

Topic in Brief

Freshman entrant first-term academic load and graduation

October, 2016

Controlling for demographic variables, there is no difference in normative graduation between undergraduates who attempted 13 to 14.5 units compared to those who attempted 15 units or greater in their first term

EXECUTIVE SUMMARY

The majority of freshman entrants attempted 13 units or greater in their first term. This did not vary greatly by demographic groups.

Overall, 42% of freshman entrants attempted at least 15 units in their first term. There were several demographic groups with lower proportions of students who attempted at least 15 units:

- Women (39%)
- Underrepresented minority (30%)
- White / Other (37%)
- First-generation college (34%)
- Pell Grant recipients (36%)

However, there was no variation in normative graduation rates within these groups for students who attempted 13 to 14.5 units compared to those who attempted 15 units or greater. An exception was women students, for whom the normative graduation rate for those who attempted at least 15 units (78%) was higher than the rate for those who attempted 13 to 14.5 units (75%).

Similar to women students, other groups had higher normative graduation rates for students who attempted 15 units or greater versus 13 to 14.5 units in their first term:

- Men (72% v 66%)
- International (74% v 63%)
- Not first-gen college (76% v 78%)
- Not Pell Grant recipient (79% v 76%)

Controlling for gender, ethnicity, and socioeconomic status, the normative graduation rate by attempted unit load in the first term was:

- 60% for students <13 units
- 73% for 13 to 14.5 units
- 75% for 15 units or greater

While freshmen who attempted fewer than 13 units in their first term had a significantly lower normative graduation rate, the difference between those who attempted 13 to 14.5 and 15 units or greater was not statistically significant, controlling for demographic variables.

First-term academic load was highly variable for students who entered in College of Engineering, where 12% of students attempted fewer than 13 units. For students who entered in College of Engineering, there was a higher normative graduation rate for students who attempted at least 15 units (83%) compared to those who attempted 13 to 14.5 units (75%) and fewer than 13 units (66%). These differences held even when controlling for demographic variables.

Overall and for all other entry Colleges, there was no difference in normative graduation among students who attempted at least 13 units in their first term, after controlling for demographic variables.

BACKGROUND

Methodology

This analysis included freshmen who entered during Fall 2008 (n = 4,263) and Fall 2009 (n = 4,355). All data was sourced from

Cal Answers. The number of units attempted was measured at the time of census for each student's first term at UC Berkeley. Students were grouped into the College in which they were admitted.

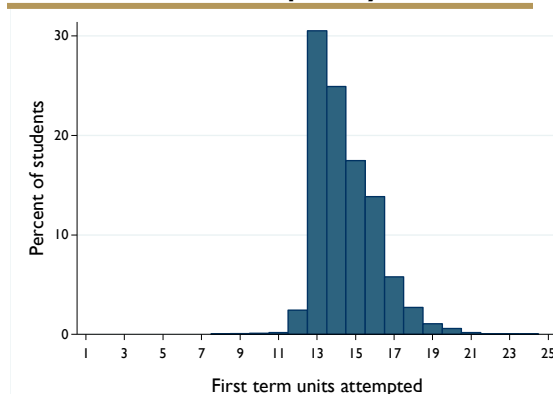
Normative graduation for freshman entrants is four years from the time of entry. First-generation college is defined as a student who reported that neither of their parents graduated from a four-year college. U.S. residents and eligible non-citizens at lower annual income levels (typically less than \$45,000) are eligible to receive Pell Grants. The measure for this analysis is students who received a Pell Grant while at UC Berkeley.

Chi-square tests were used to compare unit load across demographic groups and entry College. Logistic regression was used to model the relationship of normative graduation to unit load, controlling for demographic variables. Adjusted rates were calculated post hoc at fixed values for demographic variables.

Academic load

In their first term at UC Berkeley, freshmen attempted between 8 and 24 units. The histogram below displays the distribution of initial academic load. Less than 3% of students (n = 246) attempted fewer than 13 units, while 55% (n = 4,773) attempted 13 to 14.5 units, and 42% (n = 3,598) attempted 15 units or greater their first term.

First-term units attempted by freshmen

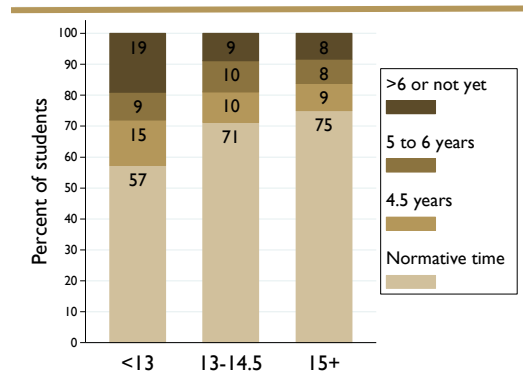


Notes: Units are rounded down to the next whole number. Source: Cal Answers.

Graduation rates

Overall, 72% (n = 6,241) of freshman entrants graduated in four years or fewer. As shown in the graph on this page, students who attempted fewer than 13 units their first term had a significantly lower normative graduation rate (57%, n = 141) than students who attempted at least 13 units.

Graduation rate by units attempted in the first term



Notes: Normative graduation is four years from entry. Source: Cal Answers.

The difference in normative graduation for students who attempted 13 to 14.5 units (71%, n = 3,399) and those who attempted 15 units or greater (75%, n = 2,701) was statistically significant. However, there was no difference in 6-year graduation rates among students who attempted 13 to 14.5 units compared to those who attempted 15 units or greater.

DEMOGRAPHIC GROUPS

Academic load

The proportion of students attempting fewer than 13 units was low across all demographic groups. However, attempting 15 units or greater in the first term significantly differed within demographic groups. The table on the following page lists first-term academic load by demographic groups.

While 39% (n = 1,830) of women students attempted 15 units or greater, this figure was 45% (n = 1,768) for men. A smaller percentage of Underrepresented Minority students (URM, 30%, n = 367) attempted 15 units or greater, compared to

White / Other (37%, n = 1,142), Asian / Pacific Islander (API, 46%, n = 1,685), and International (65%, n = 404) students.

A smaller proportion of first-generation college students (1st Gen, 34%, n = 751) attempted 15 units or greater, compared to students who did not identify as first-generation college (44%, n = 2,574).

Academic load in the first term

Demographic Group	n	<13	13-14.5	15+
Gender				
Women	4,674	2%	59%	39%
Men	3,943	4%	51%	45%
Ethnicity				
URM	1,235	3%	67%	30%
White/Other	3,078	3%	60%	37%
API	3,685	3%	52%	46%
International	619	2%	33%	65%
Parent educ				
1 st gen	2,189	3%	63%	34%
Not 1 st gen	5,845	3%	53%	44%
Income				
Pell Grant	2,886	3%	61%	36%
Not Pell	5,731	3%	53%	44%

Source: Cal Answers.

There was a similar difference among Pell Grant recipients, 36% (n = 1,049) of whom attempted 15 units or greater, compared to 44% (n = 2,549) of students who did not receive Pell Grants.

Graduation rates

The graphs on the following page show normative graduation rates by units attempted within demographic groups. There was largely no difference in the normative graduation rates within URM, White / Other, or API students who attempted 13 to 14.5 units compared to 15 units or greater in their first term. Although the normative graduation rate for URM students who attempted 15 units or greater was 48% (n = 176), and 51% (n = 421) for URM students who attempted 13 to 14.5 units, this difference was not statistically significant.

For international students, only 11 students in the two entry cohorts had attempted fewer than 13 units. There was a

statistically significant difference in the normative graduation rate of those who attempt 13 to 14.5 units (63%, n = 128) and those who attempt 15 units or greater (74%, n = 300). However, the difference in 6-year graduation rates was not statistically significant.

There were statistically significant differences in graduation rates of men for each category of academic load. The same was true for women. The small difference in normative graduation for women who attempted 13 to 14.5 units (75%, n = 2,067) compared to those who attempted 15 or greater units (78%, n = 1,423) was statistically significant.

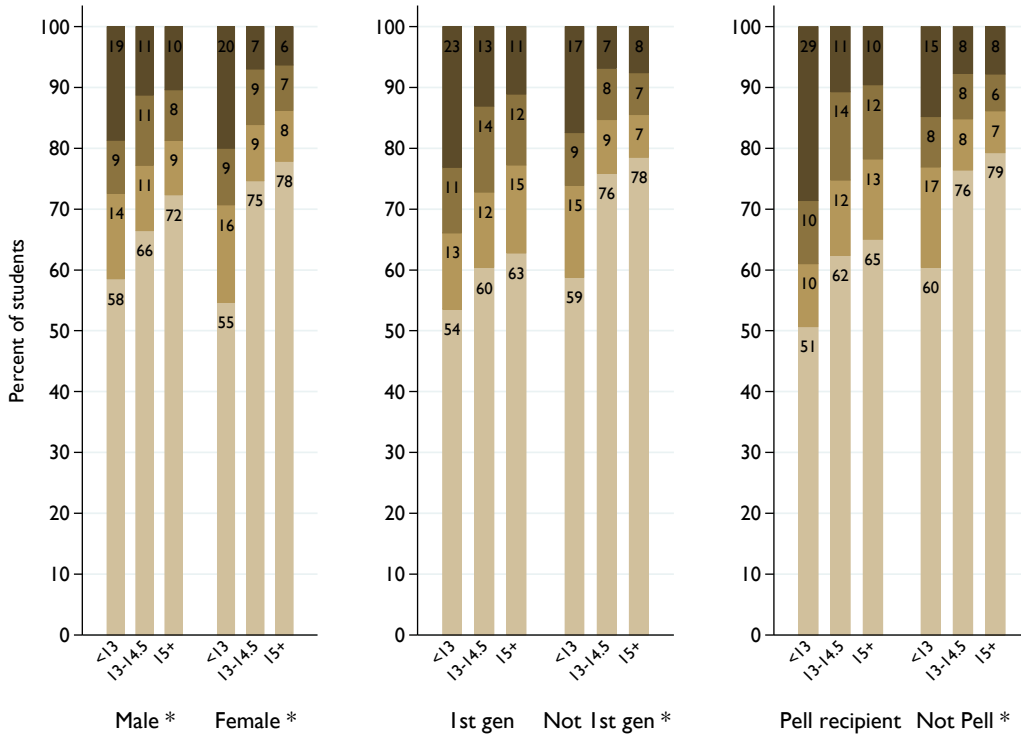
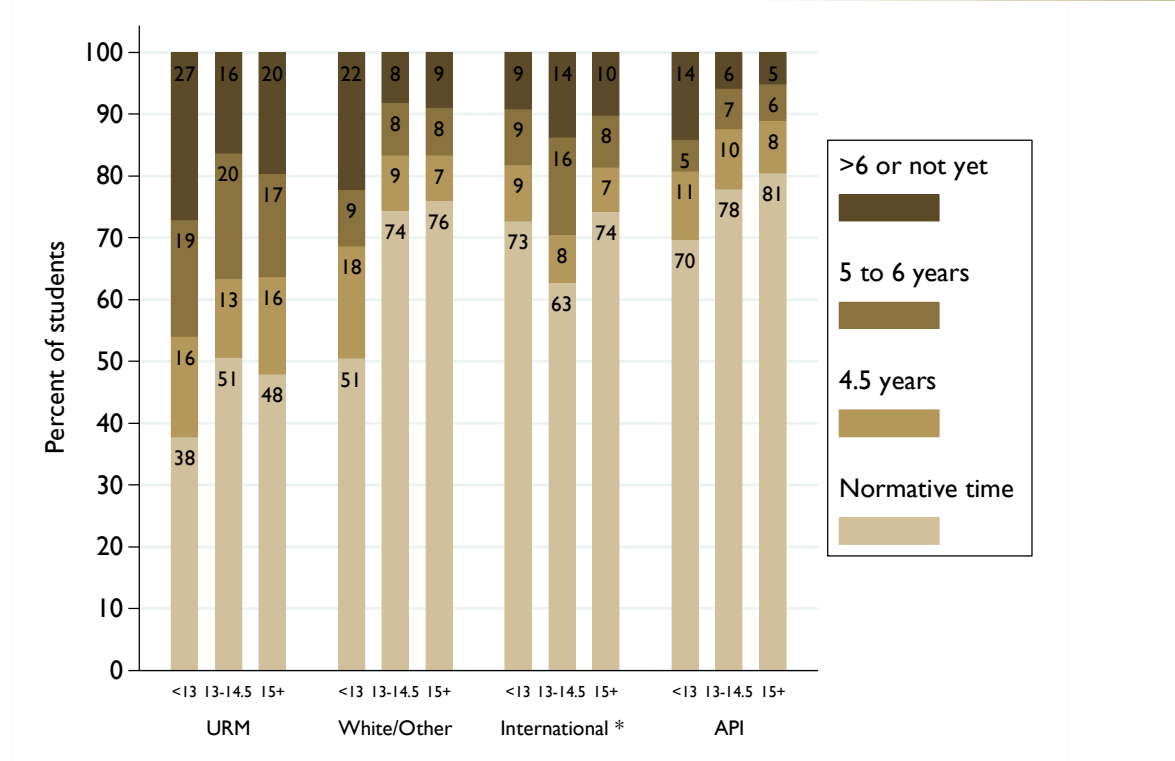
First-generation college students had an overall normative graduation rate of 61% (n = 1,335), an additional 13% (n = 288), an additional 13% (n = 288) graduated in 5 or 6 years, and 13% (n = 278) did not graduate within 6 years. These rates did not significantly vary across different first-term academic loads.

For freshmen entrants who reported that at least one parent had a four-year college degree, there was a small, but statistically significant difference in normative graduation for students who attempted 13 to 14.5 units (76%, n = 2,352) and those who attempted 15 units or greater (78%, n = 2,020).

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First-term academic load was related to normative graduation rates for students who were not first-generation college or not Pell Grant recipients.

Students who had received a Pell Grant did not have significantly different normative graduation rates based on first-term academic load beyond 13 units. However, students who had not received Pell Grants had different normative graduation rates if they had attempted 13 to 14.5 units (76%, n = 2,301) compared to 15 units or greater (79%, n = 2,019).

Graduation rates by units attempted by freshman entrants in their first term, by demographic groups



*Difference in normative graduation rate between 13-14.5 units and 15+ units was statistically significant (at the 0.05 level).
Notes: Percentages may not add up to 100 due to rounding. Source: Cal Answers.

ENTRY COLLEGE

Academic load

The graph below shows that freshmen's first-term academic load varied across entry College. Overall, 3% (n = 246) of freshmen attempted fewer than 13 units in their first term, but this was the case for less than or equal to 1% of students in all Colleges except College of Engineering (n = 148, 12%), and College of Environmental Design (n = 22, 11%). College of Engineering also had a significantly high proportion of students who attempted 15 units or greater (62%, n = 763).

Graduation rates

The graphs on the upper portion of the following page show graduation rates for students who entered in College of Natural Resources (CNR) and College of Chemistry, by initial academic load. There is no statistically significant difference in normative graduation rates by first-term academic load in the College of Natural Resources or the College of Chemistry. No data on students who attempted fewer than 13 units is shown in these graphs because the number of students was fewer than 20.

The graphs on the lower portion of the following page include students who

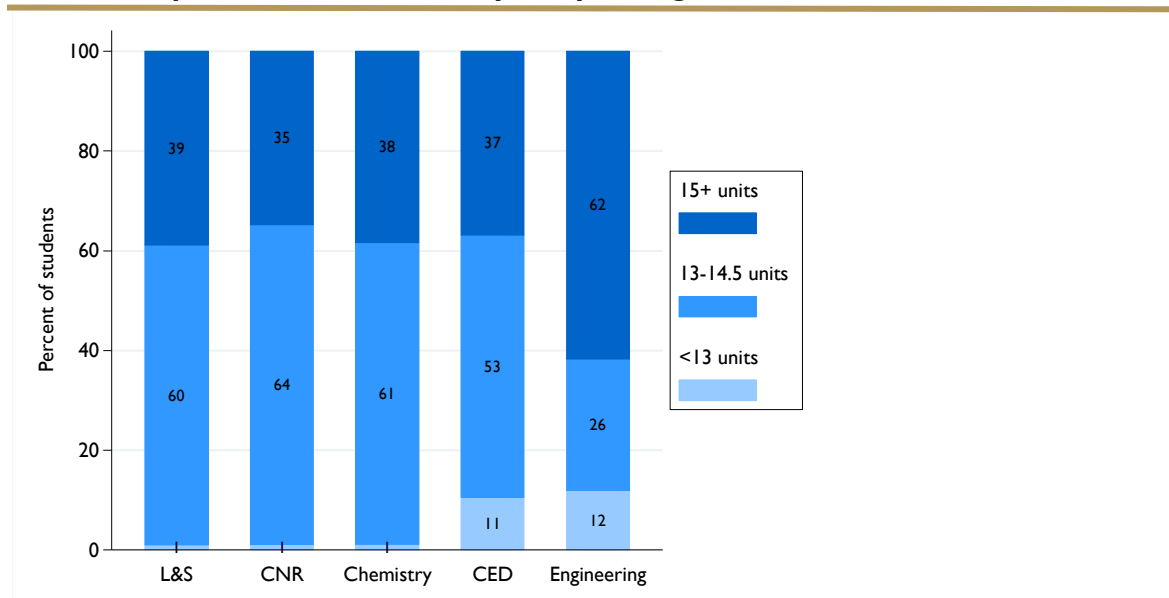
attempted fewer than 13 units because there were at least 20 such students in each entry College.

Within the College of Engineering, students who attempted 15 units or greater in their first term had a higher normative graduation rate (83%, n = 637), compared to those who attempted 13 to 14.5 units (75%, n = 246), and those who attempted fewer than 13 units (66%, n = 97). Students in the College of Letters & Science (L&S) who attempted 15 units or greater in their first term had a higher normative graduation rate (73%, n = 1,743), compared to 71% (n = 1,586) for students who attempted 13 to 14.5 units and 34% (n = 22) for students who attempted fewer than 15 units.

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Attempting 15 or greater units was related to higher normative graduation rates in College of Engineering and L&S.
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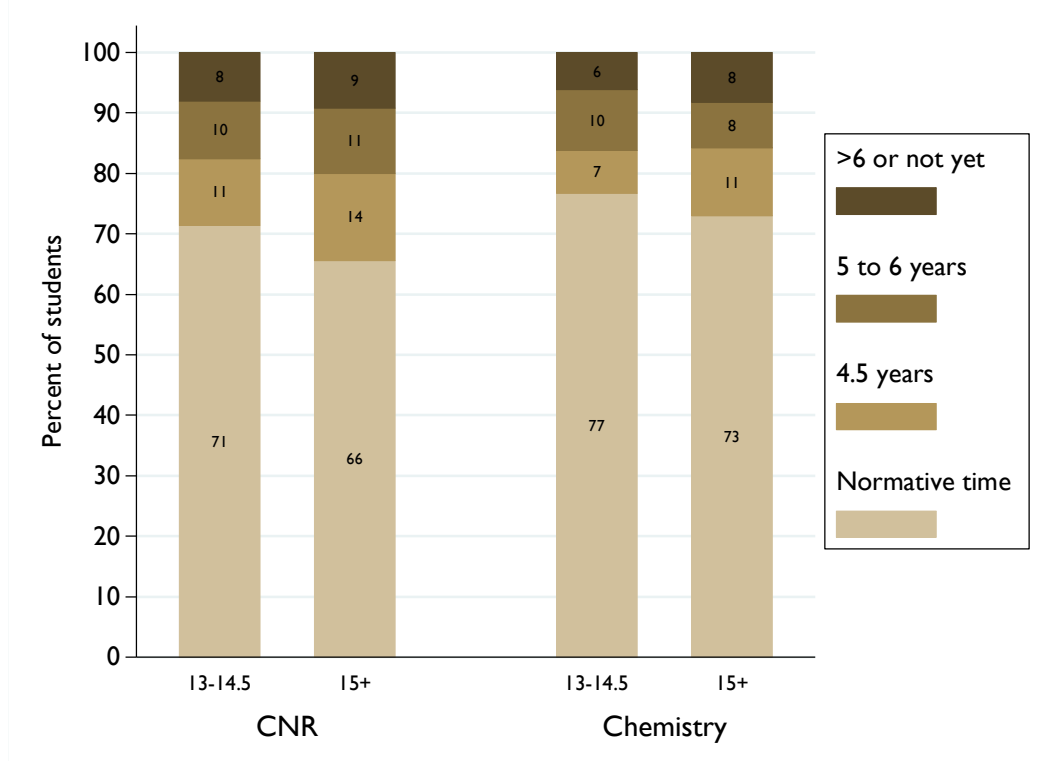
Within the College of Environmental Design, differences in first-term academic load were not significantly related to normative graduation.

Units attempted in the first term, by entry College

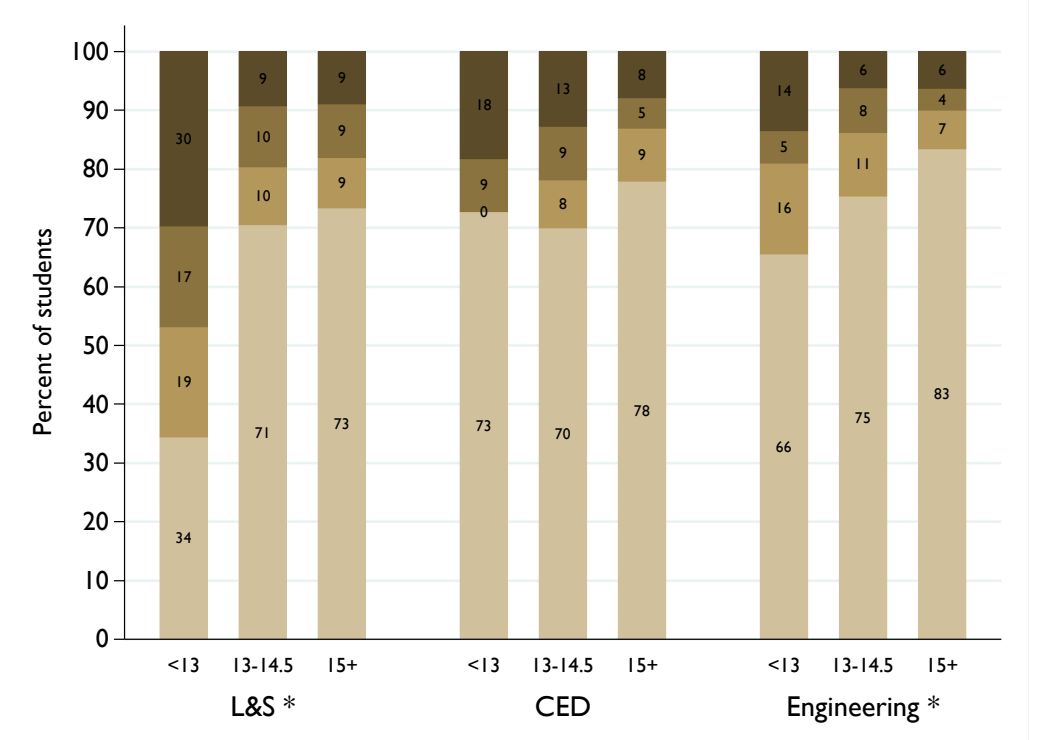


Source: Cal Answers

Graduation rates by units attempted by freshman entrants in their first term, for entry College, excluding students who attempted <13 units because fewer than 20



Graduation rates by units attempted by freshman entrants in their first term, for entry College



*Difference in normative graduation rate between 13-14.5 units and 15+ units was statistically significant (at the 0.05 level).
 Notes: Normative graduation is four years from entry. Source: Cal Answers.

Multivariable Model

When controlling for gender, ethnicity, first-generation college status, and Pell Grant recipient status, the difference in overall normative graduation between students who attempted 13 to 14.5 units and those who attempted 15 units or greater was no longer significant. However, students who attempted fewer than 13 units still had a significantly lower adjusted normative graduation rate than students who attempted 13 units or greater.

Within the College of Engineering, there was a significant advantage in terms of normative graduation for those freshman entrants who attempted 15 units or greater in their first term. This finding held when controlling for demographic variables. However, the difference between students

who attempted fewer than 13 units and those who attempted 13 to 14.5 was no longer significant when controlling for demographic variables.

Undergraduates who entered the College of Letters & Science and attempted fewer than 13 units in their first term had a significantly lower normative graduation rate than those who attempted at least 13 units. This finding held even when controlling for demographic factors, although it should be interpreted with caution given the small number of L&S students who attempted fewer than 13 units (n = 64 for two entry cohorts). Accounting for demographic factors bridged the difference in normative graduation rates between L&S students who attempted 13 to 14.5 units and those who attempted 15 units or greater.

Count and normative graduation rates by units attempted in the first term for entry College

	Count	Unadjusted	Adjusted for demographic variables
Overall	8,617	72%	74%
<13 units	246	57% *	60% *
13-14.5 units	4,773	71% *	73%
15+ units	3,598	75% *	75%
Engineering	1,237	79%	79%
<13 units	148	66% *	68%
13-14.5 units	326	75% *	76%
15+ units	763	83% *	85% *
Environmental Design	209	73%	77%
<13 units	22	73%	83%
13-14.5 units	110	70%	73%
15+ units	77	78%	77%
Letters & Science	6,105	71%	73%
<13 units	64	34% *	39% *
13-14.5 units	3,666	71% *	73%
15+ units	2,375	73% *	73%
Chemistry	311	75%	76%
<13 units	4	--	--
13-14.5 units	210	77%	76%
15+ units	133	73%	77%
Natural Resources	719	69%	70%
<13 units	8	--	--
13-14.5 units	461	71%	73%
15+ units	250	66%	66%

*Difference in unit category statistically significant at the 0.05 level. Source: Cal Answers.

CONCLUSION

A small minority of freshman entrants (3%) attempted fewer than 13 units in their first term at UC Berkeley. These students had a significantly lower normative graduation rate than students who attempted 13 units or greater. We do not recommend changing existing policies and further caution that protected groups be considered when entertaining possible changes to policies about unit load or satisfactory academic progress. Presumably, these students underwent an approval process to be allowed a lighter academic load. Within this group are: students with disabilities, students with at least 15 hours per week of paid employment, student parents, graduating seniors, and students in major honors programs. There are also considerations for students with medical, personal, or family problems. International students may be allowed to enroll in fewer than 12 units for academic reasons such as initial difficulties with English language or unfamiliarity with American teaching methods. Notably, there was a very low percent of international students who attempted fewer than 13 units (2%) and a disproportionately high percent who attempted 15 units or greater (65%).

For students who were not first-generation college or were not Pell Grant recipients, those who attempted heavier loads in their first term had higher normative graduation rates (see graphs on page 4). Taking into consideration their unique situations, there may be an opportunity to increase these groups' normative graduation rates by encouraging them to attempt at least 15 units in their first term.

Within the College of Engineering, there were disproportionately high percentages of students who attempted fewer than 13 units (12%) and students who attempted 15 units or greater (62%). Students who attempted 15 units or greater in their first term had a higher normative graduation rate, even after controlling for demographic variables (see table on page 7). Exploration of the policies, advising, and

curriculum of College of Engineering might yield a better understanding of the first-term course-taking behavior of entering freshmen.

For all freshman entrants and for those who enter in the College of Letters & Science, students who attempted 15 units or greater had a higher normative graduation rate than students who attempted 13 to 14.5 units. When controlling for demographic factors, this difference was no longer statistically significant.

The findings suggest that increasing unit load in the first term would not affect normative graduation rates overall. However, there may be opportunities to increase the normative graduation rate within certain populations by encouraging higher initial course load, taking into account each student's individual circumstances.

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