

November 2019  
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Incoming UC Merced students declare an initial major on the undergraduate application to admission, but many students ultimately change their major prior to degree completion. We examined frosh from the 2005 through 13 entering fall cohorts to learn more about who changed majors, as well as prevalence, timing, and general patterns at the academic School and major level. For all students, we found that changing majors tended to occur in the first two years of enrollment and was more common for students who had first generation, Pell grant eligibility, or underrepresented minority status. Changing majors were most common for students with initial majors of Biological Sciences, Computer Science and Engineering, or Chemical Sciences. Students who changed majors were enrolled longer, and had higher GPAs compared to students who did not change majors, though they repeated more courses. Students who left the University without completing a degree were less likely to have switched majors than those who graduated or were still enrolled. These findings suggest that changing majors was not associated with lower retention or graduation rates.

## Background

This report investigates students from the Fall 2005-13 entering Frosh cohorts who changed declared majors at least once during their time at UC Merced. To understand major changing behavior, we looked at frequency of major changes by demographic categories, as well as original academic school and major.

For detailed information on flows through different majors over time, please see the [companion dashboard](#) on the Analytics Hub, which shows student enrollments and flows from one major to the next by term. The dashboard also has several filtering options for examining the major changing patterns of specific groups of students.

### How Common is Major Changing?

Among those who entered UC Merced with a declared major (e.g. removing undeclared and undeclared within the schools), 33% (n=2333) had switched to another declared major<sup>1</sup> at least once. Most students who changed majors did so only once (29% of students; N=2015), with fewer changing twice (4%, n = 289) and very few changing 3 or more times (0.4%, n=29).

### When do Students Change Majors?

Of the students that changed majors at least once (n = 2333), most major changes occurred between semesters 2 and 5 (e.g. before the third year; see Chart 1); the most common time that students switched majors was between semester 2 and semester 3; (22%; see Chart 1, column titled 'Semester 3').

## Demographic Characteristics

To determine associations between demographic characteristics and frequency of major changes, we compared the proportion of students who ever changed majors by gender, first generation status, race/ethnicity, and Pell Grant eligibility status.

**Gender** There was no significant<sup>2</sup> difference in the proportion of students who ever changed majors by gender, with about 33% of men and women changing majors (not pictured).

**First Generation Status<sup>4</sup>** First generation students were significantly<sup>2</sup> more likely to change majors, with 36% of first-generation students changing majors, compared to 30% for non-first-generation students (see Chart 2, blue columns).

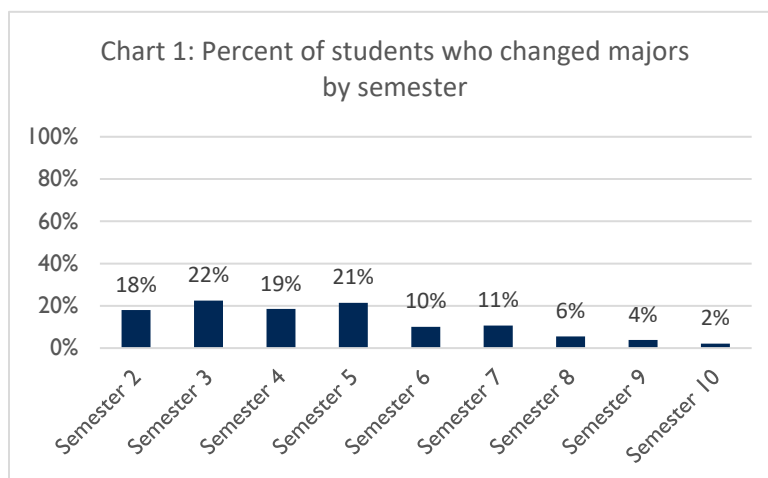
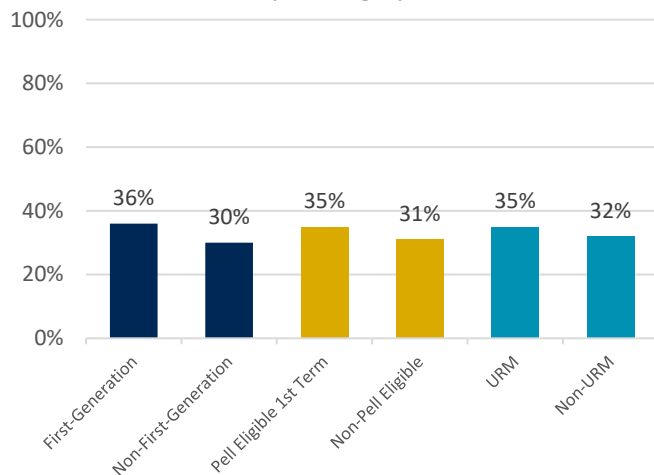


Chart 2: Percent of students who changed majors by demographic



**Pell Grant Eligibility Status** Students who were Pell eligible in the first term were significantly<sup>2</sup> more likely to change majors, with 35% of Pell eligible students changing majors, compared to 31% for non-Pell eligible students (see Chart 2, gold columns).

**Race/Ethnicity** Underrepresented Minority (URM) students (e.g. those who were Hispanic, African American, or American Indian) were significantly<sup>2</sup> more likely to change majors than Non-URM students, 35% vs 32% (see Chart 2, teal columns).

### Academic Characteristics

We compared the proportion of students who ever changed majors by School of first major, and we compared the mean cumulative GPA at end of last enrolled term, number of course repeats, and semesters enrolled for students who changed majors and those who did not.

**Major Changes by initial School** Students in the School of

Social Sciences, Humanities, and Arts (SSHA) were significantly<sup>2</sup> less likely to change majors (28%, 640 students), compared to students in the School of Engineering (SOE; 34%, 550 students) and the School of Natural Sciences (SNS; 37%, 1143 students), as shown in Chart 3. There was no significant difference in the proportion of SOE and SNS students who changed majors.

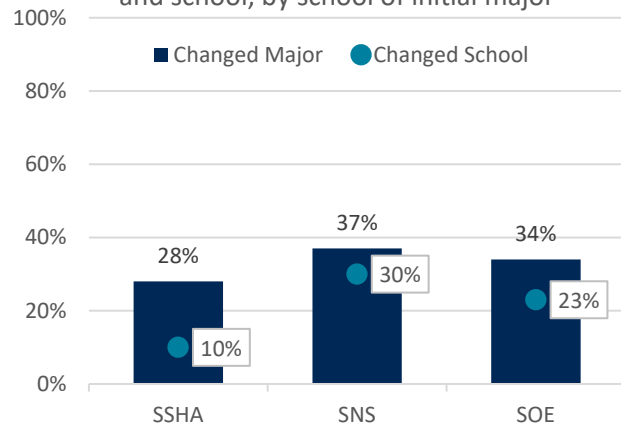
**School Changes by initial School** Major changes can occur within the same academic School (e.g. from Computer Science and Engineering to Mechanical Engineering), or they can occur across Schools (e.g. from Biological Sciences to Psychological Sciences). SSHA students were significantly<sup>2</sup> less likely to change *Schools*<sup>1</sup> (10%, 228 students), compared to students in SOE (23%, 375 students) and SNS (30%, 931 students), as shown in Chart 3.

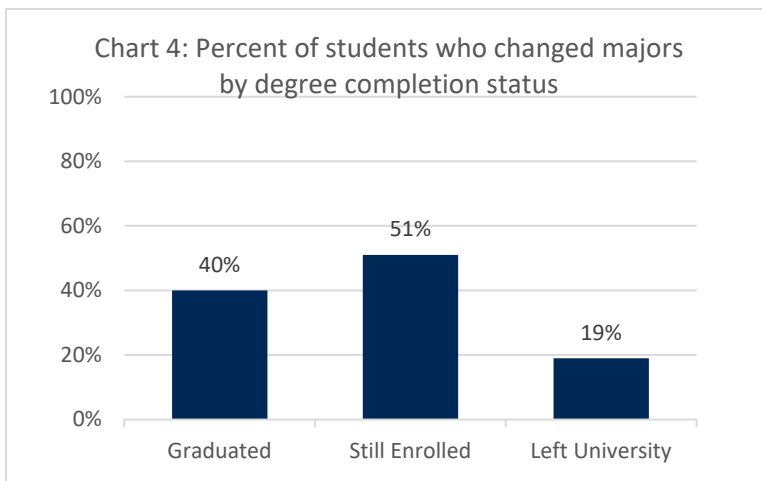
**Grade Point Average** Students who changed majors had significantly<sup>5</sup> higher GPAs at the end of the most recent enrolled term, compared to their GPA in the semester prior to changing majors, increasing from 2.63 to 2.75.

**Course Repeats** Students who changed majors were significantly more likely to have ever repeated a course, with 72% (n=1667) of students who changed majors having repeated a course, compared to 51% (n=2398) of students who did not change majors ever repeating a course. Students who changed majors repeated courses significantly<sup>3</sup> more often than students who did not change majors, with 40% more

course repeats on average; students who changed majors reenrolled in courses an average of 2.21 times, compared to 1.57 for students who did not change majors. The number of *unique* courses repeated showed a similar pattern, with students who changed majors repeating significantly<sup>3</sup> more unique courses, with a mean of 1.98 courses repeated, compared to 1.42 courses repeated for students who did not change majors. Note, however, that this analysis was unable to determine timing of course repeats, or whether the repeated courses were relevant to the initial majors, so any causal relationship between course repeats and major changing cannot be made.

Chart 3: Percent of students changing major and school, by school of initial major





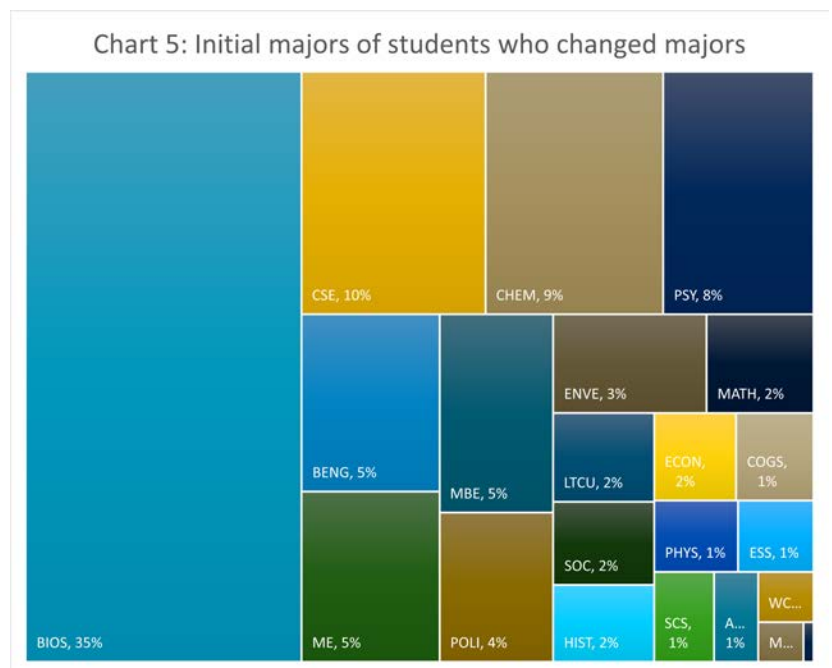
**Semesters Enrolled** For students who graduated, students who changed majors took significantly<sup>3</sup> longer to do graduate, by .2 semesters on average (8.7 vs 8.5 semesters enrolled). For students who left the university without a degree, students who changed majors were enrolled for significantly<sup>3</sup> more semesters (5.0 vs 3.4).

**Degree Completion** Students who left the university without earning a degree were significantly less likely to have changed majors (19%, 439 students) compared to students who graduated (40%, 1859 students) or were still enrolled (51%, 35 students).

## Major and School Enrollments

**Overall** Most students who changed majors started in Biological

Sciences (35%, 817 students), Computer Science and Engineering (10%, 224 students), Chemical Sciences (9%, 216 students), and Psychology (8%, 183 students), as shown in Chart 5. Most common destinations for all students who changed majors were Psychology (18%, 412 students), Management and Business Economics (14%, 325 students), and Biological Sciences (12%, 288 students), see Chart 6. Note that the smallest cells in Chart 6 may be difficult to read, as each constitutes under 1% of all students who changed majors.

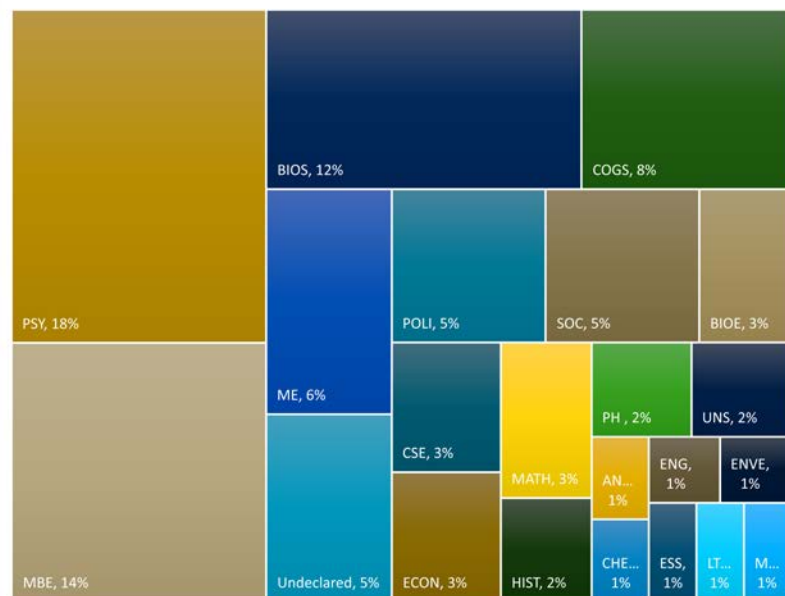


### School of Social Sciences, Humanities, and Arts

Students who initially declared a SSHA major and changed majors were most likely to have started in Psychology (29%, 183 students), Management and Business Economics (18%, 113 students), or Political Science (13%, 85 students). Common destinations for SSHA students who changed majors were Psychology (19%, 123 students), Management and Business Economics (16%, 105 students), Biological Sciences (10%, 64 students), Political Science (10%, 63 students), and Sociology (10%, 62 students). Of the 640 SSHA students who changed majors, 77% (491 students) changed to another major within SSHA, 12% (77 students) switched to an SNS major, and 5% (34 students) to SOE majors.

**School of Natural Sciences** Students who initially declared an SNS major and changed majors were most likely to have started in Biological Sciences (71%, 817 students) or Chemical Sciences (19%, 216 students). Most common destinations for SNS students who changed majors were Psychology (22%, 257 students), Biological Sciences (15%, 170), Management and Business Economics (12%, 134 students), and Cognitive Science (11%, 127 students). Of the 1143 SNS students who changed majors, 24% (275 students) remained within an SNS major; the majority (63%, or 720 students) changed to a major within SSHA, and 9% (99 students) to SOE majors.

Chart 6: Destinations of students who changed majors



**School of Engineering** Students who initially declared an SOE major and changed majors were most likely to have started in Computer Science & Engineering (41%, 224 students), Bioengineering (22%, 123 students), Mechanical Engineering (21%, 118 students), or Environmental Engineering (14%, 76 students). The most common destinations for SOE students who changed majors were Mechanical Engineering (19%, 107 students), Management and Business Economics (16%, 86 students), and Biological Sciences (10%, 54 students). Of the 550 SOE students who changed majors, 35% (194 students) switched to an SOE major, 38% (209 students) changed to a SSHA major, and 20% (112 students) to SNS majors.

**Common Destination Paths** We examined the most common destination majors for each of the three most popular initial majors of students who switched.

For Biological Sciences, the most common final majors were Psychology (29%, 233 students), Cognitive Science (12%, 102

students), and Management and Business Economics (12%, 101 students).

For Computer Science and Engineering, the most common final majors were Mechanical Engineering (28%, 62 students), Management and Business Economics (20%, 44 students), and Mathematical Sciences (10%, 24 students).

In Chemical Sciences, the most common final majors were Biological Sciences (42%, 91 students), Cognitive Science (9%, 20 students), and Psychology (9%, 20 students).

**Common Feeder Paths** We examined the most common feeder majors for each of the three most popular destination majors of students who switched.

For Psychology, the most common initial majors were Biological Sciences (57%, 233 students), and Management and Business Economics (8%, 31 students).

For Management and Business Economics, the most common initial majors were Biological Sciences (31%, 101 students), Computer Science and Engineering (14%, 44 students), Psychology (11%, 35 students), and Mechanical Engineering (7%, 24 students).

For Biological Sciences, the most common initial majors were Chemical Sciences (32%, 91 students), Biological Sciences (22%, 63 students), and Bioengineering (12%, 35 students). Note that of the Biological Sciences *initial* majors who ended up in Biological Sciences as their destination, 39 went to undeclared and back to Biological Sciences, while 24 went to other declared majors and came back.

## Conclusion

In this report, we found that changing majors was a fairly common practice for UC Merced students, with a third of all students having changed majors at least once. Major changing was more common among students who had first generation, Pell grant eligibility in the first semester, or underrepresented minority status. Students who initially declared a major in the School of Natural Sciences or the School of Engineering were more likely to change majors compared to students in the School of Social Sciences, Humanities, and Arts, and they were also more likely to change majors to a different school.

Students who changed majors were enrolled longer, and had higher GPAs, though they tended to repeat more courses. Students who left the university were less likely to have switched majors than those who graduated or were still enrolled. These findings suggest that changing majors may not have negative effects on persistence and degree completion.

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[View the companion dashboard on the Analytics Hub](#)

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## ENDNOTES

1. We are only counted changes to declared majors, changes to an undeclared major state are not counted.
  2. Based on Chi-Square analysis, pairwise comparisons of column proportions with Bonferroni correction.  $p < .05$  was our threshold for statistical significance.
  3. Calculated via a one-way Analysis of Variance,  $p < .05$ .
  4. First Generation status is defined as neither parent having earned a 4-year degree.
  5. Calculated via Paired Samples T-Test,  $p < .05$ .
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