

## Super Seniors: Scope, Causes & Implications of Non-Graduating Seniors

This report focuses on students who spend extra time as seniors rather than graduating promptly. Particularly, the focus is on students who remain enrolled for multiple semesters after achieving the classification of Senior 105+ hours. This classification ought to signal that the student needs only one more semester to finish a typical degree requiring 120 credit hours. But institutional data show many students (termed “Super Seniors”) remain longer than one semester.

Figure 1 illustrates the scale and scope of the Super Seniors issue. In Spring 2017 (data extracted on 4/4/17), the number of Senior 105+ hours (classification = 08) students was more than twice the number of any other class currently enrolled. Twenty-seven percent of all undergraduate students were 08, and more than half of these were in their second or later semester as 08.

Most students progress through each classification a semester at a time. Figure 2 shows the percentage of students from a four-year cohort (students who matriculated in Fall 2009, Fall 2010, Fall 2011 or Fall 2012) who repeated any classification (spent more than one semester within a classification) by the time they finished their degree or left Purdue. To progress from one classification to the next a student must earn 15 credit hours, so students who have attempted only 14 hours or who have dropped a course can remain in the same classification despite finishing a semester. This happens to fewer than 10% of students in classifications 02 through 07 and 16% for classification 01. But more than half (56%) of 08 students repeated.

Figure 1: Spring 2017 Purdue Undergraduate Enrollment, by Classification

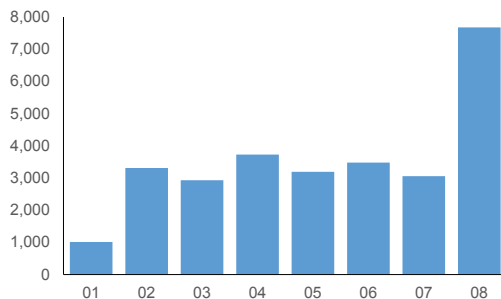
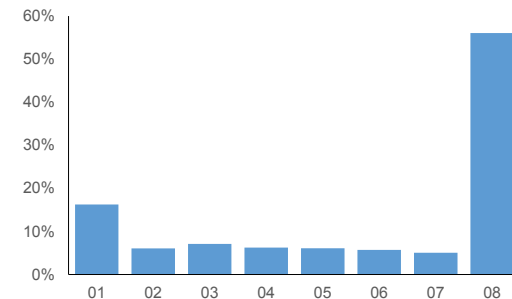


Figure 2: Classification Repeats in Purdue Undergraduate Enrollment, by Classification



### Implications

Super Senior behavior affects both students and the University. For students, the main consequence is the added cost of an additional semester. The cost of that added semester can be conservatively estimated at \$11,500 for resident students and more than \$20,000 for non-resident and international students. When interest on loans, lost income, housing and other factors are added, an additional semester (or year) of college becomes a six-figure liability. The financial advisory website [nerdwallet.com](http://nerdwallet.com) has estimated the lifetime cost of an additional year of college at a public institution like Purdue as high as \$147,000. Arguably, graduating in four years is one of the smartest financial decisions a person can make.

For the University, Super Seniors represent inefficiency. Rather than a smooth pipeline of students progressing steadily toward their degrees, we observe a bottleneck near the end of the pipeline. In a recent three-year window of time, Purdue scheduled 66,997 course registrations made by Super Seniors. More than half of these were 100- to 300-level courses that seniors would not routinely be expected to take. Super Seniors hanging around and registering for lower division courses makes it difficult to estimate the number of sections needed and might force first- and second-year students out of courses they need to stay on schedule to graduate on time.

Governing policy from Indiana’s legislature and Commission for Higher Education sets the expectation that most students should complete a bachelor’s degree in four years. Super Seniors are not meeting that goal.

### Causes

Students do not finish their undergraduate degrees in eight semesters for several reasons, none of which explains a majority of cases across all colleges and programs. Table 1 shows the frequency of certain possible explanations among non-graduating Super Seniors. (Table 1 is based on 1,754 students in the Fall 09-12 dataset who did not graduate after their first semester with classification 08).

Table 1: Characteristics of Non-Graduating Super Seniors

	Count	Attempted <15 credits	Experiential Semesters	Spring 4th Yr GPA < 2.5	Multiple Degrees	CODO after 3rd term	Study Abroad	Undistributed Transfers
<b>Total</b>	<b>1,754</b>	<b>42%</b>	<b>32%</b>	<b>26%</b>	<b>21%</b>	<b>15%</b>	<b>6%</b>	<b>3%</b>
Agriculture	118	41%	36%	33%	17%	19%	8%	3%
Education	42	29%	93%	7%	3%	29%	0%	2%
Engineering	665	49%	29%	34%	20%	2%	8%	4%
HHS	252	46%	47%	15%	13%	25%	9%	4%
Liberal Arts	101	36%	38%	28%	22%	16%	2%	3%
Management	161	27%	25%	20%	67%	29%	7%	3%
Polytechnic	252	28%	25%	13%	8%	23%	2%	2%
Science	142	51%	14%	34%	24%	22%	7%	3%

Two of the most commonly proposed explanations – experiential learning semesters (e.g., co-operative education, student teaching, and internships) and CODOing to a different major (especially after the third semester) – together explain less than half of Super Seniors’ failure to graduate.

Purdue has a number of majors that require more than the standard 120 credits. The College of Education requires a semester of student teaching, which appears in Table 1 under Experiential Semesters. Education students who didn’t finish on time nearly all had one or more semesters of experiential learning.

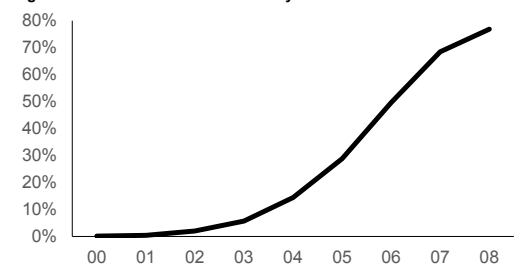
Transfer credits from other institutions are usually accepted at Purdue, but are not always applied to the students’ major. Students with undistributed credits may achieve 08 classification but still need more required credits than they can complete in one semester. The dataset shows about 3% of non-graduating Super Seniors had three or more such undistributed courses. The likelihood of becoming a Super Senior rises from 45% to 61% among students who have even one undistributed transfer course. The most common undistributed transfer courses in recent years are microbiology, English composition and calculus.

About one in five non-graduating Super Seniors eventually earned more than one degree. Seeking a double major or multiple degrees adds course and graduation requirements that can explain failure to graduate after one semester as an 08. Some students plan to move straight on to graduate school (and may be admitted to a graduate program while still an undergraduate). These students may mix graduate courses into their fourth-year course schedule rather than finishing the bachelor’s degree promptly. In other cases – especially in the School of Management – students seek two distinct bachelor’s degrees.

# Super Seniors: Scope, Causes & Implications of Non-Graduating Seniors

Experiential semesters and multiple degrees are significant but do not explain the full Super Senior phenomenon. A deeper look shows that 38% of non-graduating Super Seniors did no experiential semesters, sought only one degree, and remained in the same college throughout. This directs attention back to the highest probability explanation: attempting and earning too few credits. Further evidence of the pivotal role of earning 15 credits per semester is revealed in Figure 3. The four-year graduation rate in this dataset is 77% (among students who had achieved the 08 classification). But the rate declines steeply among student who earned fewer than 15 credits in multiple semesters. After only two <15 credit semesters, the graduation rate dips below 50%. More than two-thirds of Super Seniors had two or more sub-15 credits semesters.

Figure 3: Four-Year Graduation Rate by Number of 15-Credit Semesters



While 15 credits a semester is sufficient to accumulate the 120 credits required for most degrees in eight semesters, the imperative to earn 15 or more becomes stronger when we observe that most students attempt and earn more than the minimum. Among four-year graduates in the dataset, 43% finished with more than 135 total credits attempted (the equivalent of another semester), and 9% finished with 135 or more credits earned. About 26% of these had undistributed transfer credits for one or more courses. For graduating super seniors, the likelihood of extra earned credits is much higher: 56% attempted and 34% earned more than 135 credits. About 45% of these had undistributed transfer credits for one or more courses.

## Key Success Factors, Semester by Semester

Student characteristics and behaviors may influence the outcomes consistently across time, or may exert more influence at one time than another. Figure 4 illustrates. The table summarizes a data mining process in which more than 30 factors were correlated with four-year graduation, and iterated for each semester. The CHAID (Chi-square Automatic Interaction Detector) process tests the strength of correlation between every available variable and the target outcome variable (in this case, four-year graduation) and highlights factors with the strongest correlation, then secondary and subsequent effects. The result is a complex tree of correlations. By repeating this effort for each semester, retaining only students who had persisted, the most important factors at each stage come to light. All highlighted cells in Figure 4 signal a statistically significant correlation at  $p < .05$ .

One factor – identified in the table as ExclCred – dominates. This is the number of earned course credits the student “excluded” and later repeated in a course. Most excluded and repeated courses occurred after the student earned a poor grade (44% were failing F or W grades and 36% were D), but 17% occurred after a C and 3% after a B was earned. In every run of the CHAID process, the consequence of excluding credits and repeating courses is the most significant factor and is negatively correlated with graduating in four years. The impact of course repeats will be further explored in a forthcoming OIRAE briefing.

Figure 4: Factors Influencing Four-Year Graduation

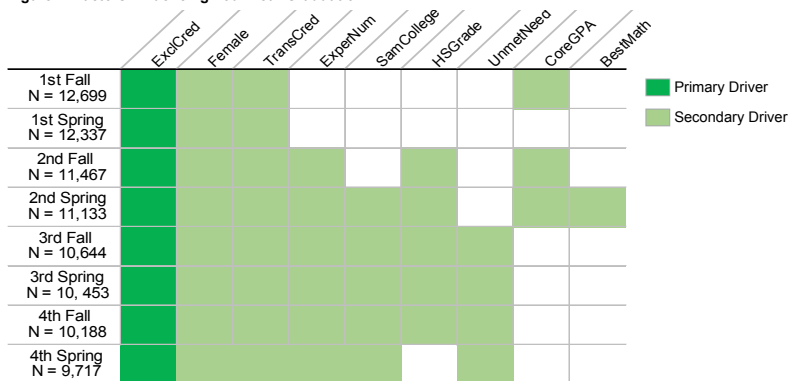


Figure 4 identifies several other factors that exert secondary effects on graduation. Women students (Female) consistently achieve better grades (as a group) and graduate at higher rates than men, and this effect appears important in every semester analysis from the initial set of 12,699 students to the 9,717 who persisted to the eighth semester.

Transfer credits (TransCred) also appear significant throughout. Credits earned prior to matriculating or outside Purdue boost the students’ credit total and move them closer to graduating, though some transfer credit are not accepted for the students’ major. Transfer credits also may signal that the student is proactive.

Experiential learning can be enriching and make a graduate more employable. But students who devote more than a single semester to experiential learning are less likely to graduate in four years. One semester correlates with higher success – especially for Education majors – but more than one semester corresponds with declining likelihood to graduate on time.

Students who persist in the same college (SamCollege) and especially in the same major, have a stronger chance to graduate in four years. Purdue colleges often have very specific course requirements, and a student who changes from one major to another – especially across colleges – risks having to repeat lower level courses to satisfy the requirements of their new major. The analysis indicates the later the student makes the change, the greater the likelihood that they won’t complete in four years. Thus, remaining in the same college is an important success predictor after the third semester, aligning with previous research indicating the delaying effect of CODO after the third semester<sup>1</sup>.

CoreGPA and BestMath are both indicators of the students’ academic potential, based on their performance in high school and admissions tests. These appear most significant in the first and second year. HSGrade is not a measure of student performance, but of the quality of the high school the student attended based on Indiana Department of Education rating. The Indiana Department of Education grades each Indiana high school by several criteria. The measure used here is a 3-value summary, with 1 signaling consistent high marks, 2 indicating mixed performance, and 3 representing a poor-quality school. The results confirm that school quality correlates with success. Students from lower-rated schools are more likely to withdraw or to earn a lower cumulative GPA at Purdue compared to students who attended a higher-rated Indiana high school.

College affordability is a significant factor. The unmet need (UnmetNeed) signals that the student had at least one semester in which college expenses were at least \$5,000 greater than their income plus grants, scholarships and loans. This factor is more significant in later semesters possibly because the effect of accumulated debt builds over time.

## Conclusion

Students who spend more than one semester in their final senior classification before graduating are a common occurrence at Purdue. When we examine the causes to super senior behavior we find that many of the drivers are the same as the predictors of time to degree and completion that have been identified in previous research. Specifically, not attempting or earning 15 credit hours a semester, course retake behavior, and delaying changes in program of study to after the third semester all impact the likelihood of being a super senior and not achieving on-time graduation. The persistence of these variables in research on on-time completion at Purdue over the last seven years indicates the potential benefits that could be obtained by devoting institutional efforts to address them.

<sup>1</sup> [The CODO Student at Purdue-West Lafayette](#)

Note: Attempted credits includes transfer courses from other institutions and courses at Purdue that were dropped and/or repeated.