

## First-Generation Students at Purdue

Purdue's efforts to improve student success metrics – and to better serve students – compel the University to keep first-generation students on-track with the rest of the student population. This report presents data on first-generation students – their demographics, self-reported needs and beliefs, and academic performance in particular classes, majors and colleges.

### Demographics

First-generation students represent about 20% of new beginner students in each of the past four fall terms (2012 to 2015). Indiana residents account for the majority of first-generation students, though the international share has increased. Over the past four years, 22% of women and 18% of men have been first generation. Purdue's overall gender balance has been about 57% men and 43% women, and among first-generation students it is 52% men and 48% women.

First-generation status is substantially more common for two ethnic groups: Hispanic/Latino (31%) and Black or African American (29%). Despite the high percentages for these two groups, the majority (64%) of first-generation students are white. (see Figure 1)

Figure 1: Number & Percent of First-Generation Students by Ethnicity for fall 2012 to fall 2015

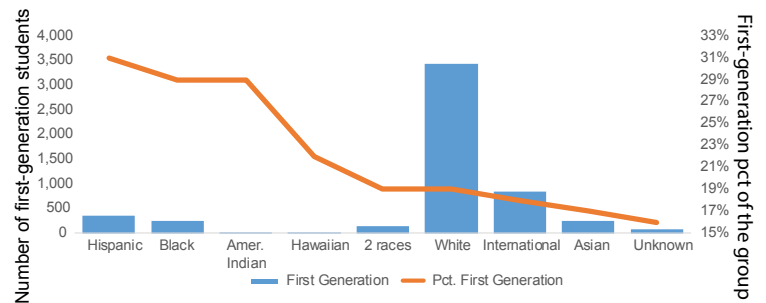
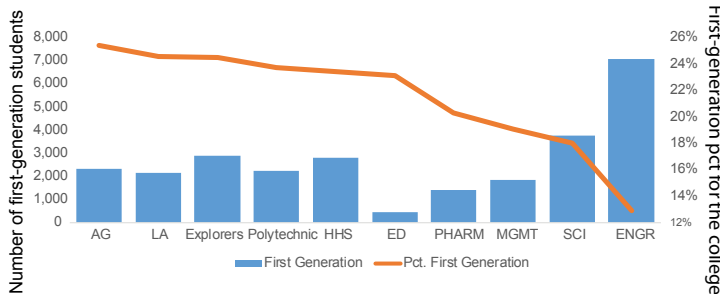


Figure 2: Number & Percent of First-Generation Students by College for fall 2012 to fall 2015



First-generation students' academic qualifications are similar, but there is a small but consistent gap between the academic qualifications of first-generation students and those of other students in their cohort. In combined Math and Critical Reading scores, first-generation students earn scores that are about 40 points lower than the average for all students. The gap is 38 points for the Math SAT and 28 points for the Critical Reading section.

Among Purdue's academic schools and colleges, first-generation students are well-represented in some schools and underrepresented in others. In the College of Agriculture, 25% of students are first-generation, but in Engineering only 13% are. Nevertheless, because of its large overall enrollment, Engineering hosts the largest number of first-generation students.

Figure 3: Comparison of Math SAT Scores by Range, First-Generation v. Other Students for fall 2012 to fall 2015

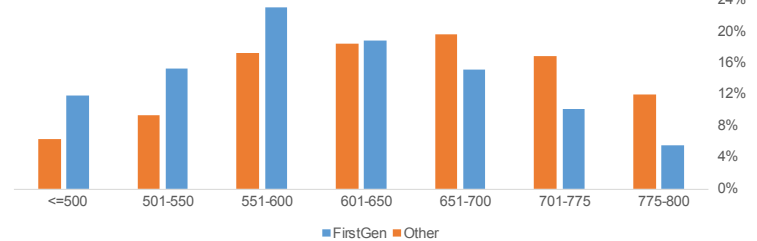
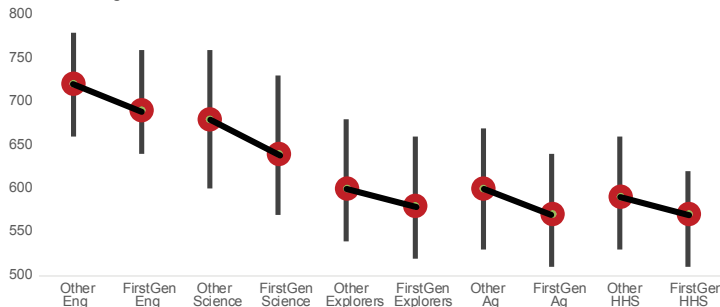


Figure 4: Comparison of Math SAT Percentiles, First Generation v. Other Students, Five Selected Colleges for fall 2012 to fall 2015

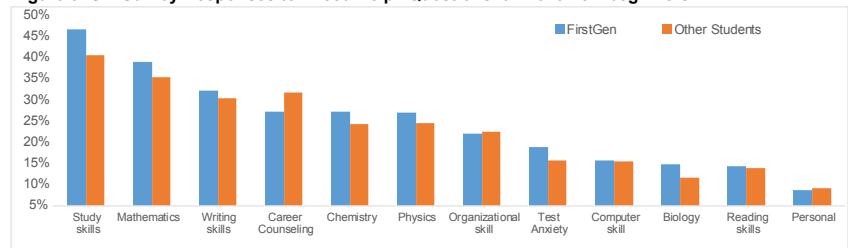


The admission process at Purdue is impacted by the differential academic credentials of students in each college, creating a differential profile of what first generation looks like across campus. When only students within a college are compared, first-generation students' Math SAT scores are lower in all cases by a range of 30-40 SAT points. Figure 4 shows the 20th, 50th and 80th percentile values for students in five of Purdue's largest colleges, pairing the ranges for non-first-generation students and first-generation students. It shows that in each college, first-generation students are similar to, though always slightly below, other students in that college.

### Need for more Academic Support

The fall 2015 cohort of students were the first to complete the Student Information Form (SIF), a valuable self-assessment of students' expectations conducted by the registrar's staff and academic advisors. The SIF asked students if they expect to need help with a variety of academic and personal issues. The following chart shows the share of students who reported thinking they would need help with each of 12 topics. First-generation students expressed a higher likelihood of needing help for nine of the twelve cases, including study skills and mathematics. Only in the case of career counseling were first-generation students less likely to expect needing help.

Figure 5: SIF Survey Responses to "Need Help" Questions fall 2015 new beginners



[Statistically significant at p < .01 are Study skills, Mathematics, Career counseling, Chemistry, Test Anxiety and Biology]

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Among reasons for choosing to attend Purdue, both first-generation and non-first-generation students overwhelmingly cited Purdue's "academic reputation" in the 2010 CIRP Freshman Survey. Eighty-nine percent of first-generation students and 87% of non-first-generation students said this was very important in their decision. By contrast, parental influence was deemed very important by only 6% of first-generation and 14% of other students. Other adult influences (relatives, high school teachers, etc.) were assigned single-digit levels of importance – with one exception. For first-generation students, the influence of high school guidance counselors was rated "very important" 14% of the time. This number is more than twice that given to the influence of parents.

Further insight into the first-generation experience can be gleaned from the SERU survey<sup>2</sup>. The SERU survey provides several tests of whether first-generation students differ substantially from all Purdue students. There is no significant difference between the sentiments of first-generation students and those of Purdue students overall in terms of belongingness, choosing Purdue again, feeling valued, etc. The share of students who are less than fully satisfied at Purdue is 10-20% of students in all cases.

### Academic Performance

First-generation students perform about as well as all students in most courses. Figure 6 indicates that the relationship between first-generation students' course grades and the rest of the cohort are very similar with a  $R^2$  of 0.96. As seen in Table 1, first generation students are performing similar to all students in their first year courses. Of 34 courses with at least 50 first-generation students, there is a significant grade difference in 16 courses<sup>3</sup>. Of the 20 largest courses (see Table 1) first-generation students do significantly worse in 11, significantly better in one, and comparable in the rest. The gap in all cases is less than half a letter grade. (Shading in Table 1 indicates courses with significant differences).

Figure 6: Percent of Students Earning A or B Grades, First-Generation v. Other Students fall 2015 only

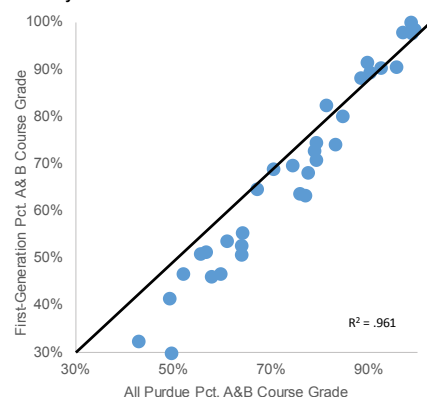


Table 1: Average Course Grade & Pct. Earning A or B, First-Generation v. Other Students fall 2015 only

	All Students*			First Generation		
	Count	Avg. Grade	Pct AB grade	Count	Avg. Grade	Pct AB grade
COM11400	2,192	3.22	84.6%	475	3.00	80.2%
ENGL10600	2,421	3.57	92.4%	467	3.47	90.4%
MA16010	1,275	2.90	64.2%	321	2.55	55.5%
CHM11500	2,055	3.18	76.9%	311	2.84	63.3%
BIOL11000	866	3.33	77.6%	279	2.94	68.1%
PSY12000	928	2.82	59.7%	257	2.39	46.7%
GS19700	346	3.49	89.6%	248	3.71	91.5%
EDPS10500	796	3.19	81.3%	235	3.16	82.6%
CHM11100	644	3.19	74.4%	224	3.00	69.6%
MA15800	732	2.64	51.9%	199	2.41	46.7%
ENGR13100	1,688	3.74	96.9%	189	3.67	97.9%
MA15300	560	2.42	42.9%	185	2.00	32.4%
MA16100	1,096	2.50	49.2%	178	2.19	41.6%
AGR10100	501	3.52	90.2%	178	3.46	89.3%
SOC10000	465	3.25	79.1%	120	3.05	70.8%
TECH12000	520	3.42	88.3%	119	3.43	88.2%
CHM12901	448	3.40	83.0%	112	3.05	74.1%
MA16500	881	2.76	57.8%	104	2.54	46.2%
ECON25100	501	3.01	67.1%	102	2.87	64.7%
HONR19901	580	3.95	98.8%	89	3.91	97.8%

\*Includes first-generation students

However, despite the similar sense of belongingness and similar performance in courses, there remains a consistent gap between first generation and other students in retention and graduation rates. As can be seen in Table 2, first-year retention rates consistently fall three to six percentage points lower for first-generation students expanding to five to eight percentage points lower for graduation rates.

Table 2: Persistence & Graduation Rates, First Generation v. Other Students

Cohort Year	1-year Persistence		2-year Persistence		4-year Graduation	
	First Gen	Other	First Gen	Other	First Gen	Other
2008	84.6%	88.2%	77.4%	81.6%	40.6%	47.3%
2009	85.2%	90.2%	78.6%	83.8%	42.2%	48.3%
2010	85.6%	91.6%	77.5%	85.5%	43.1%	51.0%
2011	87.1%	91.6%	79.3%	85.8%	47.5%	52.6%
2012	88.1%	91.9%	82.3%	87.2%		
2013	88.7%	93.7%	82.9%	89.0%		
2014	89.3%	93.4%				

According to Saenz et al., "First-generation college students are receiving increasing attention from researchers and policy makers, with the goal of better understanding their college decision-making process and supporting their progress in higher education. This is a critical population of students to study because of the general perception that, relative to their peers, such students have poorer academic preparation, different motivations for enrolling in college, varying levels of parental support and involvement, different expectations for their college experience, and significant obstacles in their path to retention and academic success."<sup>4</sup>

Clearly at Purdue there are differences between our first generation students and rest of our student population. Upon entering college they express a need for greater support. Additionally, despite performing similarly in first-year courses and feeling a similar sense of belonging at Purdue they are persisting and graduating at lower rates. A continued focus on this groups' unique needs could help Purdue remove the achievement gap between them and the rest of the student body.

<sup>1</sup>The SIF asked students before matriculation whether they thought they would need various kinds of help. Signaling an expectation does not mean that students actually sought help or that help received was effective.

<sup>2</sup>The SERU results discussed here come from the Spring 2014 administration, to which 2,943 students responded overall, and 1,858 students to the specific questions cited.

<sup>3</sup>The measure of success is percentage of the group earning an A or B in the course. The measure of "substantial" is a Z-score test with a .05 significance cut-off.

<sup>4</sup>Saenz, V.B., Hurtado, S., Barrera, D., Wolf, D., & Yeung, F. (2007). *First in My Family: A Profile of First-Generation College Students at Four-Year Institutions Since 1971*. Los Angeles: Higher Education Research Institute, UCLA.