience college differently than their non-First Gen peers. For example, students feel that their First Gen status is stigmatized. They also report their First Gen status is especially relevant to their transition into college, when trying to navigate new systems and processes for the first time. As a result, First Gen students want additional support before college as well as during the first year. They also request additional programming, such as First Gen buddy or mentorship programs, as well post-college support for careers and graduate school.

IMPLICATIONS

First Gen students at UMass Amherst need additional resources and guidance, provided proactively in an accessible manner, related to mental health services, work and careers, and other high impact practices such as internships and study abroad. Specific, focused support at particular times (e.g., the transition points in and out of college) is likely to be useful if provided in a non-stigmatizing manner. However, in many cases, programs that can serve First Gen student needs without limiting themselves to First Gen students specifically should be considered. This may be a more effective use of resources in some cases, and may be particularly impactful for First Gen students who are also Students of Color or low-income students, who navigate multiple identities during college. Ongoing evaluation of efforts for First Gen success is important given the complicated landscape and competing priorities.

Introduction

First generation (First Gen) students represent a third of all college students in the United States, but only about a quarter of these students will attain a degree within four years (Whitley, Benson, & Wesaw, 2018). Extending the window to six years, 65% of First Gen students complete a bachelor's degree, though this is still a lower completion rate than their non-First Gen peers (Cataldi, Bennett, Chen, & Simone, 2018). While the unique situations of First Gen students have been recognized for quite some time, higher education has been slow to design programs and interventions that address their needs adequately, and to leverage the strengths and assets of First Gen students in order to improve their success. Continuing gaps in academic preparation, access, retention, and degree completion are evidence that more needs to be done to serve this large and vital student population.

As defined by the University of Massachusetts Amherst (UMass), "A first-generation student is a student whose parent or guardian did not attain a bachelor's degree."[1] The university has recognized the need to identify and better serve this constituency as an institutional priority. In part, the need to address concerns of First Gen students at UMass were emphasized by the results of the 2016 Campus Climate Survey, which showed them to have lower levels of connectedness and belonging relative to their non-First Gen peers. As part of an institutional response, UMass formed a First Gen Steering Committee led by Carolyn Bassett and the Office of Undergraduate Student Success. The Center for Student Success Research (CSSR) partnered with the steering committee, the Provost's Office, the Office of Institutional Research, and the Office of Academic Planning and Assessment to conduct a mixed methods study of First Gen students.

This report offers an initial look at First Gen undergraduate students at UMass. It provides an understanding of who First Gen students are in terms of demographic characteristics. It gives a glimpse into students' experiences, perceptions, and behaviors, and how some characteristics and outcomes differ between First Gen students and other students on campus. This report aims to provide actionable recommendations that may inform institutional practices to improve conditions for First Gen student success. The report is also generative of further questions that need to be addressed and provides suggestions about how to use data to inform future inquires.

This report achieves these purposes by using data and analysis in three ways. First, it presents UMass institutional data descriptively, broken down and categorized in illustrative ways. Second, using multiple sources of institutional data, it provides an initial look at First Gen students' retention into their second year of college, as well as degree attainment in four years. Finally, this report provides a voice to First Gen students, by examining their experiences in their own words. Through focus group data collected during the 2018-2019 academic year, First Gen students share their perspectives about what is working, what is not, and what their college experiences have been like at UMass Amherst.

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[1] While this is the definition that UMass Amherst has adopted, different data sources have slightly different definitions. For example, Admissions uses the definition from the Common Application: "the student is without a parent who graduated from college/university." Different definitions can lead to different results and conclusions and caution is warranted (Toutkoushian, Stollberg, & Slaton, 2018).

First Gen Students Nationally

Although the proportion of First Gen students in the college population has declined nationally, there continues to be a gap between First Gen students' educational aspirations and attainment (Cataldi et al., 2018; Lohfink & Paulsen, 2005; McCarron & Inkelas, 2006). In other words, First Gen students desire to attain bachelor's degrees more than they are able to do so. While the range of definitions related to First Gen status makes it a challenge to derive a consensus related to student experiences (Nguyen & Nguyen, 2018; Toutkoushian et al., 2018; Whitley et al., 2018), it is clear that First Gen students are less likely to apply to and enroll in college than non-First Gen students.

It is important to understand the impact of First Gen status on students both as a distinct experience, but also as it relates to other identities that students hold. First Gen students are a heterogeneous group, and disproportionately possess marginalized racial/ethnic and socio-economic identities (Lohfink & Paulsen, 2005; McCarron & Inkelas, 2006). It is crucial, then, to examine "how generation status and other categories of analysis interact to shape students' experiences within their given context" (Nguyen & Nguyen, 2018, p. 160). Because similar factors (e.g., financial aid, family) can help or hinder First Gen students based in part on their other circumstances or identities (Gibbons, Rhinehart, & Hardin, 2016; Means & Pyne, 2017), understanding of the holistic picture of a student's experience can help staff and faculty to best support students.

The disparate trajectories between First Gen and non-First Gen students begins in K-12 education, where fewer First Gen students participate in an academically focused curriculum (Cataldi et al., 2018). As a result, non-First Gen students score higher on standardized exams like the Scholastic Aptitude Test (SAT; Atherton, 2014). For college-bound First Gen students, good grades predict postsecondary aspirations while inner drive towards accomplishments serves as a primary motivator for college going (Blackwell & Pinder, 2014; McCarron & Inkelas, 2006). When selecting institutions, First Gen students are more likely to enroll in public two-year institutions even though they derive greater gains from selective colleges (Cataldi et al., 2018; Pascarella, Pierson, Wolniak, & Terenzini, 2004).

Once they get to college, First Gen students experience challenges related to time management and prioritization (Collier & Morgan, 2008). They also encounter obstacles to their academic success related to study skills, family responsibilities, on- and off-campus employment, perceived weak English and math skills, and feeling depressed, stressed, or upset (Stebleton & Soria, 2012). Academically, First Gen students are less likely to interact with faculty in research- and course-related contexts, completing fewer course hours and earning lower-grades (Kim & Sax, 2007; Pascarella et al., 2004). While faculty interaction positively predicts gains in critical thinking, communication, degree aspirations, sense of belonging, and overall college satisfaction for all students, First Gen students are often at a disadvantage in acquiring such opportunities to interact (Kim & Sax, 2007).

Outside of the classroom, First Gen students work more hours than their peers, which can limit their opportunity to engage in co-curricular and professional development experiences (Martin, 2015b; Pascarella et al., 2004). First Gen students have lower rates of co-curricular involvement, athletic participation, and volunteer work, but from which they derive significantly stronger positive benefits than their non-First Gen peers (Pascarella et al., 2004). Engagement in residence life helps First Gen students develop community through structured learning communities (Inkelas, Daver, Vogt, & Leonard, 2007; Means & Pyne, 2017). Co-curricular involvement is also important as increases in satisfaction with one's social life are linked to First Gen student persistence (Lohfink & Paulsen, 2005).

While research and practice have a tendency to view First Gen status from a deficit orientation, assuming that they inherently "lack" something necessary for success, it is important to emphasize the assets that First Gen students possess (Whitley et al., 2018). For example, First Gen students feel pride in their work ethic and sense of responsibility, which they attribute to their class background (Martin, 2015a). Moreover, for those who attain a bachelor's degree, there is no difference in salaries or employment rates for First Gen graduates compared to their non-First gen peers (Cataldi et al., 2018).

Professional organizations complement the empirical literature through their inventorying and creation of national initiatives aimed at supporting First-Gen students. In 2015, FLIP National grew out of several student-run movements to support the success of first-generation, low-income students. The organization focuses on seven target areas: food insecurity, student homelessness, academic development, student wellness and community building, financial support, professional development, and awareness and visibility. In 2018, the National Association of Student Personnel Administrators (NASPA) launched its Center for First-Generation Student Success. Their website acts as a hub of campus news stories, programmatic ideas, and professional development. On November 8, NASPA hosts an annual First-Generation College Celebration to recognize the presence and contributions of First Gen students. Additionally, the organization launched its inaugural First-Generation Student Success Conference in 2019. These efforts highlight the overlap of student affairs practice, empirical literature, and student voice that drive current First Gen initiatives.

First Gen Students at UMass Amherst

To understand how to best serve First Gen students at UMass Amherst, a good place to begin is with a snapshot of who these students are in their overall representation, their multiple demographic identities, and their experiences on campus. In Fall 2018, First Gen students comprised 24% of the undergraduate population (Figure 1).[2] Within this group of First Gen students, many are from an underrepresented minority group (URM)[3], are considered low-income based on receipt of a Pell Grant, or both. Specifically, 51% of First Gen students are Pell recipients, and 26% are URM (Figure 2). Eighteen percent of First Gen students at UMass are both URM and Pell recipients. Of the 5146 First Gen students on campus in Fall 2018, 25% also entered UMass as transfer students (Figure 3).

First Gen versus non-First Gen

First gen
24%

non-First Gen
76%
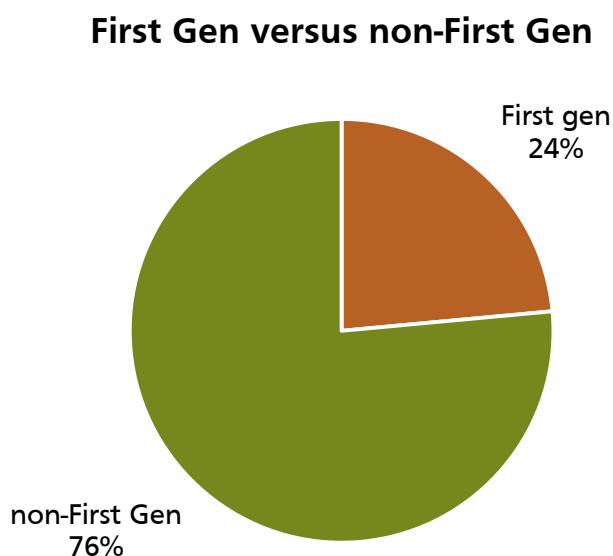
Figure 1   *Data provided by the Office of Institutional Research.*

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[2] Data for Figures 1-23 provided by the Office of Institutional Research, unless otherwise noted. Data for Figures 1-8 represent 2018 Enrollment of State-Supported Degree-Seeking Undergraduate Students.

[3] URM status is based on students' voluntary self-report. It includes American Indian/Alaska Native, Black/African American, Hawaiian/Pacific Islander, Hispanic Latino, and those who declared multiple race/ethnicities (except Asian and White). The URM percentage is based on US Citizens and Permanent Residents only. While quantitative results from institutional data use the URM designation, students self-identified specific racial or ethnic groups or used the terminology Student(s) of Color. Therefore, we use the term Students of Color when reporting from student interviews. As defined at UMass, URM does not include Asian students, whereas Students of Color does.

URM and Pell within First Gen Population

First Gen + URM
8%

First Gen + URM + Pell
18%

First Gen + Pell
33%

First Gen only
41%
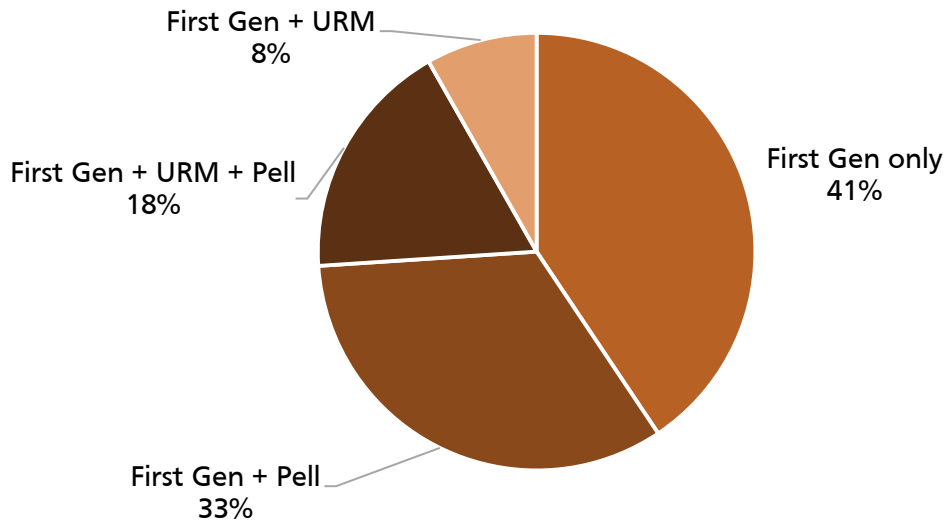
Figure 2   Data provided by the Office of Institutional Research.

Transfer within First Gen

Entered as Transfer
25%

Entered as First-year
75%
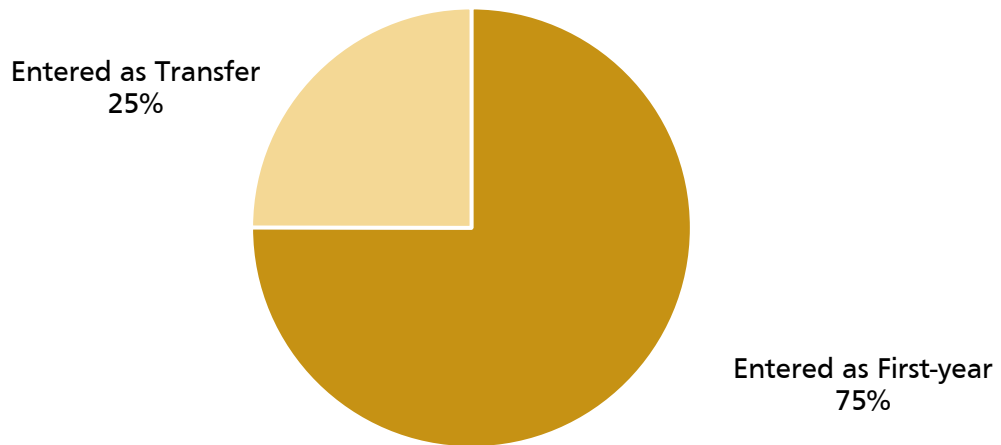
Figure 3   Data provided by the Office of Institutional Research.

To get a more complete picture of the multiple identities of First Gen students, it is informative to see how First Gen status is represented *within* other identity groups. When examining the 2842 URM students at UMass Amherst in Fall 2018, just less than half of them were First Gen students (Figure 4). Looking instead at the 4978 Pell recipients on campus, just over half of them were First Gen students (Figure 5). Looking at transfer students specifically, 35% were First Gen students (Figure 6).

First Gen within URM

URM only
53%
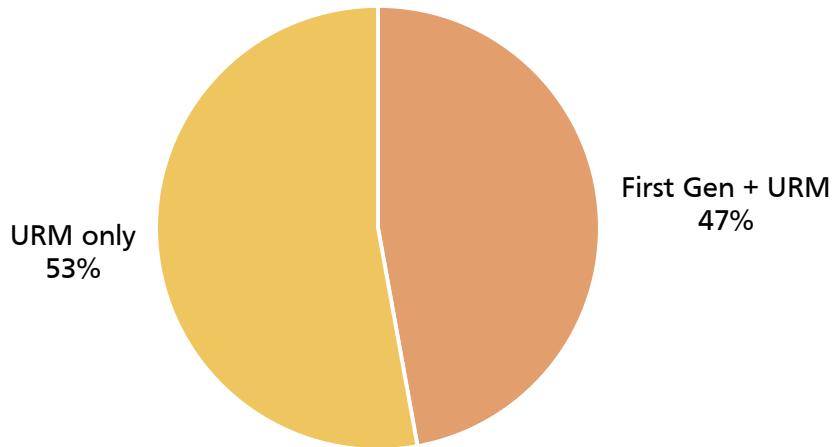
First Gen + URM
47%

Figure 4 Data provided by the Office of Institutional Research.

First Gen within Pell

Pell only
47%

First Gen + Pell
53%
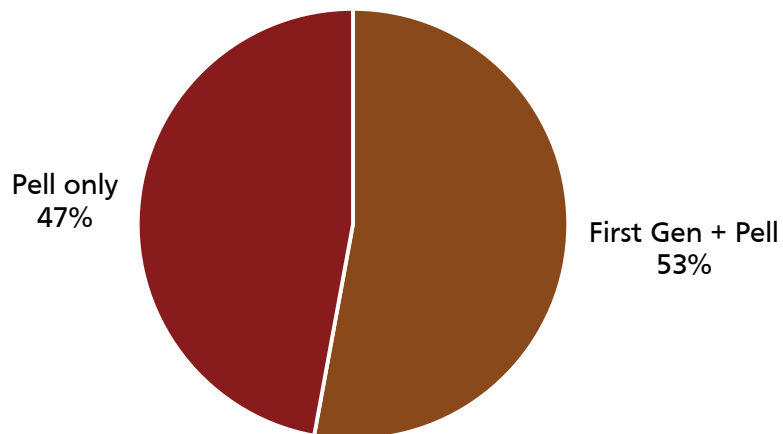
Figure 5   Data provided by the Office of Institutional Research.

First Gen within Transfer

First Gen within Transfer
35%

non-First Gen within Transfer
65%
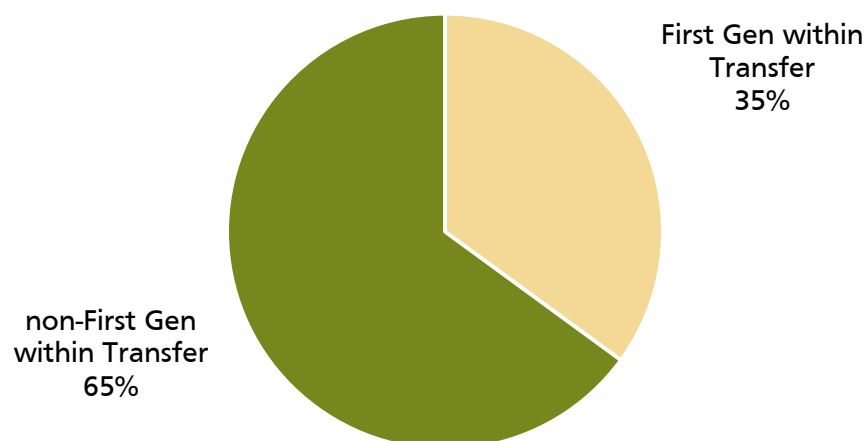
Figure 6   Data provided by the Office of Institutional Research.

Given that students are often most directly served by, and feel the most connection to their respective Colleges and Schools, Figures 7 & 8 show First Gen representation across these Colleges and Schools at UMass. Figure 7 demonstrates the simple fact that the Colleges and Schools with the most undergraduate students are also the units that have the most First Gen students. Most first gen students in Fall 2018 were in the College of Natural Sciences (1692) and the College of Social and Behavior Sciences (922).

In these graphs, First Gen students are categorized in four ways. While some variation exists, Figure 7 shows that each College and School is similar to the overall representation on campus. The largest of these four groups is First Gen only, followed by First Gen+Pell (without being URM) and First Gen+Pell+URM, with the smallest group being First Gen+URM (without being a Pell recipient.) When looking by percentage within Colleges and Schools, there are some differences. First Gen students represent 16% of students in the College of Information and Computer Science, compared to 29% in the School of Public Health and Health Sciences (Figure 8).

Types of First Gen Students by School/College
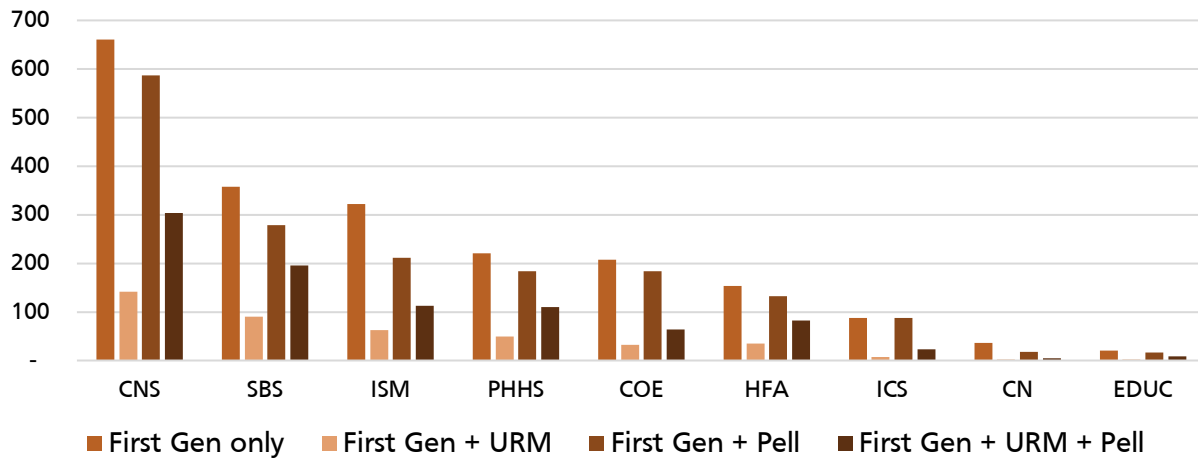
Figure 7   Data provided by the Office of Institutional Research.

Types of First Gen Students by School/College
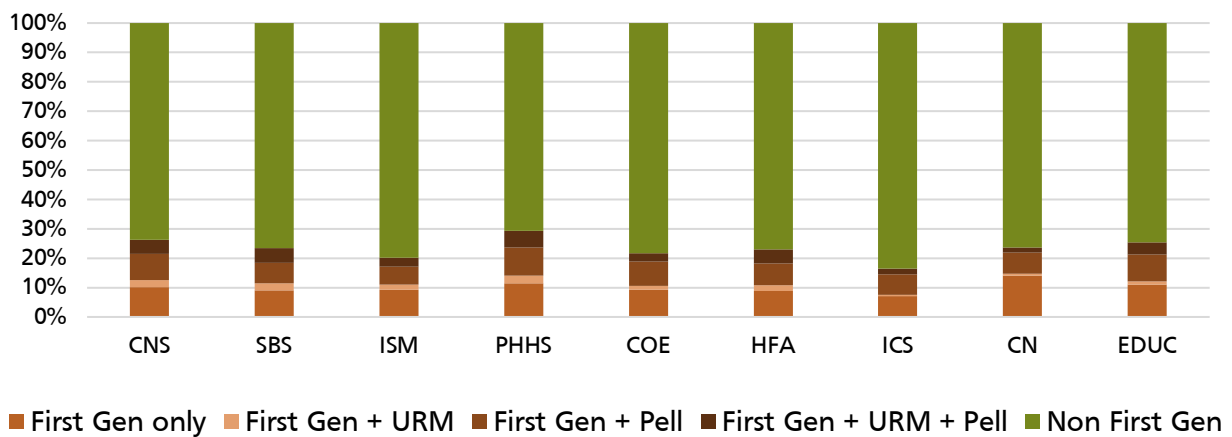
Figure 8   Data provided by the Office of Institutional Research.

ABBREVIATION	COLLEGE FULL NAME
CNS	College of Natural Sciences
SBS	College of Social and Behavioral Sciences
ISM	Isenberg School of Management
PHHS	School of Public Health and Health Sciences
COE	College of Engineering
HFA	College of Humanities and Fine Arts
ICS	College of Information and Computer Sciences
CN	College of Nursing
EDUC	College of Education

FIRST-YEAR STUDENTS

The numbers presented thus far have been in relation to all students who were enrolled at UMass in the Fall of 2018. There is also useful information when looking specifically at the entering first-year students, aided by the Office of Academic Planning and Assessment's Entering First Year Student Survey. Results from first-year First Gen students, as well as a comparison to non-First Gen students, help present a more complete profile.

Among first-year students, the demographics for First Gen students are slightly different than the student body overall. This may be due to changing compositions on the entering classes over time, as well as disproportionate retention of some demographic groups. A few results are highlighted below from Figures 9-14. Among first-year students:

- 52% of First Gen students are Pell recipients, compared to 11% of non-First Gen students.
- 34% of First Gen students are URM, compared to 12% for non-First Gen students.
- A smaller proportion of First Gen students are out of state (15%) compared to non-First Gen students (21%).
- First Gen students are underrepresented in the Honors College, with 9% participating relative to 13% of non-First Gen students.
- 39% of First Gen students expressed having a lot of financial concerns, relative to 19% of non-First Gen students.
- First Gen students reported frequently feeling depressed (18%), anxious (32%) and overwhelmed (46%) in the year prior to coming to college more often than non-First Gen students (13%, 30%, and 39% respectively).

Demographic Charactersitics

Figure 9   *Data provided by the Office of Institutional Research and the Office of Academic Planning and Assessment, from the Entering First Year Student Survey.*

† Percent URM is based on US Citizens and Permanent Residents reporting race/ethnicity

Academic Characteristics

% Honors
- First Gen: 9%
- non-First Gen: 13%

% in Exploratory Track Program
- First Gen: 22%
- non-First Gen: 20%

Legend: First Gen, non-First Gen

Figure 10   Data provided by the Office of Institutional Research and the Office of Academic Planning and Assessment, from the Entering First Year Student Survey.

Personal Life

% Politically Far Left or Liberal
- First Gen: 49%
- non-First Gen: 47%

% Politically Far Right or Conservative
- First Gen: 12%
- non-First Gen: 14%

% More Than 5 Hours Spent Partying
- First Gen: 9%
- non-First Gen: 11%

% Drank Alcohol (Frequently)
- First Gen: 5%
- non-First Gen: 8%

Legend: First Gen, non-First Gen
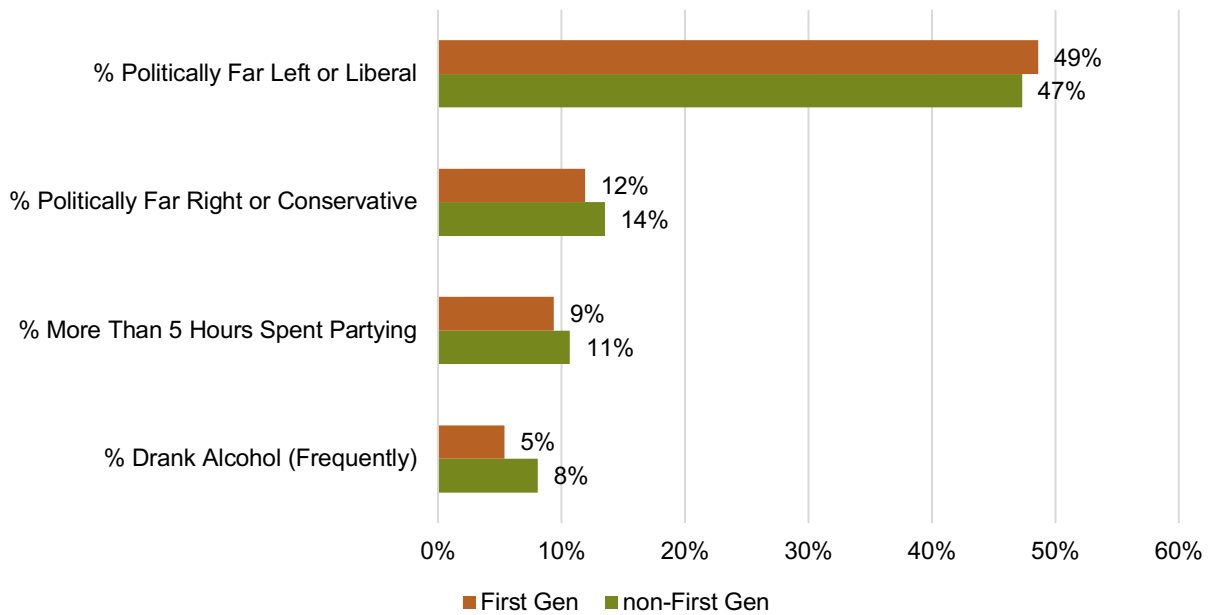
Figure 11   Data provided by the Office of Institutional Research and the Office of Academic Planning and Assessment, from the Entering First Year Student Survey.

Financial Situation
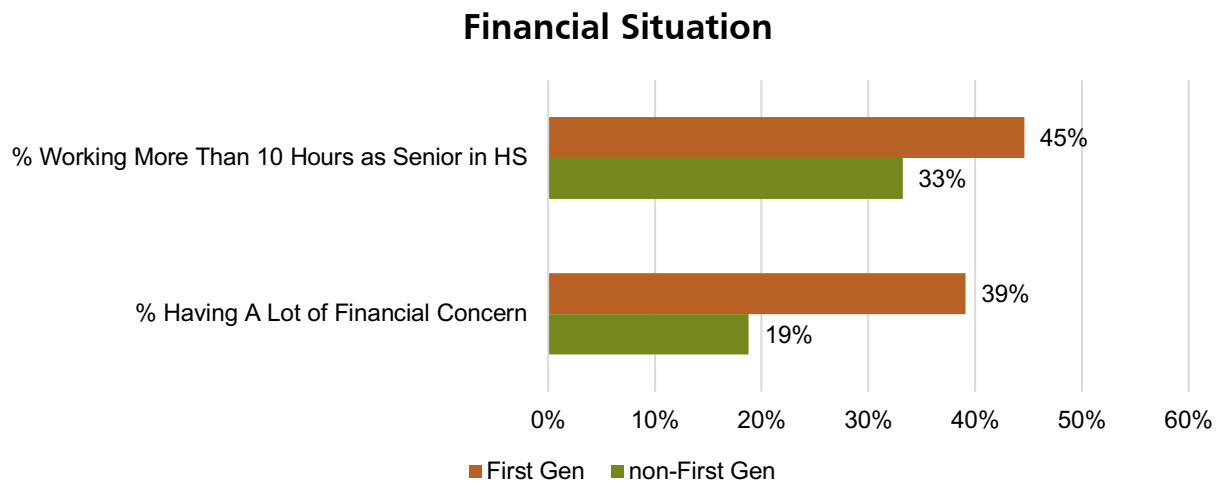
Figure 12 *Data provided by the Office of Institutional Research and the Office of Academic Planning and Assessment, from the Entering First Year Student Survey.*

Mental Health
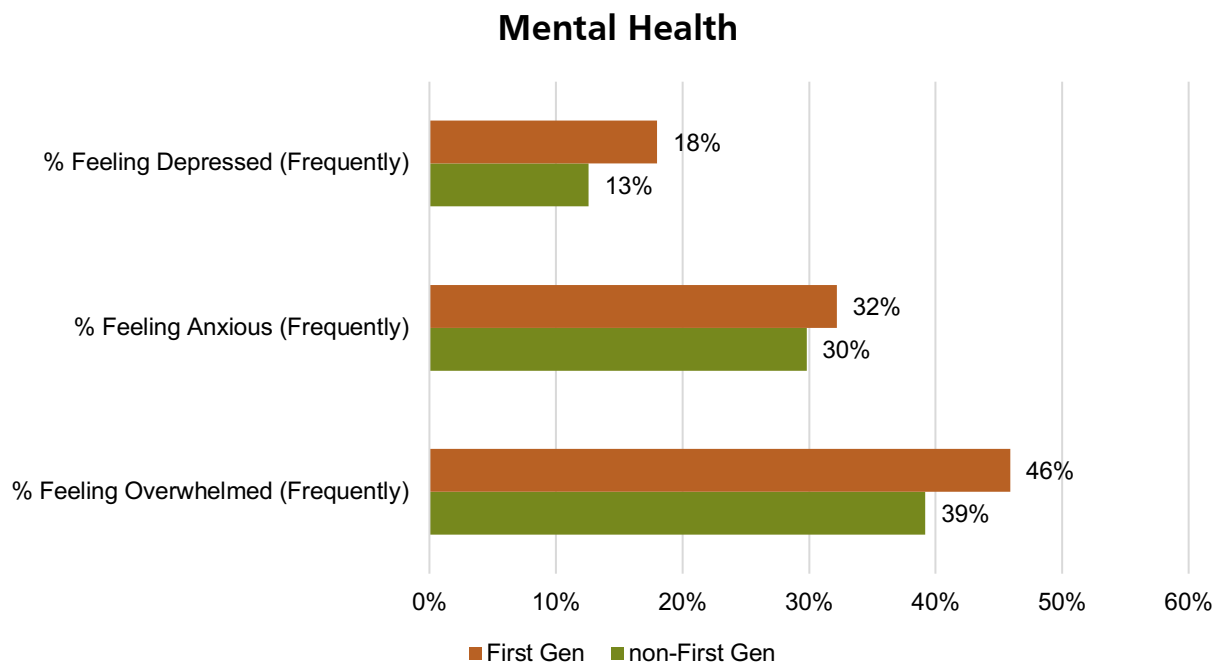
Figure 13 *Data provided by the Office of Institutional Research and the Office of Academic Planning and Assessment, from the Entering First Year Student Survey.*

Academic Difficulties

% Failed to Complete Homework On Time (Frequently): First Gen 7%, non-First Gen 6%

% Skipped School/Class (Frequently): First Gen 3%, non-First Gen 2%

% Late to Class (Frequently): First Gen 10%, non-First Gen 8%

% Bored in Class (Frequently): First Gen 45%, non-First Gen 45%

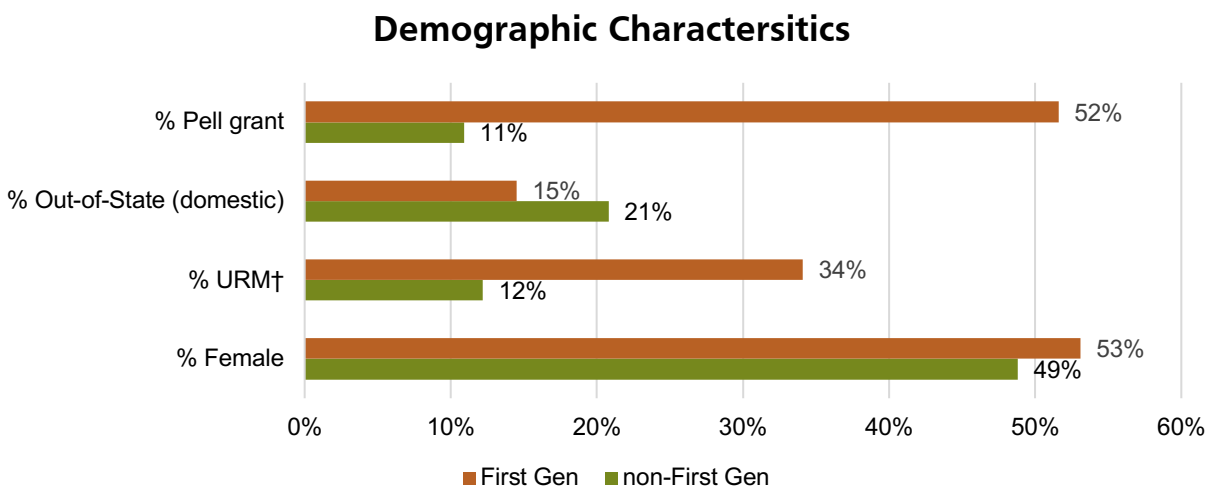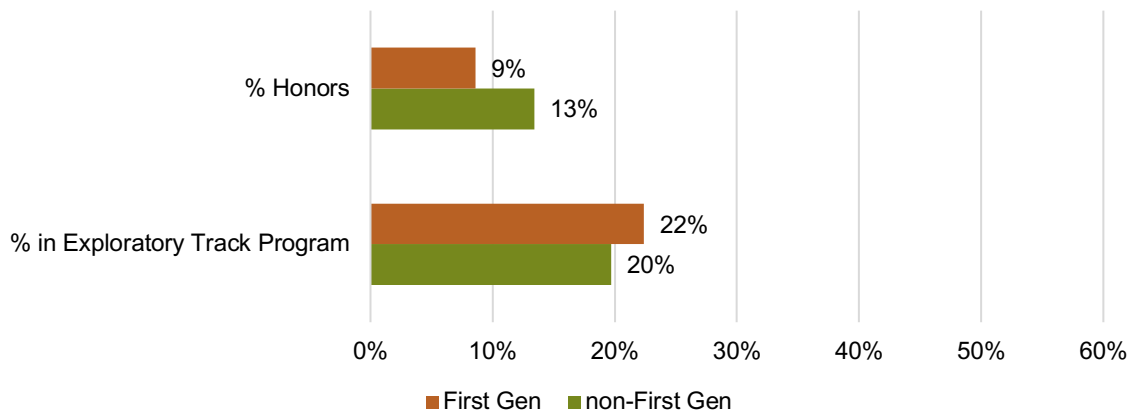Legend: ■ First Gen   ■ non-First Gen
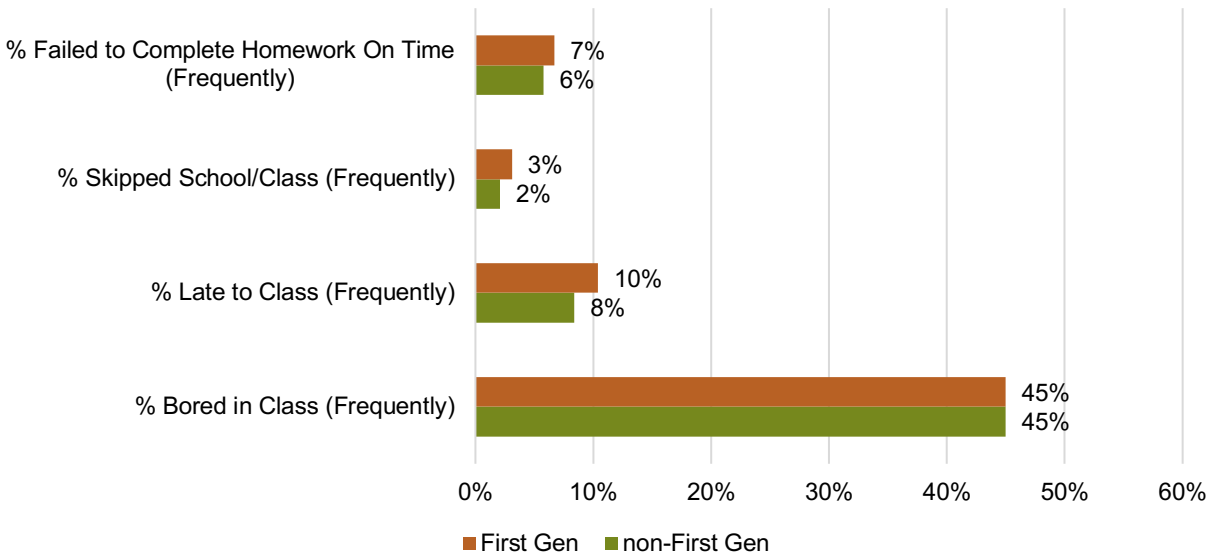
Figure 14   Data provided by the Office of Institutional Research and the Office of Academic Planning and Assessment, from the Entering First Year Student Survey.

ADMISSION, RETENTION, AND GRADUATION RATES OVER TIME

Looking at a decade's worth of data comparing First Gen students to others on key metrics and outcomes provides an understanding of trends over time as well as a useful baseline for considering what supports, interventions, or reforms might best serve First Gen students. Looking at the incoming academic profiles of students in terms of both SAT and high school GPA, Figures 15-18 confirm rising selectivity at the institution overall. On SAT scores, entering First Gen students exhibit increasingly competitive scores over time, but are consistently 50-60 points lower than non-First Gen students (Figure 15). Among First Gen students only, SAT scores also show consistent stratification by students' multiple identities (Figure 16). In contrast to SAT scores, entering First Gen students' high school GPAs are equal to, or slightly greater than their non-First Gen peers, on average (Figure 17). The stratification by other identities within the First Gen student group is less consistent and less dramatic when examining high school GPA instead of SAT scores (Figure 18.)

Incoming Students' SAT Scores
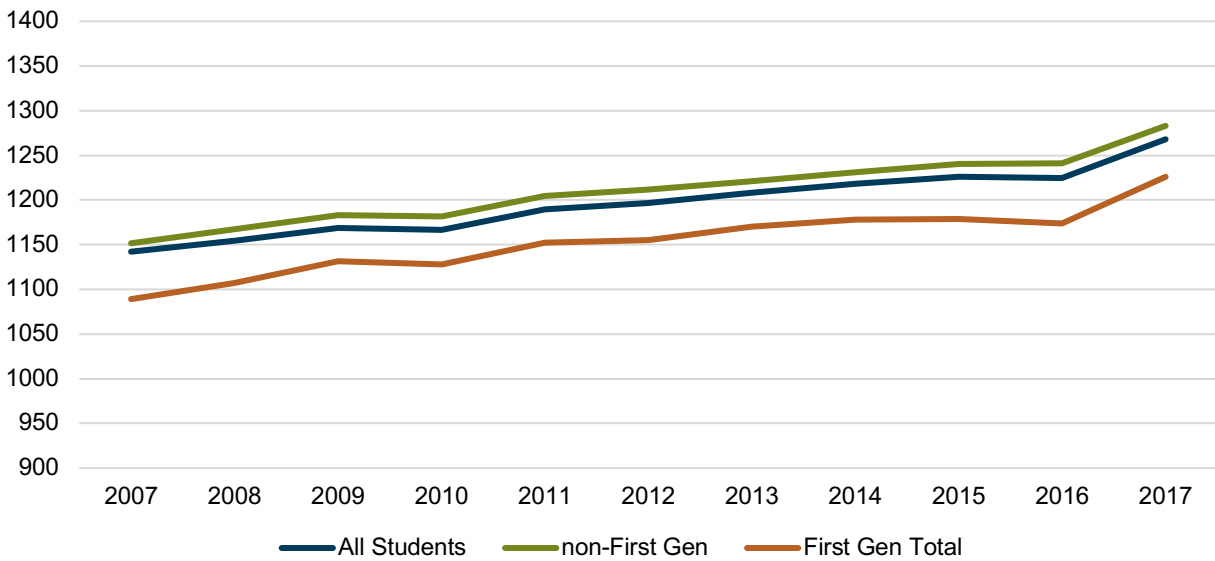
Figure 15   Data provided by the Office of Institutional Research.

Incoming Students' SAT Scores
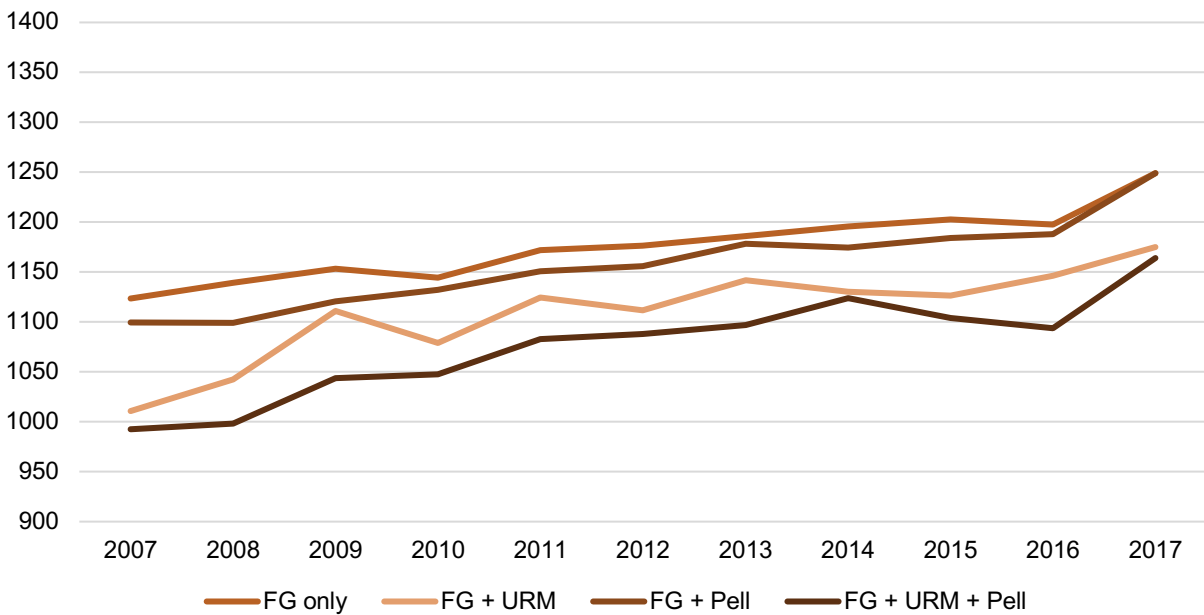
Figure 16   Data provided by the Office of Institutional Research.

Incoming Students' Average High School GPA
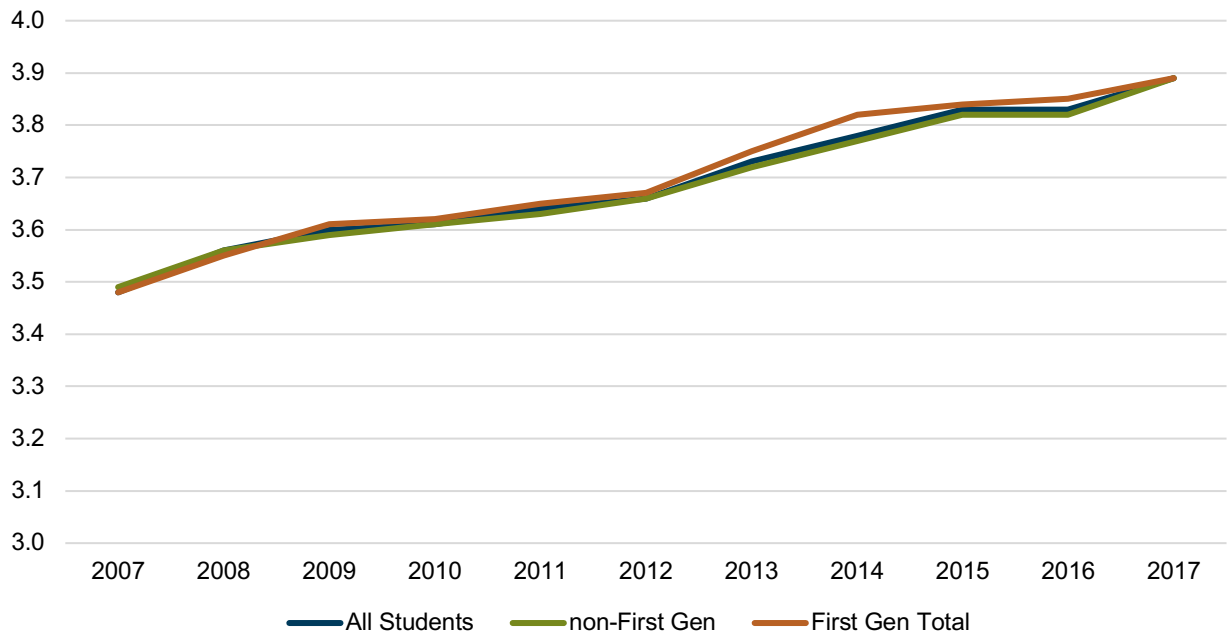
Figure 17   *Data provided by the Office of Institutional Research.*

Incoming Students' Average High School GPA
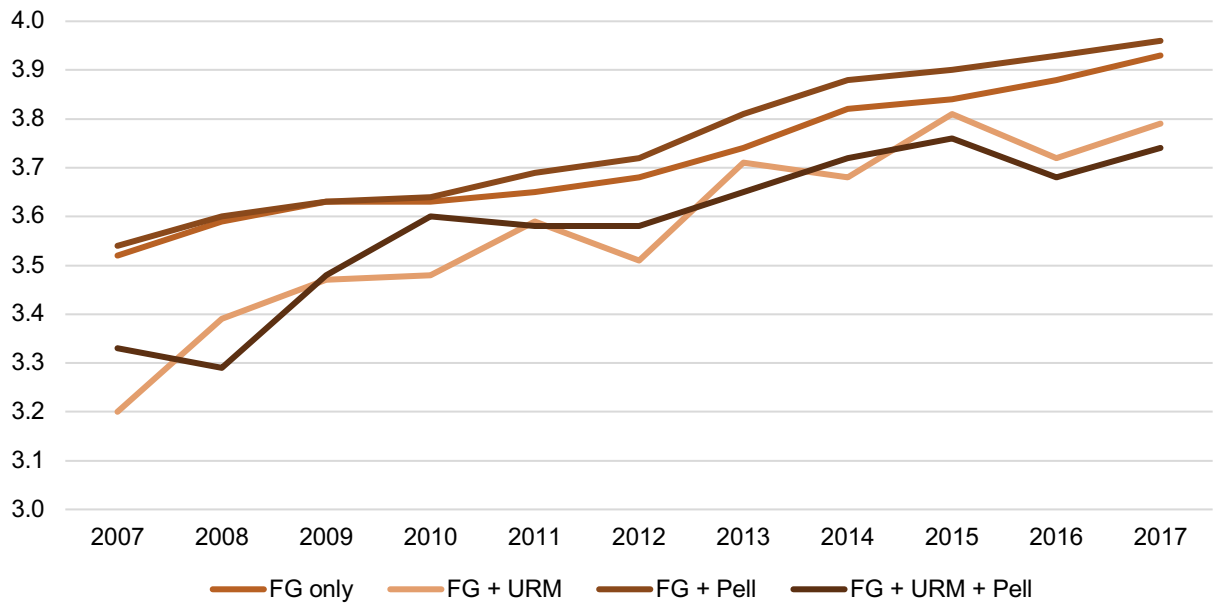
Figure 18   *Data provided by the Office of Institutional Research.*

Once students are on campus, retention and completion are common metrics for gauging a particular aspect of student success. Figure 19, showing the rate with which students return to campus in the fall of their second year, reveals a fairly consistent gap between First Gen and non-First Gen students over a decade. In the last few years, this gap appears to have widened slightly. If this trend continues in the years ahead, it could indicate an area for additional study or intervention.

1-year Retention
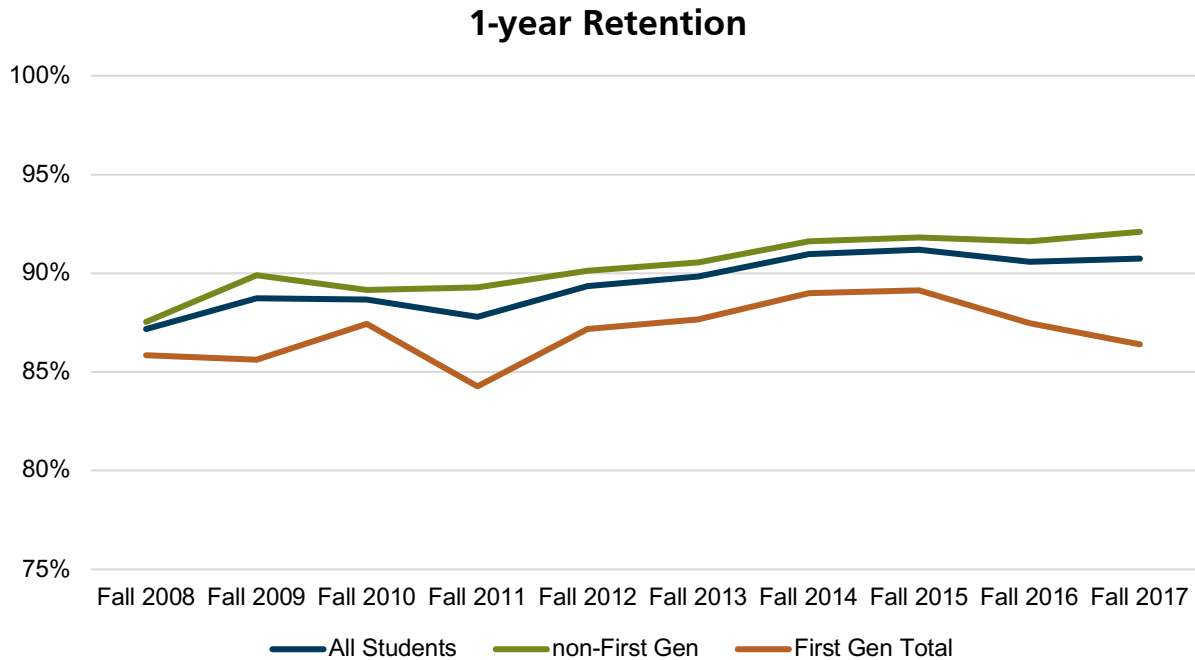
Figure 19   Data provided by the Office of Institutional Research.
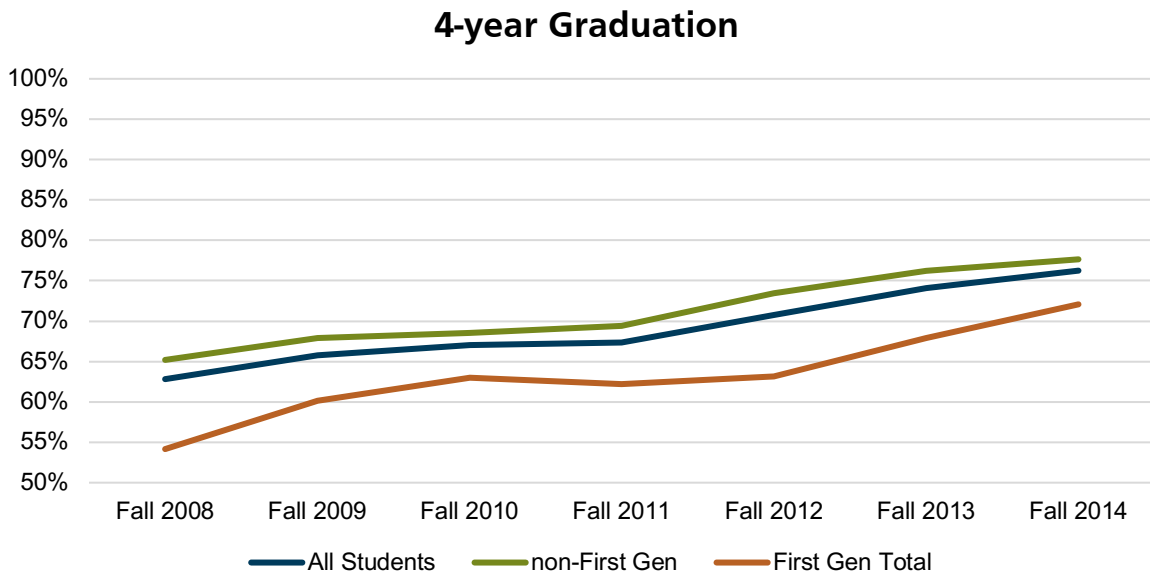
4-year Graduation

Figure 20   Data provided by the Office of Institutional Research.

6-year Graduation
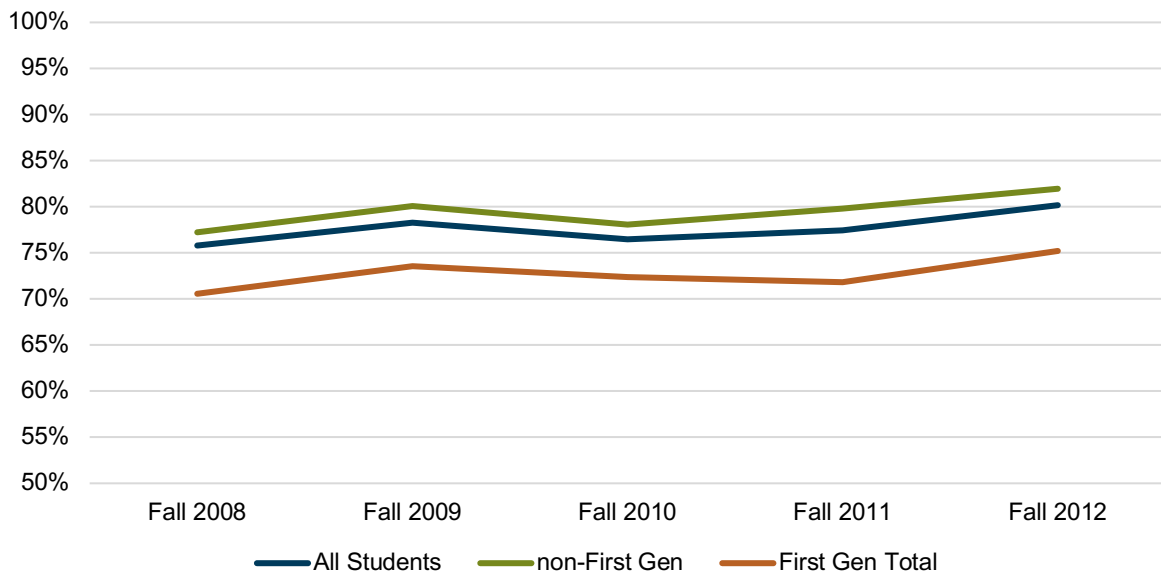
Figure 21   *Data provided by the Office of Institutional Research.*

Four-year completion rates (Figure 20) show an overall upward trend, increasing more than 10 percentage points, on average, for the years shown. This trend is also true for First Gen students, though a consistent 5-10 percentage point gap in completion rates is evident. When examining the 6-year completion rate, a similar gap is apparent between First Gen and non-First Gen students, though completion rates at six years rather than four are logically higher for both groups (Figure 21).

In this section, we move away from examining cross-sections of different cohorts over time. Instead, we follow the most recent cohort for which there are four years of data (students who entered in 2015), and follow them longitudinally. This analysis shows similar gaps (Figure 22). While there is a consistent gap of about three percentage points, attrition over time appears similar for First Gen and non-First Gen students. When this same data is broken down by multiple identities within the First Gen student cohort (Figure 23), similar downward slopes are evident. However, at some points in time URM First Gen students have greater departure rates than other First Gen students. The data for URM First Gen students are comprised of relatively smaller sub-population sizes, and therefore have more natural volatility. Nonetheless, this is suggestive of a place to continue to monitor trends over time, for URM First Gen students in particular.

Fall 2015 Cohort's Retention
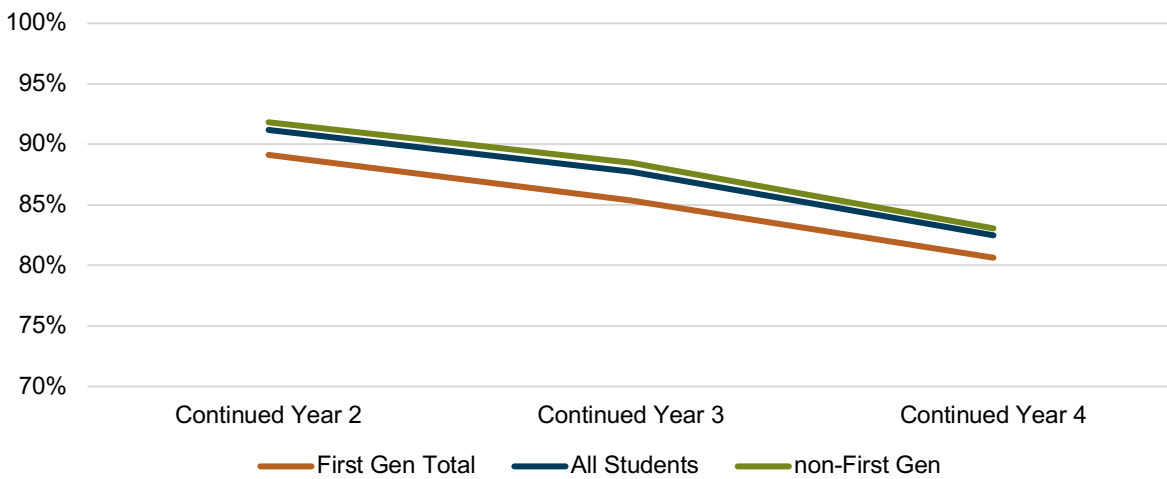
Fall 2015 Cohort's Retention, by Types of First Gen
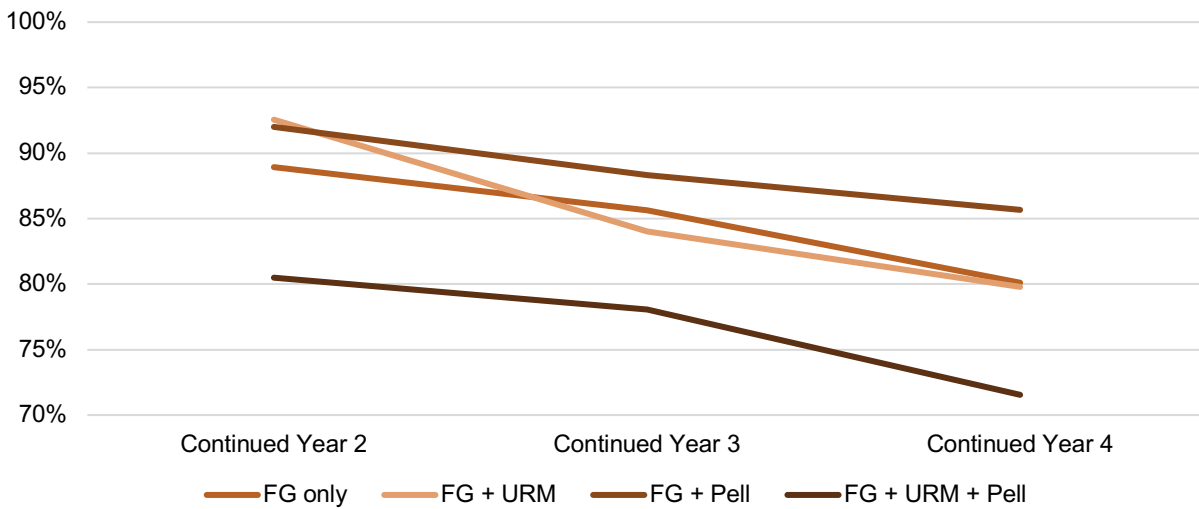
STATISTICAL COMPARISONS OF FIRST GEN AND NON-FIRST GEN COHORTS

While the graphs above provide information about First Gen compared to their peers, a statistical comparison highlights which differences are most profound, in order to prioritize efforts. Results include 1-year retention (i.e., students returning for their second year) for the fall 2016 first-year cohort and 4-year graduation for the incoming fall 2013 first-year cohort. These results utilize a unique combination of institutional data (similar to that utilized above) along with survey data, provided and analyzed by the Office of Academic Planning and Assessment.

Table 1: Overall student characteristics

Student Characteristic	2016 Cohort (1-Year Retention)			2013 Cohort (4-Year Graduation)		
	% or Mean	FG	FG-NonFG	% or Mean	FG	FG-NonFG
First generation	25%	--	--	25%	--	--
1-year retention	91%	87%	-0.04***	--	--	--
4-year graduation	--	--	--	74%	68%	-0.08***
HS GPA	3.83	3.85	0.03*	3.73	3.75	0.02
ACT/SAT score	1,228	1,175	-71***	1,209	1,169	-54***
Female	48%	56%	0.10***	49%	50%	0.02
URM	11%	22%	0.13***	10%	17%	0.10***
Pell-grant recipients	21%	47%	0.35***	22%	48%	0.34***
Financial concern level (out of 3)	1.85	2.05	0.27***	1.82	2.04	0.29***
HS academic engagement (out of 3)	1.71	1.71	-0.01	1.71	1.73	0.03*
HS mental health (out of 3)	2.03	2.08	0.07***	1.86	1.86	<0.01
UM quality of interactions (≥-19 to ≤93)	40.62	39.79	-1.10	40.08	38.66	-1.90**
Connectedness to UM faculty (out of 3)	2.00	1.96	-0.06	2.16	2.10	-0.08*
Sense of belonging at UM (out of 3)	2.44	2.39	-0.07*	2.49	2.42	-0.09**
Sense of UM campus climate (0 to 8)	4.16	4.12	-0.05	3.89	3.83	-0.08
Observations	4,628			4,608		

Data and analysis provided by the Office of Academemic Planning and Assessment.

Note: *** p<0.001, ** p<0.01, * p<0.05

Table 1 shows three sets of descriptive results on each variable, for each cohort: the value for the student population overall, b) the value for First Gen students only, and c) the difference in values between First Gen and non-First Gen students. As shown, a quarter of students are First Gen in each cohort. These First Gen students experience lower rates of 1-year retention than non-First Gen students (by 4 percentage points) as well as lower rates of 4-year graduation (by 8 percentage points).

The consistent differences between First-Gen and non-First Gen students across both the 2016 and 2013 cohorts are worthy of attention. First Gen students have lower average standardized test scores, are more likely to be URM, and are more likely to be Pell recipients, consistent with findings above from the 2018 cohort. Table 1 provides new information as well, showing that First Gen students have higher average levels of financial concern than non-First Gen students, as well as lower average feelings of belonging on the UMass campus.

Descriptive differences in retention and graduation are also shown graphically in Figure 24, supporting results already presented. When differences between First Gen and non-First Gen students on these outcomes are examined for combinations of URM and Pell identities, some groups show larger differences than others (Figures 25 and 26; see also Appendix Table B2). In particular, for 4-year graduation, non-URM, non-Pell students who were First Gen graduated in four years at rates six percentage points lower than similar non-First Gen students, whereas other sub-groups did not show such large differences on the basis of First Gen status (Figure 26). This may indicate that when a student is not only First Gen, but also URM and/or low-income, First Gen status may not be the most salient or directly impactful predictor of their college outcome.

Descriptive Comparison - Retention and Graduation
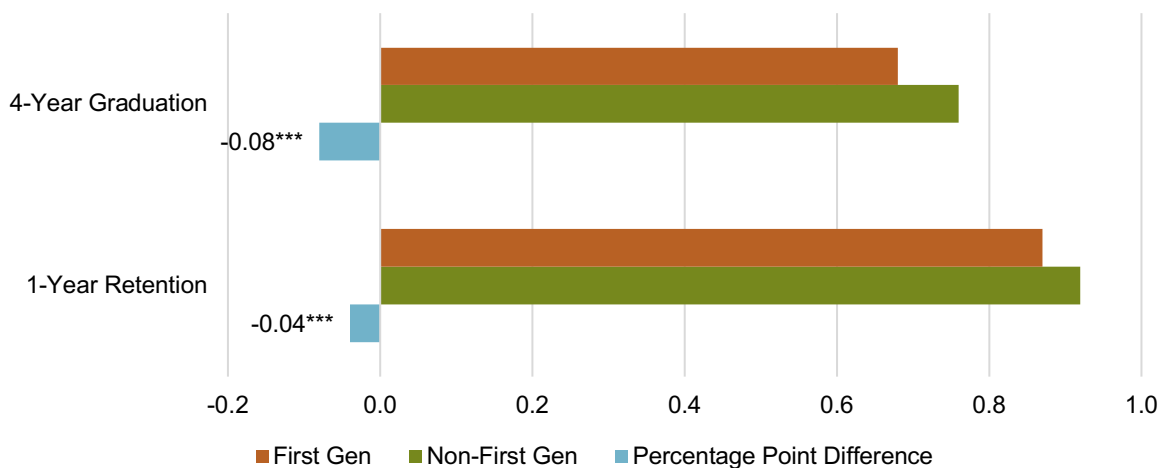
Figure 24   Data and analysis provided by the Office of Academnic Planning and Assessment.

Descriptive Comparison - 1-Year Retention
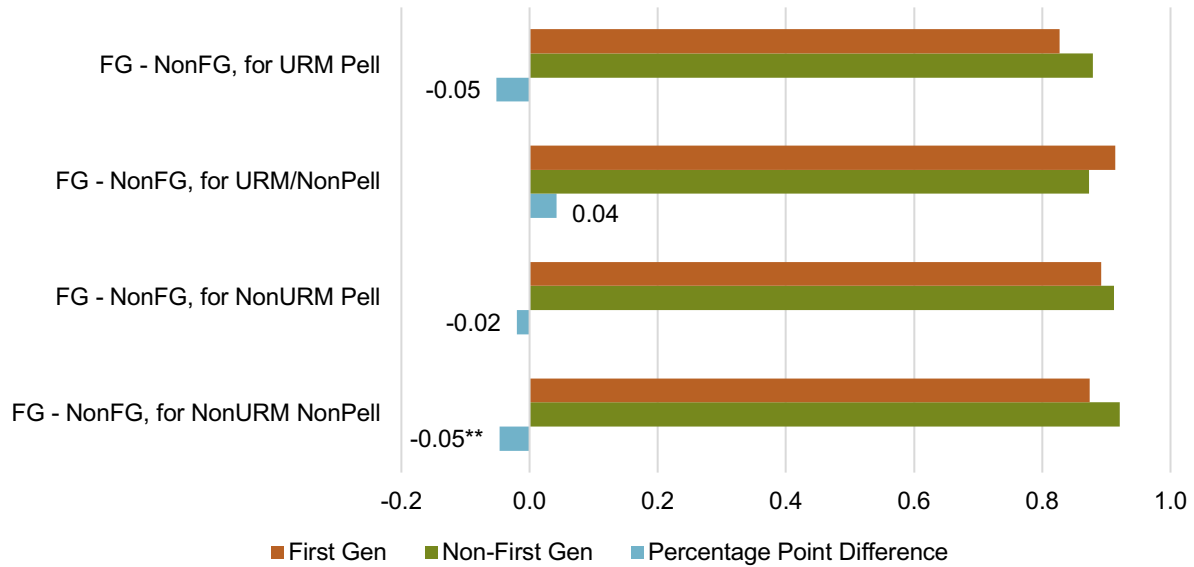
Figure 25   Data and analysis provided by the Office of Academemic Planning and Assessment.

Note: *** p<0.001, ** p<0.01, * p<0.05

Descriptive Comparison - 4-Year Graduation
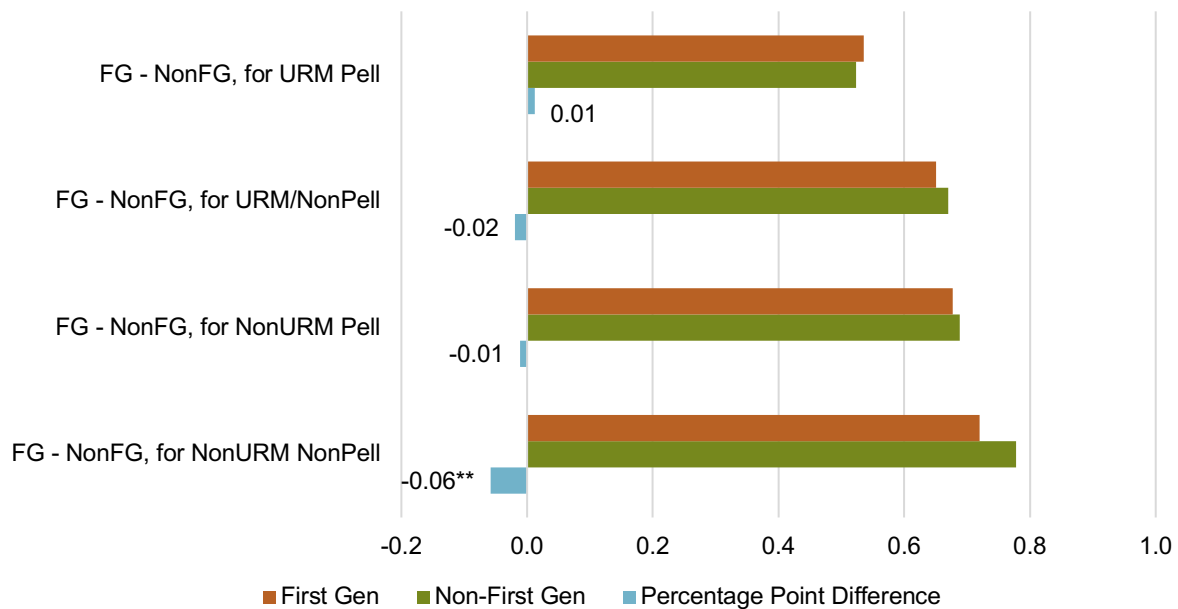
Figure 26   Data and analysis provided by the Office of Academemic Planning and Assessment.

Note: *** p<0.001, ** p<0.01, * p<0.05

STATISTICAL MODELING OF RETENTION AND GRADUATION, BY FIRST GEN STATUS

A final statistical analysis attempts to begin to understand how much of the differences seen between First Gen and non-First Gen students in the descriptive results above are attributable to their generational status, as opposed to the other differences that exist between these groups (e.g., URM status, standardized test scores). In other words, once these other characteristics are statistically adjusted, what differences in retention and graduation remain between First Gen and non-First Gen students? (See Appendix A for technical detail about the regression models.)

Figure 27 shows that after adjusting for URM and Pell status, as well as additional academic financial, and social factors (see Appendix Table C1 for variables used), First Gen students are still predicted to be retained into their second year at slightly lower rates than their non-First Gen peers. Specifically, a First Gen student has a 91% probability of being retained, compared to a 94% probability for a non-First Gen student (see Appendix Table C2). There also remains a two-percentage point gap in the probably of graduating in four years, between First Gen and non-First Gen students. These adjusted differences in outcomes are smaller than the descriptive results above, suggesting that some of the differences in retention and completion are due to factors other than generational status.

Modeled Probability - Retention and Graduation
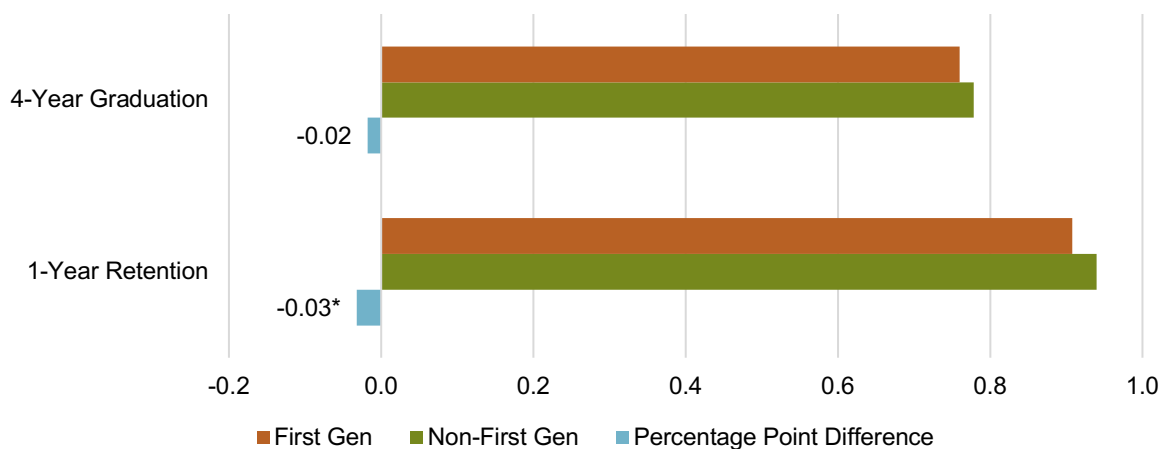
Figure 27   Data and analysis provided by the Office of Academnic Planning and Assessment.

Note: *** $p<0.001$, ** $p<0.01$, * $p<0.05$

Figures 28 and 29 show where differences manifest when groups are disaggregated further by URM and Pell statuses. These figures show predicted probabilities of retention and completion when assuming that these groups are equal on all other modeled factors, but are not directly comparable to Figure 27 based on different estimating techniques (see Appendix C for details). What is evident is that for students who are URM and not Pell recipients, the influence of First Gen status appears to operate differently regarding 1-year retention (Figure 28). Figure 29 shows that the non-URM

and non-Pell group of students is the only one for whom First Gen students are predicted to graduate in four years at lower rates than non-First Gen students, once other factors are considered in the statistical model. These results suggest that intersectional identities may complicate the way that First Gen status is related to success for various sub-groups of students, and indicates an important area for continued future inquiry.

Modeled Probability - 1-Year Retention
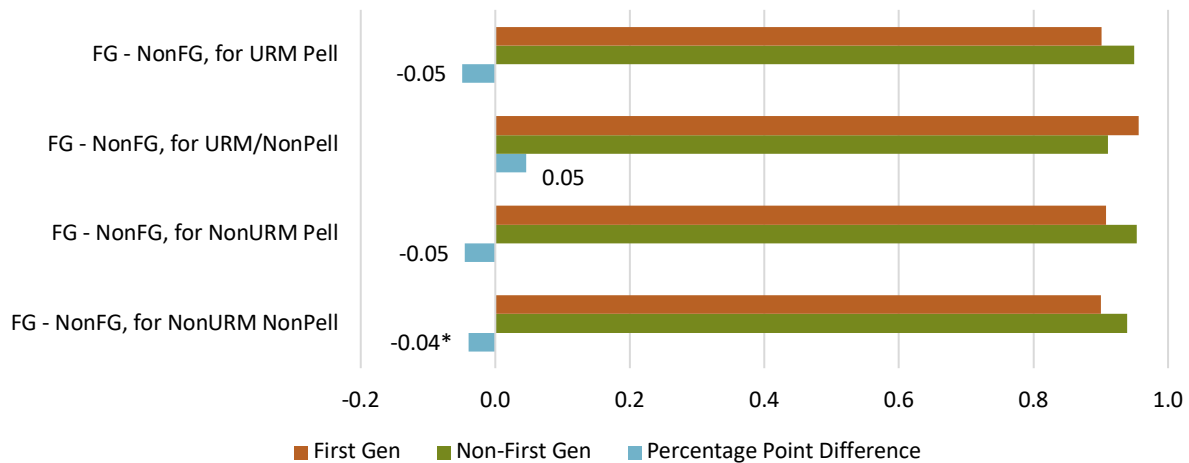
Note: *** p<0.001, ** p<0.01, * p<0.05

Modeled Probability - 4-Year Graduation
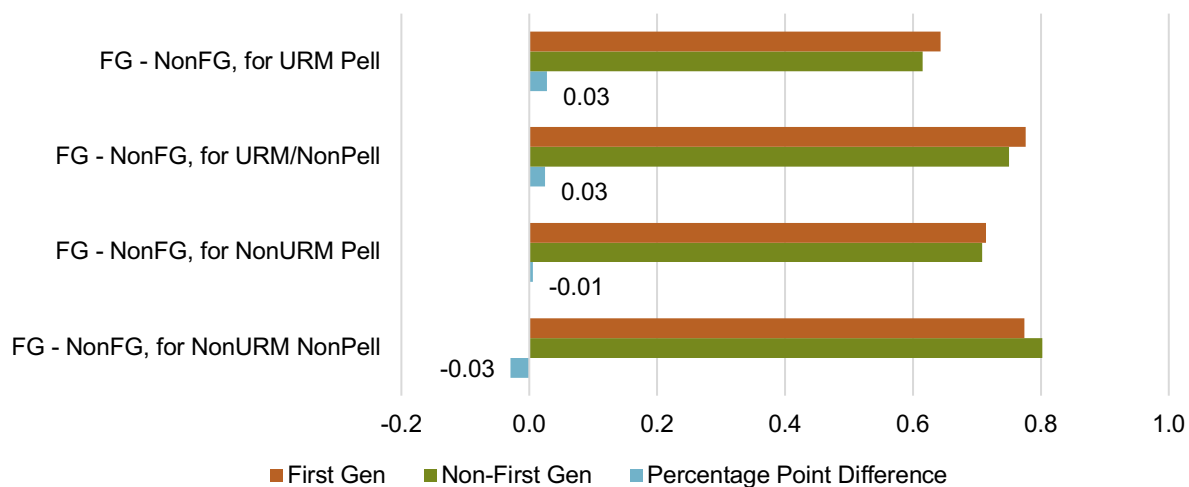
Note: *** p<0.001, ** p<0.01, * p<0.05

Experiences of First Gen students at UMass Amherst

During the 2018-2019 academic year, CSSR personnel conducted a series of focus groups with First Gen students across various majors, class years, and backgrounds. The focus groups asked participants about their perceptions and identification with the term "first generation college student," their choice of academic major, and their experiences on-campus (see Appendix D for full protocol and overview). A total of 54 students participated across 13 groups. While Appendix E demonstrates participant characteristics, it should be noted that Students of Color[4] and women are overrepresented here compared to their presence on campus as a whole.

The sections below provide an overview of how First Gen students perceive that status in regards to their own self-identity and subsequent overall strengths and challenges. Using this general perception, the report then outlines the academic and co-curricular experiences of First Gen students and the most effective forms of support therein. Finally, the third section highlights salient recommendations from First Gen students regarding what initiatives they would find beneficial to support their success.

PERCEPTIONS OF FIRST GEN STATUS

Many students in the focus groups were minimally aware or completely unaware of their own First Gen status. Some noted that the invitation to participate in the study was a surprise, exemplified by one participant's statement that "I didn't even know I was a first gen, until that email, to be honest." Most participants were unfamiliar with the proportion of First Gen students on campus, professing amazement that the population was one-quarter of all students. For most participants, these focus groups were the first time they directly connected with other First Gen students.

Overall, participants did not view First Gen status as being a particularly salient influence on their experiences. First Gen status was largely described as a temporal factor, an experience that most clearly connected with students' experiences at specific times in their college journey (e.g., applications, transition in, transition out). One participant captured this sentiment well: "I feel like first generation the hardest part is really the beginning. It's the application and coming into college and moving here...Once you're at school you get used to it. You end up figuring out how everything works."

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[4] See footnote 3.

Instead of First Gen status, participants talked about other identities that were more salient in their experiences. First Gen status was also distinguished from financial status, where many participants described a gap between First Gen students from low-income families and those with greater wealth. Most participants in the focus groups were Students of Color, who discussed navigating a Predominantly White Institution (PWI). One Black first-year student described feeling disconnected from other Black students because of the racial/ethnic composition of the institution and her choice to live in the Northeast residential area, sharing "I don't see people like me ever." In addition, transfer status was a salient factor that influences how First Gen students navigate UMass. Transfer students, many of whom also discussed being a Student of Color or from families with low-incomes, expressed challenges adjusting to the culture, size, and nuance of UMass. One participant captured this as, "I had a really hard time trying to find anyone that was going through anything that I have." Having a low family income, being a Student of Color, or being a transfer student were often foregrounded in participants' experiences, whereas First Gen status may have been related, but was often not perceived as having a direct impact.

FIRST GEN STUDENT ASSETS

Work ethic. Participants repeatedly described the value of their work ethic, which included the work it took to access college. One participant noted that, "I feel like I had to work harder to get here." Students also described having a strong work ethic across their classes once in college. One senior shared her perception that First Gen students were "more determined to actually finish. I'm not just partying my college experience away, I'm trying really hard in my classes to do what I can." In addition, many students managed one or more jobs alongside their studies, which was often seen as a point of pride.

> " I'm not just partying my college experience away, I'm trying really hard in my classes to do what I can.

Responsibility. First Gen students repeatedly talked about the need to take responsibility for their experiences and to be proactive about pursuing their own success. One participant described this sentiment by noting that First Gen students were "more accountable for ourselves. There's nothing for us to fall back on." Not only were participants responsible for their college success, but they often managed complex administrative processes and worked with their families to complete any necessary parental specific forms (e.g. FAFSA). A first-year student described going home and making sure her financial aid paperwork was current with her mom, noting that "if I'm not super on top of that, it won't get done."

Resourcefulness. Where participants described being unable to rely on familial knowledge or precedent for college, they navigated applications and administrative processes independently. To be successful, they utilized diverse networks of people to provide information and support. One participant described her success as predicated on her efforts to be "really pro-active in high school and finding a lot of mentors that

helped me." Other participants spoke about building networks by reaching out to teachers, friends, and even friends' parents to help provide them with information.

Knowledge. The result of resourcefulness was that once in college, First Gen students often had gained important knowledge about how to navigate complex applications and systems. For example, one student described figuring out her FAFSA as "something all adults should know how to do." As participants figured things out, they gained a foundation of knowledge that many perceived to be unfamiliar to peers. Processes such as setting up electric bills, calling landlords, pumping gas, and grocery shopping were highlighted as things First Gen students not only knew how to do, but about which they helped to educate their non-First Gen peers.

Pride. First Gen student participants knew it took a lot of work to get to college, and saw that as a point of pride. As one student noted, "it's an honor to be [First Gen]. It means you overcome all these things." Another shared, "it's really hard doing everything the first time by yourself, but once you do it, it's amazing. I feel so proud."

Gratitude. For some First Gen students, going to college was a shared goal with their family. This was particularly true for children of immigrants, whose parents actively sought out ways to support their children in attending higher education, even without direct personal experience. One student whose mother emigrated from Haiti described her sense of appreciation "that I had a mom that worked so hard just to make sure that [my and my siblings' opportunities] were better than what she had." Students wanted to use their experiences and knowledge to support others, including younger siblings attending college, and to use their degrees to provide reciprocal support to their families in the future.

FIRST GEN CHALLENGES

Lack of precedent/assistance. While many participants felt pride in being trailblazers in their families, the lack of precedent was also challenging. Students encountered processes that were completely new, ranging from administrative tasks (e.g., college applications, financial aid) to summer orientation, to navigating internships, classes, and career choices. One student described that, "I just didn't know what to prepare for. It was just having to Google search before I got here." Another noted that, "no one knew what I was going to need, or how college was going to be, so I had no one to help me with it." Without prior familial college knowledge, First Gen students navigated the college going process with minimal assistance.

Loneliness. First Gen participants described the college transition as sometimes lonely with several students caught between a lack of connections at UMass Amherst and changing relationships back home. Numerous participants described not being able to fully share their college experience with their families, not only because they were not familiar with the system of higher education, but also because in some cases family members did not understand *why* they were attending college. One student with mental health concerns shared that she "couldn't use [my mom] as a sounding board or ask for advice because that's not something she would really know how to deal [with]." At the same time, being physically distant could be challenging: one participant

described feeling "blindsided. It was difficult, but maybe it was because I was missing home so much. It's two hours away, but still, I struggled." Some participants described the transition as a "culture shock," amplified for First Gen students who also identify as Students of Color or as low-income.

Pressure. First Gen students often felt pressure to be successful both for themselves and their families. As one student noted, "It is a little bit nerve wracking at times because you want to do good, you want to impress your parents. And I'm sure people who are not First Gen have the same pressures as well, but I feel like it's a little bit different."

> "
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The pressure shaped First Gen students' desire to do well in coursework, to take advantage of the different opportunities available, and to secure a successful career. In many cases, participants even supported younger siblings and helped them to complete college applications and the FAFSA. In other instances, First Gen students noted the time, money, and energy they expended to be able to attend and to persevere in college, which created additional pressure to be successful.

Preparation. Many First Gen students described feeling as though they were coming in to UMass at a disadvantage compared to non-First Gen peers because they did not have the same academic preparation. One senior Computer Science major noted that many of his peers came in with AP credits that helped them to move through the major at a faster pace, noting "their parents set them up for success, because maybe they're educated in that same field, and they know how beneficial it is." In addition to academic preparation, there were soft skills like time management and stress relief that not all participants had gained before college. One student described the shift of the first semester, noting that "you really have to manage your time, and you get hit hard your first semester."

Stigma. Many students described being stigmatized by peers on campus regarding their First Gen background. One student noted a belief from others that "if your parents don't have a job that required a degree, that means that they're lazy. Or they're not intelligent." This stigma was amplified for First Gen students who also came from low-income backgrounds, who often experienced snide comments related to receiving financial aid.

ACADEMICS

Major choice. For many First Gen students, financial opportunity was an explicit goal in picking a major. In some cases, participants were encouraged by their families to pick a financially lucrative major. One student noted, "[My mom's] always telling me you have to make the most money. There was a time where I wanted to be a nutritionist, and she was like 'they don't make enough money, okay?'" For participants whose parents

encouraged them to pick majors for financial reasons, pre-med tracks were the most commonly recommended pathway. Other participants described financial success as their own motivation, with one participant describing his choice as "literally Googling what makes money."

Another main determinant of participants' choice of major was their exposure to different options. Many First Gen students drew upon high school subjects to inform their major possibilities, with the result that students with closer relationships with teachers or exposure to broader ranges of subjects often had learned about more potential options. One student shared that he "thought I wanted to do architecture...but I had a teacher in high school who convinced me that more of what I wanted to do was civil engineering, like how [bridges] stand and the things like that." Beyond school, personal recommendations from family were also a salient form of exposure to majors and careers. One student described being encouraged to take an accounting class by her dad, which ultimately led her to selecting accounting as a major.

Finally, for a small subset of First Gen students, the desire to create social change led them to choose a specific major. Two students specifically discussed a desire to run for office and have an impact on their community. One participant described switching into Political Science in the aftermath of the 2016 election because "I got really frustrated. I got more into politics. Also my parents generally didn't have the best experience with the government. So I decided to get into political science." In another case, a First Gen student described wanting to change the culture of mental health in her community after witnessing her sister "going through a lot of challenges with mental illness...and seeing firsthand my family's lack of intelligence when it comes to mental illness."

The primary limitation around picking a major, as well as an institution, was that First Gen students often had minimal and incomplete information when making their decision. Several participants described choosing a major that they thought would be aligned with their long-term goals, only to realize once they were too far into their studies that another option would have been better. An out-of-state First Gen student from New York provided a clear example of the challenge of picking a major and an institution. She chose to study Food Science, noting that, "I always really liked science and chemistry, but I knew that I didn't want to do anything in the medical field. My uncle's a food scientist, so I knew a little bit about his job and I knew that he has a really good stable job and he makes a lot of money."

This student came to UMass because "only one school in New York had food science–Cornell." Only later did she fully realize that UMass was "just as expensive" and began to regret her financially burdensome college choice. She noted that if she had better information in high school, she would have likely made a different choice in both major and college: "I wish someone would've told me, 'You can major in something else or just regular chemistry. You can go to a state school and then get a masters in food science.'" Other participants described misalignment between their interests and the content or structure of the courses in their major, but felt stuck because of the time and energy they had invested.

Professors. First Gen participants felt most connected to professors who tried to be accessible and available. One Landscape Architecture student shared his perception that

"every [professor] does everything that they can to make sure that you succeed every step of the way. They're always there. They give out their phone numbers. They're probably the most supportive people that I've met on campus." Several participants mentioned faculty who were available at all hours of the day, with a couple noting faculty who would respond to emails or texts even late at night. Some described professors who went out of their way to get to know students regardless of large class sizes or other barriers. One Psychology major got connected to a First Gen group on campus because a teacher noticed her struggling in an introductory class, "I was in a lecture hall with probably like 300, 400 people taking Psych 100 so it's very rare that your teacher actually personally knows you. I was struggling and the teacher actually noticed. [They] told me to come to their office and was like, "Hey, what's going on? Are you okay?" And basically hooked me up with some other people that could basically lead me on a track of just getting more support that I needed."

Other ways that professors established relationships with students included providing alternative ways to access course materials and textbooks when they were cost prohibitive, offering informal recommendations around majors and career planning, and being flexible for rescheduling exams and tests.

Participants described faculty as unsupportive when they were less aware or receptive to the unique needs of First Gen students on campus. One transfer student had experienced housing and food insecurity earlier in life, noting that "being at UMass is actually the first time I don't have to worry about that." However, she also needed to work to make sure that she was able to afford school and her basic needs, and described the culture at UMass as less supportive to working students than her previous experience at a community college. She shared that her UMass professors "have been a lot less lenient with students that have actual real life stuff." This came to a head when she lost a close friend one semester and found her professors unwilling to work with her to reschedule exams in a way that would allow her to grieve, meet her work obligations, and complete her academic requirements.

Staff. First Gen students perceived relationships with advisors as largely mixed. Some participants described advising appointments being very procedural and impersonal. One student noted going into an advising meeting related to being pre-med and hoping to build a relationship with her advisor, only to find that the "appointment was no more than ten minutes and I walked out feeling very unsupported." In cases where advisors were proactive and established individual relationships with students, they could be very helpful. Another student shared that, "my advisor was really on top of things. She would go and reach out to me saying 'Hey, it's been a couple of weeks. Has my advice helped?'" Beyond advisors, two students mentioned knowing the dean of their college personally and feeling supported by their availability and engagement with students. Participants also described teaching assistants, supplemental instruction (SI) staff, and other tutors as very beneficial to their success, though sometimes their limited availability was a negative issue. Size was also emphasized among students, with smaller classes, programs, and colleges perceived as providing more outreach and personalized attention to students.

Programmatic initiatives. Several participants mentioned academic programs at UMass geared towards various groups of students, but knowledge of these programs was

inconsistent. One participant described herself as very proactive, but had only found resources available for First Gen students in the College of Natural Sciences towards the end of her sophomore year. She noted, "it's the issue of seeking it out. [First Gen students are] not made very aware and it kind of sucks that I'm now a sophomore, almost a junior, and I'm now finding out all these things." This lack of knowledge of support and programs was reinforced across Schools and Colleges, such as a student who noted that in the College of Social and Behavioral Sciences, "if you don't actively seek it out, you're not going to find it...It's easy to not notice that these things are going on and to avoid them with a busy schedule." When specific programs where discussed, participants highlighted access to particular resources including career development, research experience, and funding as particularly helpful.

Beyond the classroom, First Gen students noted internships and study abroad programs as key complements to their academic experience where they felt at a disadvantage. While non-First Gen students could tap into their networks and utilize familial connections to set up internships, First Gen students did not have the same option. One Computer Science student noted, "I have some friends whose parents will get them internships. They have connections, and stuff like that. Just my parents ... They didn't go to college, so, they don't have a network like that." In other cases, academic programs would offer specific internships or short-term study programs that were inaccessible to students because of their requirements, predicated on students having "some sort of money, to have the time and the money to go there."

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CO-CURRICULAR FACTORS

Residential life. Students largely see the residence halls as supportive environments, particularly first-year students who were assigned both Resident Assistants (RAs) and Peer Mentors (PMs). These student staff members were supportive in directing First Gen students to resources, organizing events, and serving as welcoming presences in their communities. Students mentioned Residential Academic Programs (RAPs), where students took a course together and lived together. One participant noted that participating in a RAP helped students "make an even greater connection among ourselves, and we all became friends." Residence halls also had the benefit of built-in community that students did not necessarily have to seek out. For example, a transfer student expressed having limited time on campus, so living in the hall with other transfer students gave her a chance to connect: "even if we've had completely different lives, there are still some similarities that we can relate." However, for First Gen students who did not find such connections in the residence halls, it could be isolating to be surrounded by peers with whom they were unfamiliar or from whom they felt isolated. Finally, for First Gen students working as RAs or PMs, their exposure to different opportunities and an intentional community were described as directly supporting their success.

Student activities. First Gen students primarily discussed two types of co-curricular involvement. The first type was a general interest activity that connected to a passion the student had. Specific examples include the marching band, equestrian club, and fencing team. The other type of involvement was an identity-based organization that provided participants with a community of individuals with similar backgrounds or experiences. Most notably, several Women of Color in the focus groups were members of multicultural Greek organizations that were able provide holistic support to students, with one participant noting that with "UMass being predominantly white, I knew that I wanted to find a community that was going to support my cultural background and understand my circumstances." Across these organizations, students spoke of connecting with other students (both First Gen and non-First Gen) who shared advice on navigating campus and provided them with friendship and community. The downside to such clubs and organizations was that for students balancing jobs or rigorous course loads, involvement was seen as an added commitment that individuals might not have time to explore.

Campus resources. The Financial Aid office came up repeatedly as an important campus resource for First-Gen students. Financial Aid was referred to as resource that could be stressful given the difficulty of navigating the process, as well as the constant maintenance required to ensure that paperwork remained current or to apply for scholarships. Several students mentioned instances where they experienced mishaps during the process or perceived staff to be unresponsive, resulting in delays or undesired alterations to their aid packages. However, there were also First Gen students who talked about their financial aid packages as being crucial to their success, such as a student who utilized her award and scholarships to go on a six-week study abroad program.

The Center for Counseling and Psychological Health (CCPH) was also a key campus resource mentioned by students, and had similarly mixed reviews. Many students found the services to be helpful, but a handful noted difficulties in finding the right provider for their needs or confusion about the cost of utilizing the service, which deterred their use. One student mentioned her uncertainty about whether her counseling session would be "100% confidential, and [if] they're gonna tell someone my business," Such concerns are not isolated to First Gen students, but may be amplified by many First Gen students' minimal familiarity with navigating such institutional resources.

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> I feel like a lot of times there's a lot of resources, but they're spread across this huge campus.

While First Gen students mentioned other resources such as Career Services, the Center for Multicultural Advancement and Student Success (CMASS), and University Health Services, there was a sense across participants that it could be challenging to fully know which resources were available and how to access them. One participant described that, "I feel like a lot of times there's a lot of resources, but they're spread across this huge campus." Thus, even when resources were available, First Gen students did not always use them due to lack of awareness, or did not use them to their full extent.

FIRST GEN STUDENTS' RECOMMENDATIONS FOR SUPPORT

Focus group participants were mixed in their interest in First Gen-specific programming and initiatives. Overwhelmingly, students agreed that such initiatives should be optional rather than mandatory. When prompted for their specific recommendations for the UMass campus, students provided several areas for consideration.

Before college. Participants spoke about wanting more support during the process of applying and transitioning to college. The fact that multiple students discussed relying on Google for their information emphasizes this point. Students spoke about specific information of what to expect of college, including what to bring, which computer to buy, and what to expect of living in a residence hall. One student generated recommendation was having a New Student Orientation (NSO) session specific to First Gen students; participants were unclear whether this was currently an option.

Initiatives during the first year. Consistently, participants spoke about the need to target programs for First Gen students during their first year at UMass. In addition to measures during summer and fall NSO, participants highlighted first-year seminars or RAPs as potential resources, both of which could provide students with information and community. These suggestions applied to both first-year and transfer students, the latter of whom experienced similar transitional needs but felt they had fewer resources on campus. As one First Gen transfer student noted, "[Transfer students are] hitting it on both ends of just not having anyone at home to help you navigate through it, and then you get to school and there's no one to help here either. I think that might contribute to a lot of them not finishing."

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> [Transfer students are] hitting it on both ends of just not having anyone at home to help you navigate through it, and then you get to school and there's no one to help here either. I think that might contribute to a lot of them not finishing.

Buddy programs. Multiple participants described the idea of First Gen buddy programs, several of which already exist on campus within specific majors or the International Programs Office. Informally, First Gen students often already relied on peers to share knowledge of campus and different opportunities, sometimes going to older students to help them navigate campus resources, staff, or faculty. Thus, one suggestion was to pair First Gen students who were interested and could share insight. As one participant described, "it seems like first gen students have a lot of good tips. That would be good to pass around information." In addition to knowledge, mentorship relationships might normalize and destigmatize the experience for First Gen students, providing a community with whom to share experiences.

Career support. Recommendations for career preparation included more information about potential majors and their career alignment, opportunities for paid internships, and support for securing and transitioning to a career. One specific suggestion was to provide opportunities for students to network with alumni who could talk about being First Gen beyond college and provide tailored advice.

Post-graduation. Participants mentioned graduation as another significant transition for First Gen students. They described wanting more support around processes such as applying to graduate school or setting up loan repayment plans. One participant noted, "For me it's how to apply to grad school. Specifically, the medical field. I'm looking to go into (Physician Assistant) school but right now I feel like the stress of being a first gen student, having my parents only complete a high school education, I already had to navigate college and I'm very well informed. But now it's like starting all over for grad school."

Such recommendations may reveal a lack of familiarity with resources that already exist on campus related to graduate school preparation, such as the "Each One Reach One" program in the Center for Multicultural Advancement and Student Success (CMASS), or in some cases may show a desire for something more suited to First Gen needs specifically.

Non-exclusive programming. There were three prevalent reasons students had for not wanting to make First Gen initiatives exclusive. The first was stigma. Many participants spoke about not wanting to be defined by or singled out based on First Gen status. It can also be hard to share that identity. As one participant noted "it's kind of a heavy topic." Second, First Gen status was not identified by many students as a particularly salient influence on their student experience. Especially for students who were farther along in their college career, their perception was that they had already navigated the primary challenges rooted in their First Gen status. One participant noted, "I feel like first gen ed is a really big part in the beginning part of college, the application and the first few months and stuff like that. But after that I feel like it's not really a part of our identity anymore...I'll always be the First Gen in my family, but it won't be who I am at school." Third, participants valued interactions with non-First Gen peers, whom they often relied on for support or information. One participant described a case in which her friends' parents would speak with her on the phone to help her navigate financial aid paperwork.

Implications and Recommendations

In the final section of this report, we aggregate the information from the multiple data sources and empirical results presented above. We use these findings as the basis for suggesting programmatic initiatives for UMass specifically, but also informed by best practices outlined by national organizations. We also provide recommended areas for future research and exploration related to First Gen students on campus and beyond, in order to extend the foundational work of this report.

Overall, the extent to which First Gen status is important to the college experience is a difficult question to address. On the one hand, students find their First Gen status to be a stigmatized identity that is not well recognized or served by the campus in certain ways. They find this identity to be salient to their college experiences at key transitions in particular, and recommend First Gen-specific programming that may help to address related challenges. Descriptive quantitative results showing gaps between First Gen and non-First Gen students support these notions of the importance of First Gen status.

At the same time, First Gen status is an identity that many First Gen students do not identify with very often, and in some cases are not even aware of. Students often find other parts of their identity to be more relevant to their college experience. Quantitative results showing smaller gaps in retention and completion once these other factors are considered, support the notion that First Gen status may not be the primary factor of importance. Aligned with this view, students desire additional supports and resources, but prefer to have them via programs and policies that are not First Gen-specific, but which are available to a broader range of students.

While seemingly contradictory, this tension is likely an indication of the complicated and dynamic nature of First Gen status, particularly in a context of multiple student identities, located in a multi-faceted university education with diverse experiences and desired outcomes. The challenge for UMass Amherst is to find a balance in their response that honors both of these viewpoints, such that First Gen students are supported and given the greatest chance to experience success, regardless of the way that each individual experiences their First Gen status.

RECOMMENDATIONS FOR PRACTICE

Admissions. Overall, an admissions process that emphasizes standardized exam scores over GPAs or other holistic factors, likely disadvantages First Gen students and particularly First Gen Students of Color. First Gen students have similar incoming GPAs, but lower SAT scores, which could be evidence that GPAs are already considered in meaningful ways in admission decisions for First Gen students. More purposeful attention to this is recommended, however. For example, some institutions are choosing not to consider exam scores for admission at all (Jashick, 2019), as GPAs are more predictive of student success (Galla et al., 2019). The College Board's newly developed "adversity score" in connection with the SAT is something to be investigated for its use in admissions at UMass Amherst (Belkin, 2019), fully considering positive and negative

potential implications for First Gen students. For example, race is not a factor in the adversity score, and given the results for First Gen URM students specifically, a cautious approach is warranted.

Community-based programming. Initiatives that connect First Gen students to groups of First Gen peers can enhance sense of belonging on campus, but can also help promote self-esteem and the use of resources for college adjustment and academic success (Aspelmeier, Love, McGill, Elliott, & Pierce, 2012; Stephens, Hamedani, & Destin, 2014). Such opportunities for community can address the cultural mismatch that some student expressed, between higher education's focus on individuality and independence with students' interdependent motives for pursuing a postsecondary degree (Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012). Several types of initiatives may support First Gen students by providing targeted areas of support during the times when that status is most salient, such as admissions or the first-year transition.

One specific suggestion from First Gen students at UMass, which also aligns with national recommendations, is to create mentorship programs (Whitley et al., 2018). While multiple mentorship programs currently exist at UMass across academic majors and other campus groups, examining whether there should be one specifically related to First Gen status would be valuable. Such a recommendation, however, is in tension with the request not to create First-Gen specific programming, due to stigma concerns or a lack of identification with the First Gen label. If programs target First Gen students, they will miss those who may not even be aware that they meet the criteria for such a label. While students described specific experiences related to their First Gen status, they also discussed their unique needs rooted in specific majors and career goals as well as other identities they held (e.g., Students of Color, students with disabilities). Thus, an ideal mentorship program would provide students with the opportunity to be matched based on multiple goals or characteristics, one of which should be First Gen status. While the program could vary in structure, existing programs have spanned a breadth of formats such as one offered at Clemson University where peers are paid for their time as mentors and take a class together.

Some institutions, like Miami University and University of North Carolina-Chapel Hill, have had success with "Firsts" programs designed to provide specific support to First Gen students that encompass elements such as student organizations, workshops, and resource fairs. While UMass students expressed mixed feelings about specific First Gen programs on campus, they did suggest several of these same elements of support, including workshops related to completing certain paperwork (e.g., FAFSA, taxes), learning about specific resources and scholarships, and building their career portfolio.

One specific form of community highlighted by First Gen students resides within the residence halls. Scholars have found that intentionally designed residential programs can promote greater academic and social transition to higher education (Inkelas et al., 2007; Means & Pyne, 2017). Focus group participants echoed this idea, noting that first-year students are already required to live in the residence halls at UMass and to engage in academic and social initiatives. A RAP for First Gen students might be able to provide targeted academic and social support. This could be similar to the existing Bio-Pioneers RAP in the life sciences, though open to a broader range of student majors. Again, however, such a recommendation is in tension with student recommendations to not

base interventions on First Gen status alone. In that sense, programming such as the SBS Academic Fellows program, which explicitly invites First Gen students but is open to a broader range of underrepresented students, could be a model of participation to explore further.

Alternatively, first-year seminars related to First Gen student needs could provide a form of community without a residential requirement. Existing national programs incorporate academic coursework and study skills, social interaction, and civic engagement alongside familial involvement. Integrating families into the support structures is promising given First Gen students' comments about their familial situations. Consideration should be given to expanding such programs to also be accessible to transfer students, given specific concerns expressed by these students at UMass. Transfer students may not have the same credit flexibility as first-year students, but still often live in the residence halls during their transition to campus and desire opportunities to connect and learn. As a result, the university might consider extending the current Transfer RAP in meaningful ways, or finding other ways to support First Gen transfer students.

Resource needs and coordination. UMass has a website for First Gen students that shares the number of First Gen students, highlights resources, and provides a place for students to request follow up. However, results in this report demonstrate that students continue to be unclear about the full range of supports available to them or where to go for specific types of information. This phenomenon, informally referred to by students as the "UMass runaround," was reported by several First Gen students.

One example of confusion related to resources was the need for mental health-related services. Not only did first-year First Gen students report feeling depressed, anxious, and overwhelmed more often than non-First Gen students during the year leading to college attendance, they were also unclear about CCPH-related services, costs, and confidentiality. The result is that already marginalized students may be less likely to seek or be able to access support services on campus. Deriving strategies to proactively get accurate and useful mental health information to First Gen students who need it, and ultimately to provide beneficial services for them, is challenging yet imperative. The existing "Let's Talk" series provided by CCPH is an effort to destigmatize access to services, which might be examined for its relevance for First Gen students, as well as other student groups.

First Gen students at UMass also need additional resources and guidance related to work and careers. Beginning with selecting a major and continuing through opportunities for internships, students expressed confusion or uncertainty around career alignment and expectations. For those who persist through to degree completion, the transition out of college and to work also provoked anxiety and confusion. A sustained effort to provide more regular information about careers, as well as varied types of career development services would be valuable. The need to work during school to afford college is often not connected to the conversations about career development, but perhaps it could be given students' struggles with doing so in a productive way. Understanding how to find work that is meaningful, feasible, and how it relates to a future career can provide coherence across parts of the First Gen experience that often feel disconnected. Understanding how existing programs may meet some of these needs for First Gen students is important, as is understanding whether a program's fee

structure is affordable, or may in fact deter low-income students, who are more often First Gen.

Other opportunities that students might not understand as career development per se, can also be valuable for First Gen students specifically. For example, students expressed a desire for greater access to research experiences with faculty. UMass has existing resources to assist students with such opportunities via the Office of Undergraduate Research and Studies. This service is not specific to First Gen students, but might meet their needs while not specifically targeting or identifying First Gen status. However, the extent to which this is true of such broad-based campus programs should be investigated further.

Undergraduate research is a type of activity that falls under the umbrella of High Impact Practices (HIPs) (Kuh, 2008), which have been recommended as ways to engage First Gen students specifically (Whitley et al., 2018). Internship and study abroad opportunities, which students directly discussed, also fit into this category. Finding ways to provide such high impact opportunities in an equitable manner is important for many students, including First Gens.

Students interactions with faculty were a mix of positive and negative, but efforts to make them more consistently positive would be valuable. In addition to the specific ways students descried faculty as helpful (or not), the research literature offers suggestions as well. To support First Gen students, faculty members can be explicit in outlining expectations for courses, avoiding jargon, unpacking potentially new concepts (e.g., office hours), and working to build relationships with students (Collier & Morgan, 2008; Means & Pyne, 2017). Existing resources about effective teaching for First Gen students, such as those developed at UC Davis, would be useful as a starting point to see what can be adapted for use at UMass Amherst.

National trends suggest that campuses should have a point person or particular office to coordinate First Gen efforts (Whitley et al., 2018). Examples of these offices include the First Generation Student Gateway at the University of Michigan that contains connections to resources, a dedicated staff member, and recreational and study space. Additionally, Kansas State University offers the Office of First-Generation Students that directs students to other resources on campus, matches students within a mentoring program, and hosts specific leadership, research, and support programs. Having one dedicated contact point for First Gen students provides them with a clear place to have their questions answered and to request assistance when challenges arise. One challenge to this approach is that it will only reach students who know about their First Gen status and choose to actively identify as such. Results of this study show that many First Gen students would not be reached through such efforts.

If offering a specific office or cohort-based programs may be resource prohibitive or infeasible for other reasons, a networked approach may streamline services and create synergy across recruitment and programming by requiring that offices work together to support First Gen students (Whitley et al., 2018). A networked approach is also valuable given that First Gen students may utilize other campus resources for support if they are more aligned with their self-perceptions or needs such as diverse scholarship programs, multicultural centers or offices, and identity-based student organizations (Means & Pyne,

2017). For example, a networked approach may be particularly beneficial for URM First Gen students for whom race/ethnicity may be more salient than First Gen status. The "First in the Family" receptions that have been held on campus may serve as a basis for such a networked approach, although they are designed for First Gen students specifically, rather than having a broader base of participants. In addition, there may be other efforts currently underway that utilize this approach but are simply unbeknownst to students, suggesting a need to develop further strategies to raise awareness of resources.

RECOMMENDATIONS FOR RESEARCH

This report provides a glimpse into experiences of First Gen students at UMass Amherst. The findings also lead to new and valuable questions and suggest additional methods and data sources to investigate. For example, while many institutional data sources were utilized, more varied sources could still provide further insight. As another example, while we had diverse samples of students, the focus groups were broad-based and exploratory. More detail can be uncovered in the future by conducting focus groups related to specific subgroups of First Gen students (e.g., transfer, Students of Color, first-year students). In this final section of the report, we suggest a few directions for future inquiry to extend the work of this report.

Example areas for inquiry. While this report examined a range of factors, including retention and degree completion, there are more success-related factors that deserve attention. Given gaps in retention, course-level outcomes, over time and by year in school, would be valuable to examine. A few other examples of academic-related questions include:

- What factors are related to success or failure in foundational, gateway, or bottleneck courses?
- What may help or hinder First Gen students in minimizing their time to degree completion?
- What is common and what is different across Colleges and School in regards to these factors?
- Why are First Gen students underrepresented in the Honors College?

In addition to formal academic experiences, there are many other facets of university life that can be explored in more depth:

- Why are First Gen students reporting higher levels of mental health concerns upon entry to the University?
- What are the unique barriers to service delivery of such services for this population?
- What are the factors that help or hinder students in accessing and completing High Impact Practices on campus?

Even prior to matriculating, there are questions about which First Gen students make it to campus, how prepared they are, and what can be done to smooth their transitions.

- What is the role of standardized exams in admissions (versus factors like GPA) and how does this affect First Gen students?
- How does recruitment and outreach extend to First Gen students, either directly or indirectly through other efforts?

Specific populations of First Gen students also deserve greater attention in order to understand their needs and situations. For example:

- What are the unique experiences of First Gen transfer students?
- How can transfer pathways—before, during, and after transfer—be more conducive to success?

Intersectionality. Across the results in this report, there is evidence that some of what First Gen students experience may be attributed to URM and Pell status, rather than to First Gen status directly. Findings suggest, for example, that First Gen Students of Color may have greater feelings of isolation, that cannot be explained by First Gen status alone. Multiple Students of Color in focus groups spoke to gravitating towards spaces where they could connect with others around shared racial/ethnic backgrounds such as the cultural centers or Greek life and feeling disconnected when those spaces were unavailable. Alternatively, First Gen students from immigrant backgrounds spoke of the unique pressures and challenges of navigating both new institutional and national contexts. Future inquiry can provide a deeper dive into intersecting systems of oppression for these students, and continue to disaggregate across specific identities. Moreover, such research can expand to look at First Gen sub-populations with unique needs such as undocumented students or students previously in foster care.

Additional practices. While our data covered multiple areas of student experience on campus, national best practices highlight several topics that are not explored in this study related to parental engagement, faculty and staff, and technology (Whitley et al., 2018). Several institutions engage parents of First Gen students through designated orientation sessions or listservs. Faculty and staff engagement spans connection with First Gen professionals on campus and targeted resources to provide training and support related to working with First Gen students. [Kansas State University](#), for example, has a mentoring program where First Gen faculty and students are connected. For non-First Gen faculty and staff, professional development initiatives have included dedicated trainings on how faculty and staff can support First Gen students at the [UNC-Chapel Hill](#). Finally, some institutions use technology to engage First Gen students through automatic emails and text messages, online platforms for advising and coaching, or social media. Our study did not fully examine the needs of First Gen students at UMass that might be connected to such recommendations, but exploration of these issues is warranted.

While this final section has presented some areas where it would be valuable to know even more about the First Gen population at UMass, the staff and faculty who work with and serve First Gen students should be tapped for additional information and conversation. These groups of professionals likely know the answers to some of these questions already through their daily practice, and can help to refine the questions that

most immediately need to be addressed in order to provide evidence on which to base future efforts. This group can provide insight into other questions that should be asked that a brief research report cannot address, or which students themselves may not even be aware. Convenings of such professionals in conversation about this report, national best practices, and other current information related to First Gen students would be valuable in charting next steps toward improving policies and practices at UMass Amherst for First Gen student success.

References

Aspelmeier, J. E., Love, M. M., McGill, L. A., Elliott, A. N., & Pierce, T. W. (2012). Self-esteem, locus of control, college adjustment, and GPA among first- and continuing-generation students: A moderator model of generational status. Research in Higher Education, 53(7), 755-781. https://doi.org/ 10.1007/s11162-011-9252-1

Atherton, M. C. (2014). Academic preparedness of first-generation college students: Different perspectives. Journal of College Student Development, 55(8), 824-829. http://doi.org/10.1353/csd.2014.0081

Belkin, D. (2019). SAT to give students 'adversity score' to capture social and economic background. The Wall Street Journal. Retrieved from https://www.wsj.com/articles/sat-to-give-students-adversity-score-to-capture-social-and-economic-background-11557999000

Blackwell, E., & Pinder, P. J. (2014). What are the motivational factors of first-generation minority college students who overcome their family histories to pursue higher education? College Student Journal, 48(1), 45-56.

Collier, P. J., & Morgan, D. L. (2008). "Is that paper really due today?": differences in first-generation and traditional college students' understandings of faculty expectations. Higher Education, 55(4), 425-446. https://doi.org/10.1007/s10734-007-9065-5

Cataldi, E. F., Bennett, C. T., & Chen, X. (2018). First-generation students: College access, persistence, and postbachelor's outcomes. Stats in Brief (NCES 2018-421). U.S. Department of Education. Washington, D.C.: National Center for Education Statistics.

Galla, B. M., Shulman, E. P., Plummer, B. D., Gardner, M., Hutt, S. J., Goyer, J. P., D'Mello, S. K., Finn, A. S., & Duckworth, A. L. (2019). Why high school grades are better predictors of on-time graduation than are admissions test scores: The roles of self-regulation and cognitive ability. American Educational Research Journal. Advanced online publication. https://doi.org/10.3102/0002831219843292

Gibbons, M. M., Rhinehart, A., & Hardin, E. (2016). How first-generation college students adjust to college. Journal of College Student Retention: Research, Theory, & Practice, 20(4), 488-510. https://doi.org/10.1177/1521025116682035

Inkelas, K. K., Daver, Z. E., Vogt, K. E., & Leonard, J. B. (2007) Living-learning programs and first-generation college students' academic and social transition to college. Research in Higher Education, 48(4), 403-434. https://doi.org/10.1007/s11162-006-9031-6

Jaschik, S. (2019, April 1). New push for test option. Inside Higher Education. Retrieved from https://www.insidehighered.com/admissions/article/2019/04/01/more-colleges-go-test-optional-admissions

Kim, Y. K., & Sax, L. J. (2009). Student-faculty interaction in research universities: Differences by student gender, race, social class, and first-generation status. Research in Higher Education, 50(5), 473-459. https://doi.org/10.1007/s11162-009-9127-x

Kuh, G. D. (2008). High-impact educational practices: What they are, who has access to them, and why they matter. Washington, D.C.: Association of American Colleges and Universities.

Lohfink. M. M., & Paulsen, M. B. (2005). Comparing the determinants of persistence for first-generation and continuing-generation students. Journal of College Student Development, 46(4), 409-428. https://doi.org/10.1353/csd.2005.0040

Martin, G. L. (2015a). "Always in my face": An exploration of social class consciousness, salience, and values. Journal of College Student Development, 56(5), 471-487. https://doi.org/10.1353/csd.2015.0048

Martin, G. L. (2015b). "Tightly wound rubber bands": Exploring the college experiences of low-income, first-generation white students. Journal of Student Affairs Research and Practice, 52(3), 275-286. http://dx.doi.org/10.1080/19496591.2015.1035384

McCarron, G. P., & Inkelas, K. K. (2006). The gap between educational aspirations and attainment for first-generation college students and the role of parental involvement. Journal of College Student Development, 47(5), 534-549. https://doi.org/10.1353/csd.2006.0059

Means, D. R., & Pyne, K. B., (2017). Belonging in low-income, first-generation, first-year college students. Journal of College Student Development, 58(6), 907-924. https://doi.org/10.1353/csd.2017.0071

Nguyen, T. H., & Nguyen, B. M. D. () Is the "first-generation student" term useful for understanding inequality? The role of intersectionality in illuminating the implications of an accepted–yet unchallenged–term. Review of Research in Education, 42, pp. 146-176. http://doi.org/10.3102/0091732X18759280

Pascarella, E. T., Pierson, C. T., Wolniak, G. C., & Terenzini, P. T. (2004). First-generation college students: Additional evidence on college experiences and outcomes. The Journal of Higher Education, 75(3), 249-284.

Stebleton, M. J., & Soria, K. M. (2012). Breaking down barriers: Academic obstacles of first-generation students at research universities. Learning Assistance Review, 17

Stephens, N. M., Fryberg, S. A., Markus, H. R., Johnson, C. S., & Covarrubias, R. (2012). Unseen disadvantage: How American universities' focus on independence undermines the academic performance of first-generation college students. Journal of Personality and Social Psychology, 102(6), 1178-1197. https://doi.org/10.1037/a0027143

Stephens, N. M., Hamedani, M. G., & Destin, M. (2014). Closing the social-class achievement gap: A difference-education intervention improves first-generation students' academic performance and all students' college transition. Psychological Science, 25(4), 943-953. https://doi.org/10.1177/0956797613518349

Toutkoushian, R. K., Stollberg, R. A., & Slaton, K. A. (2018). Talking 'bout my generation: Defining "first-generation college students" in higher education research. Teachers College Record, 120(4).

Whitley, S.E., Benson, G., & Wesaw, A. (2018). First-generation Student Success: A Landscape Analysis of Programs and Services at Four-year Institutions. Washington, DC: Center for First-generation Student Success, NASPA–Student Affairs Administrators in Higher Education, and Entangled Solutions.

Methodological Appendices

APPENDIX A – DATA AND METHODS FOR REGRESSION MODELS

RETENTION OUTCOMES INVESTIGATED
- **1-Year Retention:** For Fall 2016 first-year cohort, 1-year retention from Fall 2016 to Fall 2017 (binary variable Bflag1yr; retained=1, not retained=0)
- **4-Year Graduation:** For Fall 2013 first-year cohort, 4-year graduation rate from Fall 2013 to Fall 2017 (binary variable Bgradin4; graduated=1, did not graduate=0)

MODEL COVARIATES ARE FULLY INTERACTED WITH FIRST GENERATION STATUS VARIABLE
- First generation college student? (binary variable Bfg; yes=1, no=0)
  (Includes 3-way interaction between First Gen, URM and Pell-grant status.)

COVARIATES INCLUDED IN MODELS
These variables are the same for both 1-year retention and 4-year graduation rate analyses unless otherwise noted.

Student Database Variables
- High school grade point average (continuous variable hsgpa)
- SAT math score, supplemented with ACT math score scaled to SAT (continuous variable sat_act)
- Female? (binary variable Bfemale; female=1, male=0)
- Residency (categorical variable Cres; 1=in-state, 2=out-of-state, 3=international)
- Under-represented minority? (binary variable Burm)
- Student is Pell Grant eligible? (binary variable Bpell_grant)
- Expected family contribution (logged variable efclog)
- School/College (categorical variable Csch_s; 1=HFA, 2=CNS, 3=SBS, 4=CICS, 5=EDUC, 6=ENG, 7=ISOM, 8=NUR and PHHS, 12=Undeclared)
- Withdrew from at least one class? (binary variable Bcrse_w_yr1 in year 1 for the Fall 2016 cohort; Bcrse_w at any point for the Fall 2013 cohort)
- Got D or F in at least one class? (binary variable Bcrse_df_yr1 in year 1 for the Fall 2016 cohort; Bcrse_df at any point for the Fall 2013 cohort)
- English as a second language? (binary variable Besl)
- Athlete? (binary variable Bathlete)
- Participated in Greek life? (binary variable Bgreek_life in year 1 for the Fall 2016 cohort; Bgreek_life at any point for the Fall 2013 cohort)
- In Commonwealth Honors College? (binary variable Bhonor_start at start of year 1 for the Fall 2016 cohort; Bhonor_ever at any point for the Fall 2013 cohort)
- Submitted a FAFSA form for financial aid? (binary variable Bfafsa)

Cooperative Institutional Research Program (CIRP) Freshman Survey through HERI

- UMass was the student's X choice (categorical variable Cchoice; where X = 1=1st choice, 2=2nd choice, 3=3rd choice, 4=4th or lower choice)
- Level of student's financial concern about their ability to finance their college education (categorical variable Cfinconcern; 1=none, 2=some, 3=major)
- Demonstrated for a cause in the past year (categorical variable Cdemonstr; 1=not at all, 2=occasionally, 3=frequently)
- Asked a teacher for advice after class in the past year (categorical variable Chelp; 1=not at all, 2=occasionally, 3=frequently)
- Consumed alcohol (categorical variable Calcohol; 1=not at all, 2=occasionally, 3=frequently)
- Intend to change major field (categorical variable Cmajchange; 1=no chance, 2=very little chance, 3=some chance, 4=very good chance)
- Intend to transfer (categorical variable Ctransfer; 1=no chance, 2=very little chance, 3=some chance, 4=very good chance)
- Hours spent partying (categorical variable Cparty; (1=none, 2=<1hr, 3=1-2hrs, 4=3-5hrs, 5=6-10hrs, 6=11-15hrs, 7=16-20hrs, 8=20+hrs))
- Political views (categorical variable Cpoliview; 1=far right, 2=conservative, 3=middle, 4=liberal, 5=far left)
- Academic engagement (composite variable classrm_comp; continuous values 1-3; included bored in class, late to class, skipped class, fell asleep in class, failed to complete homework on time)
- Mental health (composite variable mental_comp; continuous values 1-3; included felt overwhelmed, felt depressed, felt anxious-2013 only)

MODEL

The model used is similar for both retention and graduation outcomes. It includes a 3-way interaction between First Gen, URM and Pell-grant status. This 3-way interaction was handled using Stata's factor variable notation, which includes all relevant interaction terms, including 2-way and 3-way terms.

$$Retention = \begin{cases} 1 & \beta_1 FG(1\ 0) + FG(1\ 0) * (\beta_2 StudentDB + \beta_3 CIRP) + \varepsilon > 0 \\ 0 & else \end{cases}$$

Where:
FG(1 0) refers to both values of 1=first generation and 0=non-first generation;
StudentDB refers to the student database variables listed above;
CIRP refers to the variables from the CIRP first-year survey listed above.

Cases included:
- Full Fall 2016 first-year cohort for 1-year retention analysis
- Full Fall 2013 first-year cohort for 4-year graduation analysis

Missing data: Handled through multiple imputation, *m*=100

Descriptive statistics: Means and standard errors are presented for both 2013 and 2016 cohorts.

Analysis method: Logistic regression, using the model indicated above that interacts first generation status with all other independent variables and includes a full 3-way interaction between first generation status, URM status, and Pell-grant status.

TABLE A1. GROUP SIZE FOR COMBINATIONS OF FIRST GENERATION STATUS, URM STATUS, AND PELL-GRANT STATUS

| | 2016 Cohort | | | | 2013 Cohort | | | |
| | First Gen | | Non-First Gen | | First Gen | | Non-First Gen | |
	%	N	%	N	%	N	%	N
URM / Pell	71%	179	29%	74	69%	140	31%	63
URM / NonPell	26%	70	74%	204	26%	63	74%	182
NonURM / Pell	51%	369	49%	351	51%	418	49%	408
NonURM / NonPell	16%	540	84%	2841	17%	553	83%	2781

APPENDIX B: TABLES OF DESCRIPTIVE RESULTS
Table B1. Estimated means and standard errors of the estimates; mean comparisons across First Gen status

	(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)	
	2016 Cohort Overall		2016 Cohort First Generation	2016 NonFirst Generation	2016 Cohort First – NonFirst		2013 Cohort Overall		2013 Cohort First Generation	2013 NonFirst Generation	2013 Cohort First - NonFirst	
Variables	Mean	SE	Mean	Mean	Difference		Mean	SE	Mean	Mean	Difference	
Retained at end of year 1	0.91	(0.00)	0.87	0.92	-0.04	***			–	–	–	
Graduate within 4 years	–	–	–	–	–		0.74	(0.01)	0.68	0.76	-0.08	***
First Generation	0.25	(0.01)	–	–	–		0.25	(0.01)	–	–	–	
High school GPA	3.83	(0.01)	3.85	3.82	0.03	*	3.73	(0.01)	3.75	3.73	0.02	
ACT/SAT score	1,228.46	(1.84)	1,175.29	1,246.20	-70.91	***	1,209.24	(1.79)	1,168.95	1,223.02	-54.06	***
Female	0.48	(0.01)	0.56	0.46	0.10	***	0.49	(0.01)	0.50	0.48	0.02	
Residency: In-state	0.74	(0.01)	0.79	0.72	0.07	***	0.73	(0.01)	0.80	0.70	0.10	***
Residency: Out-of-state	0.19	(0.01)	0.14	0.20	-0.06	***	0.24	(0.01)	0.16	0.26	-0.10	***
Residency: International	0.08	(0.00)	0.07	0.08	-0.01		0.04	(0.00)	0.04	0.04	0.00	
Underrepresented racial minority	0.11	(0.00)	0.22	0.08	0.13	***	0.10	(0.00)	0.17	0.07	0.10	***
Received Pell Grant	0.21	(0.01)	0.47	0.12	0.35	***	0.22	(0.01)	0.48	0.14	0.34	***
Expected family contribution	8.97	(0.05)	6.86	9.68	-2.82	***	8.24	(0.05)	6.05	8.99	-2.94	***
1=HFA	0.08	(0.00)	0.08	0.09	-0.01		0.06	(0.00)	0.04	0.07	-0.02	***
2=CNS	0.34	(0.01)	0.40	0.32	0.07	***	0.27	(0.01)	0.32	0.25	0.06	***
3=SBS	0.18	(0.01)	0.19	0.17	0.01		0.08	(0.00)	0.08	0.09	-0.01	
4=CICS	0.06	(0.00)	0.04	0.07	-0.03	***	0.03	(0.00)	0.03	0.03	0.00	
5=EDUC	0.02	(0.00)	0.02	0.02	0.00		–	–	–	–	–	
6=ENG	0.11	(0.00)	0.09	0.11	-0.02	*	0.08	(0.00)	0.06	0.09	-0.03	***
7=ISOM	0.13	(0.00)	0.11	0.14	-0.03	**	0.15	(0.01)	0.11	0.16	-0.05	***
8=NUR or PHHS	0.08	(0.00)	0.08	0.08	0.01		0.06	(0.00)	0.06	0.06	0.00	
12=Undeclared	–	–	–	–	–		0.26	(0.01)	0.31	0.25	0.06	***
Withdrew from at least 1 class (1st year / ever)	0.08	(0.00)	0.10	0.07	0.03	**	0.22	(0.01)	0.23	0.21	0.02	

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Variables	(1) 2016 Cohort Overall	(2)	(3) 2016 Cohort First Generation	(4) 2016 Cohort NonFirst Generation	(5) 2016 Cohort First - NonFirst		(6) 2013 Cohort Overall	(7)	(8) 2013 Cohort First Generation	(9) 2013 Cohort NonFirst Generation	(10) 2013 Cohort First - NonFirst	
	Mean	SE	Mean	Mean	Difference		Mean	SE	Mean	Mean	Difference	
Got D or F in at least 1 class (1st year / ever)	0.21	(0.01)	0.27	0.19	0.08	***	0.40	(0.01)	0.48	0.37	0.11	***
English as a second language	0.15	(0.01)	0.22	0.12	0.10	***	0.12	(0.00)	0.21	0.09	0.12	***
Athlete	0.04	(0.00)	0.05	0.04	0.01		0.05	(0.00)	0.04	0.06	-0.02	*
Member of Greek life	0.08	(0.00)	0.07	0.08	-0.01		0.11	(0.00)	0.11	0.11	-0.01	
Honors student (1st year / ever)	0.13	(0.00)	0.10	0.14	-0.03	**	0.22	(0.01)	0.18	0.23	-0.06	***
Filled out FAFSA form	0.80	(0.01)	0.89	0.77	0.12	***	0.86	(0.01)	0.92	0.84	0.08	***
Supportive environment	37.86	(0.26)	37.87	37.86	0.01		37.64	(0.35)	37.09	37.83	-0.74	
Quality of interactions	40.62	(0.26)	39.79	40.90	-1.10		40.08	(0.30)	38.66	40.56	-1.90	**
Effective teaching practices	38.02	(0.23)	37.85	38.08	-0.23		38.53	(0.30)	38.56	38.52	0.03	
Student/Faculty interactions	18.28	(0.30)	18.70	18.14	0.56		18.36	(0.39)	18.50	18.31	0.19	
UMass ranked choice	1.98	(0.02)	2.01	1.97	0.04		2.03	(0.02)	2.01	2.04	-0.04	
Financial concerns	1.85	(0.01)	2.05	1.78	0.27	***	1.82	(0.01)	2.04	1.75	0.29	***
Demonstrated	1.27	(0.01)	1.30	1.27	0.04		1.25	(0.01)	1.27	1.24	0.03	
Asked teacher for help	2.11	(0.01)	2.12	2.10	0.02		2.13	(0.01)	2.10	2.14	-0.04	
Consumed alcohol	1.62	(0.01)	1.56	1.64	-0.08	***	1.73	(0.01)	1.64	1.76	-0.12	***
Intend to change major	2.60	(0.02)	2.60	2.60	0.01		2.50	(0.02)	2.46	2.52	-0.05	
Intend to transfer	1.94	(0.02)	1.94	1.93	0.00		1.89	(0.02)	1.92	1.88	0.04	
Hours spent partying	2.70	(0.04)	2.53	2.76	-0.23	***	2.87	(0.03)	2.70	2.93	-0.23	***
Political views	3.38	(0.02)	3.37	3.39	-0.02		3.28	(0.01)	3.24	3.29	-0.05	
Classroom behavior composite	1.71	(0.01)	1.71	1.71	-0.01		1.71	(0.01)	1.73	1.70	0.03	*
Mental health composite	2.03	(0.01)	2.08	2.01	0.07	***	1.86	(0.01)	1.86	1.86	0.00	
Connectedness to faculty	2.00	(0.01)	1.96	2.01	-0.06		2.16	(0.02)	2.10	2.18	-0.08	*
Connectedness to UMass overall	2.32	(0.01)	2.29	2.33	-0.04		2.29	(0.02)	2.24	2.30	-0.07	

Variables	(1) 2016 Cohort Overall Mean	(2) SE	(3) 2016 Cohort First Generation Mean	(4) 2016 Cohort NonFirst Generation Mean	(5) 2016 Cohort First - NonFirst Difference	(6) 2013 Cohort Overall Mean	(7) SE	(8) 2013 Cohort First Generation Mean	(9) 2013 Cohort NonFirst Generation Mean	(10) 2013 Cohort First - NonFirst Difference
Sense of Belonging	2.44	(0.01)	2.39	2.46	-0.07 *	2.49	(0.01)	2.42	2.51	-0.09 **
Number of affiliated groups	0.87	(0.02)	0.77	0.91	-0.14 **	1.31	(0.03)	1.36	1.30	0.07
Satisfaction with racial climate	3.32	(0.01)	3.23	3.35	-0.12 **	2.98	(0.02)	2.93	3.00	-0.07
Number of types of unfair treatment	1.13	(0.04)	1.41	1.04	0.37 **	1.53	(0.06)	1.66	1.49	0.17
Hours working for pay	0.48	(0.02)	0.63	0.44	0.19 ***	1.72	(0.04)	1.93	1.65	0.28 **
Campus climate scale	4.16	(0.02)	4.12	4.17	-0.05	3.89	(0.02)	3.83	3.91	-0.08
Observations	4,628		1,158	3,470		4,608		1,174	3,434	

Note: Data corresponds to Figure 24. Standard errors in parentheses.

*** $p<0.001$, ** $p<0.01$, * $p<0.05$

TABLE B2. DESCRIPTIVE GROUP RETENTION DIFFERENCES ACROSS FIRST GEN STATUS, URM STATUS, AND PELL-GRANT STATUS

Group Comparison	2016 Cohort 1-Year Retention			2013 Cohort 4-Year Graduation		
	First Gen	Non-First Gen	Percentage Point Difference	First Gen	Non-First Gen	Percentage Point Difference
FG - NonFG, for NonURM NonPell	0.874	0.921	-0.047**	0.720	0.778	-0.058**
	(0.014)	(0.005)	(0.015)	(0.019)	(0.008)	(0.021)
FG - NonFG, for NonURM Pell	0.892	0.912	-0.020	0.677	0.689	-0.012
	(0.016)	(0.015)	(0.022)	(0.023)	(0.023)	(0.032)
FG - NonFG, for URM/NonPell	0.914	0.873	0.042	0.651	0.670	-0.020
	(0.034)	(0.023)	(0.041)	(0.061)	(0.035)	(0.070)
FG - NonFG, for URM Pell	0.827	0.878	-0.052	0.536	0.524	0.012
	(0.028)	(0.038)	(0.048)	(0.042)	(0.063)	(0.076)

Note: Data corresponds to Figures 25 and 26. Standard errors in parentheses.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

APPENDIX C: TABLES OF STATISTICALLY MODELED RESULTS

Table C1. Average marginal effects (AME), from logistic regression model

	(1)	(2)	(3)	(4)
	2016 Cohort		2013 Cohort	
	AME FG	AME NonFG	AME FG	AME NonFG
Variables	Retained Year 1 End	Retained Year 1 End	4 Year Graduation	4 Year Graduation
First Generation = 1	-0.019	-0.033*	-0.021	-0.026
	(0.013)	(0.014)	(0.018)	(0.018)
High school GPA	0.030	0.008	0.032	0.005
	(0.032)	(0.015)	(0.044)	(0.025)
ACT/SAT score	0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Female = 1	0.034	0.005	0.093**	0.071***
	(0.023)	(0.011)	(0.030)	(0.016)
Residency = 2 = Out-of-state	-0.077*	-0.072***	-0.145***	-0.053**
	(0.034)	(0.014)	(0.039)	(0.017)
Residency = 3 = International	0.057	0.014	-0.012	-0.031
	(0.038)	(0.019)	(0.097)	(0.048)
Underrepresented racial minority = 1	0.033	-0.029	-0.030	-0.053
	(0.022)	(0.019)	(0.037)	(0.028)
Received Pell Grant = 1	-0.012	0.020	-0.069	-0.089**
	(0.027)	(0.018)	(0.037)	(0.029)
Expected family contribution	-0.002	0.004	-0.005	-0.004
	(0.003)	(0.002)	(0.004)	(0.003)
School or college = 1 = HFA	-0.075	-0.036	-0.032	-0.056
	(0.047)	(0.020)	(0.070)	(0.032)
School or college = 3 = SBS	0.000	-0.030*	0.076	-0.009
	(0.028)	(0.015)	(0.052)	(0.028)
School or college = 4 = CICS	0.016	0.026	0.097	0.069
	(0.050)	(0.017)	(0.069)	(0.035)
School or college = 5, EDUC	-0.051	0.063***	–	–
	(0.084)	(0.019)	–	–
School or college = 6 = ENG	0.005	0.007	0.144**	0.043
	(0.036)	(0.016)	(0.053)	(0.027)
School or college = 7 = ISOM	0.057	0.009	0.146**	0.069**
	(0.030)	(0.015)	(0.045)	(0.023)
School or college = 8 = NUR_PHHS	0.003	0.017	0.071	0.016
	(0.038)	(0.018)	(0.064)	(0.034)
School or college = 12 = Undeclared	–	–	-0.010	-0.007
	–	–	(0.036)	(0.021)
Withdrew from at least 1 class, 1st year/ever = 1	-0.071*	-0.113***	-0.098**	-0.110***
	(0.036)	(0.023)	(0.033)	(0.018)
Got D or F in at least 1 class, 1st year/ever = 1	-0.063*	-0.069***	-0.174***	-0.156***
	(0.025)	(0.014)	(0.030)	(0.018)
English as a second language = 1	0.016	0.005	0.022	0.005
	(0.028)	(0.017)	(0.035)	(0.027)

Variables	(1) 2016 Cohort AME FG Retained Year 1 End	(2) AME NonFG Retained Year 1 End	(3) 2013 Cohort AME FG 4 Year Graduation	(4) AME NonFG 4 Year Graduation
Athlete = 1	0.048	0.005	-0.057	-0.066*
	(0.037)	(0.020)	(0.076)	(0.032)
Member of Greek life = 1	0.072*	0.064***	0.067	0.038
	(0.030)	(0.010)	(0.040)	(0.021)
Honors Students, 1st year/ever = 1	0.016	0.034*	0.135***	0.080***
	(0.038)	(0.015)	(0.038)	(0.020)
Filled out FAFSA form = 1	0.033	0.020	-0.029	0.021
	(0.051)	(0.015)	(0.067)	(0.023)
UMass ranked choice	-0.005	0.009	-0.008	0.008
	(0.012)	(0.006)	(0.017)	(0.009)
Financial concerns	-0.009	-0.011	-0.080**	-0.027
	(0.020)	(0.010)	(0.027)	(0.016)
Demonstrated	-0.026	-0.001	-0.029	-0.027
	(0.020)	(0.011)	(0.029)	(0.017)
Asked teacher for help	0.005	0.028***	-0.008	0.015
	(0.016)	(0.008)	(0.022)	(0.014)
Consumed alcohol	0.007	-0.009	-0.026	0.030*
	(0.021)	(0.009)	(0.028)	(0.015)
Intend to change major	0.005	0.005	0.027	-0.003
	(0.013)	(0.007)	(0.019)	(0.010)
Intend to transfer	-0.042**	-0.032***	-0.033	-0.032**
	(0.015)	(0.007)	(0.020)	(0.011)
Hours spent partying	0.003	0.005	0.019	0.008
	(0.010)	(0.004)	(0.012)	(0.006)
Political views	0.013	0.015*	-0.003	-0.002
	(0.015)	(0.007)	(0.021)	(0.012)
Classroom behavior composite	-0.006	-0.000	-0.039	-0.065**
	(0.031)	(0.015)	(0.043)	(0.025)
Mental health composite	-0.013	-0.018	-0.030	-0.040*
	(0.024)	(0.011)	(0.033)	(0.017)
Observations	1,158	3,470	1,174	3,434

Note: Standard errors in parentheses.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

TABLE C2. ADJUSTED PREDICTIONS AND MARGINAL EFFECT AT THE MEANS (MEM)

	2016 Cohort	2013 Cohort
	1-Year Retention	4-Year Graduation
Adjusted Prediction at the Means for FG	0.908	0.760
	(0.012)	(0.018)
Adjusted Prediction at the Means for NonFG	0.940	0.778
	(0.005)	(0.008)
Marginal Effect at the Means (FG - NonFG)	-0.032*	-0.018
	(0.013)	(0.020)
Observations	4,628	4,608

Note: Data corresponds to Figure 27. Standard errors in parentheses.

*** p<0.001, ** p<0.01, * p<0.05

TABLE C3. ADJUSTED PREDICTIONS AT REPRESENTATIVE VALUES (APR) ACROSS FIRST GENERATION STATUS, URM STATUS, AND PELL-GRANT RECIPIENT STATUS

Group	2016 APR	2013 APR	Group	2016 APR	2013 APR
1. NonFG /NonURM/NonPell	0.939	0.802	5. FG/NonURM/NonPell	0.900	0.774
	(0.006)	(0.010)		(0.015)	(0.021)
2. NonFG /NonURM/Pell	0.953	0.708	6. FG/NonURM/Pell	0.908	0.714
	(0.012)	(0.029)		(0.022)	(0.036)
3. NonFG /URM/NonPell	0.911	0.750	7. FG/URM/NonPell	0.956	0.776
	(0.020)	(0.033)		(0.020)	(0.054)
4. NonFG /URM/Pell	0.950	0.615	8. FG/URM/Pell	0.901	0.643
	(0.022)	(0.068)		(0.031)	(0.058)

Note: Data corresponds to Figures 28 and 29. Standard errors in parentheses. Other student characteristics and survey responses held at their means.

TABLE C4. MARGINAL EFFECTS AT REPRESENTATIVE VALUES (MER) ACROSS FIRST GENERATION STATUS, URM STATUS, AND PELL-GRANT RECIPIENT STATUS

		2016 Cohort 1-Year Retention		2013 Cohort 4-Year Graduation	
APR #s	Group Comparison	MER	SE	MER	SE
5vs1	FG - NonFG, for NonURM NonPell	-0.040*	(0.016)	-0.029	(0.023)
6vs2	FG - NonFG, for NonURM Pell	-0.045	(0.025)	0.006	(0.046)
7vs3	FG - NonFG, for URM/NonPell	0.046	(0.028)	0.025	(0.063)
8vs4	FG - NonFG, for URM Pell	-0.049	(0.038)	0.028	(0.089)

Note: Data corresponds to Figures 28 and 29. Standard errors in parentheses. Other student characteristics and survey responses held at their means. APR numbers 1-8 refer to the adjusted predictions at representative values (APR) in Appendix Table C3. Significant MER highlighted.

*** $p<0.001$, ** $p<0.01$, * $p<0.05$

APPENDIX D - FOCUS GROUP PROTOCOL

The research team emailed a random quarter of First Gen students on campus inviting them to participate in this study. Interested participants were directed to a brief screening survey that asked questions about their First Gen status, age, transfer status, race/ethnicity, credits completed, and interest/availability to participate in a focus group. Subsequently, participants were invited to participate in a series of focus groups which took place across the 2018-2019 academic year (7 in fall, 6 in spring). While 214 students took the survey, 54 students agreed to and actually participated in a focus group. The average group size was four students. All data collection was approved by the UMass Amherst Institutional Review Board.

Doctoral students and faculty with the Center for Student Success led each group for approximately one hour, with most focus groups led by one doctoral candidate who was also a Graduate Assistant in the Center. Each focus group was audio recorded and transcribed. Focus group questions were:
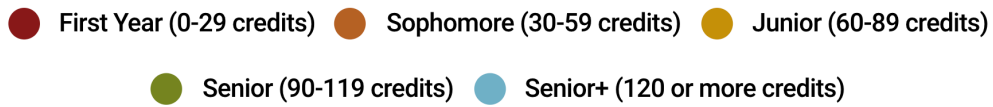
1. Where do you see yourself in five years?
2. Overall, how would you describe your experiences here at UMass?
3. How do you define or think about the term "first-generation college student?" Do you consider this term to be a particularly salient part of the way you think about yourself?
4. What do you consider your main challenges to be as students? What do you consider your main assets as students to be?
5. Please tell us about a time or times that you felt particularly connected to the campus or people on the campus. How about disconnected?
6. Have you found any people, programs, or offices to be particularly supportive? Unsupportive?
7. Please tell us a bit about your majors and how you selected them. How supportive do you feel that they are of first-generation college students?
8. Do you feel like a part of a first gen "community' at UMass? Why or why not? If not: would that be desirable?
9. What do you wish you had known when you were applying to college? When you arrived on campus?

Following the interviews, data were coded using both inductive and deductive approaches. Using literature on First Gen population nationally, the research team developed deductive codes to examine areas such as transition to college, engagement with faculty, and relationship to other identities. Simultaneously, by reading, re-reading, and writing detailed memos during the initial analysis phase, the research team also formed inductive codes from the text that examined the temporal nature of First Gen status, the role of specific organizations and campus offices such as Greek Life or Residence Life as supportive spaces, and student-led recommendations for optional programs. Triangulation of these results occurred by comparing codes across several different types of analysis, with quantitative results, and in dialogue with First Gen educators at UMass Amherst who served as external experts to review the results.
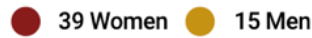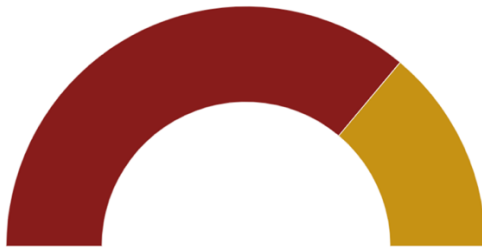
APPENDIX E - FOCUS GROUP PARTICIPANT BREAKDOWN

Focus Group Participants: 54 Total

Class Year

- ● First Year (0-29 credits)
- ● Sophomore (30-59 credits)
- ● Junior (60-89 credits)
- ● Senior (90-119 credits)
- ● Senior+ (120 or more credits)

Gender

- ● 39 Women
- ● 15 Men

Transfer Student Status

- ● 11 Transfer Students
- ● 43 Non-Transfer Students

Age Breakdown

● 18 Years Old ● 19 Years Old ● 20 Years Old ● 21 Years Old ● 22 Years Old ● 24 Years Old

● 25 Years Old ● 26 Years Old

Average Age: 20 Years Old

Race/Ethnicity (Collapsed into Categories)

● White (European/European American) ● Asian or Southeast Asian ● Multi-racial/Multi-ethnic

● Latinx/Hispanic ● Black ● Native American/Indian