

# **Graduation and Retention Study**

## **Phase 2**

### **Initial Analysis of College Data**

This report continues the analysis of retention and graduation data begun in the Phase 1 report on the basic transitions undergraduates make between being active, inactive, and graduating. That work focused on entire freshman cohorts; this one will focus on college cohorts.

Because students often transfer from one college to another while remaining active students, the complexity of the data and analysis increases significantly when student retention and graduation patterns are studied by college. Separating useful comparative data from all data we have is the data equivalent of separating gold from fools gold. This report is a first attempt at identifying and defining the right metrics for understanding college retention and graduation patterns.

The data presented will be from the 1995, 1996, and 1997 cohorts. The 1995 cohort is the most recent class for which we have a full record including 6-year graduation rates obtained from the May 2001 commencement. In that respect it is the most current data available, but we acknowledge that changes of patterns may have occurred in more recent cohorts. However, the 1995 cohort does provide a baseline picture. The 1996 and 1997 cohorts are also of interest because we have a 4-year graduation rate for each cohort.

The first section will describe in more detail the cohort construction, which is critical to the whole graduation and retention project. The second section will carefully define the college data elements that will be used in the third section presenting the college data for the 1995, 1996, and 1997 cohorts and a one-page summary of University retention and graduation data for reference. The Findings of Phase 2 appear in a final section.

### **Cohort Construction**

Cohorts have been constructed for the freshman classes entering in Fall 1994 through Fall 2000. After 2000, cohorts will be assigned in Banner through the admissions and registration processes. For the earlier years they were constructed by extracting the file of students from the 10<sup>th</sup> day enrollment census table captured by the Registrar's Office. The extraction process looked for any new degree-seeking freshman that was admitted in the fall semester of the cohort year. The extracted cohort file was then compared to the Banner production system via the students ID number to obtain the unique Banner assigned PIDM number for each student. If a match was not possible due to

an ID number change, the student was manually reviewed in Banner to obtain the correct ID number. The PIDM was then obtained using the corrected ID.

In the cohort construction process, the data file was scrubbed for duplicates and other potential coding errors. If a discrepancy was found between the extracted cohort file and the original count done by the Registrar's Office, a comparison was then made between the cohort file and a query of Banner using the same parameters. Any records not common to both files were again scrubbed for accuracy.

For 1995 the initial resulting cohort file contained 1046 students, which coincides with the official reported size of the freshman class in 1995. However, based on the original 10<sup>th</sup> day census table, one student had an admit college of Arts and Sciences but was transferred to the General College Division as a non-degree seeking student. Since it appears the admit college was a coding error, this student was removed from the cohort leaving a final count of 1045. This frozen file is now the file of record for the 1995 cohort and has been supplied to the Registrar's Office to create a cohort identifier in Banner for these students. The same process was completed for the other cohort years. The errors for the other cohorts are either 0 or 1 except 1999 where there is a discrepancy of 2 students. All the work on the Graduation and Retention Project is being based on these carefully constructed cohorts and Lehigh's official graduation rates are being calculated from them.

For purposes of this analysis, the 1995 cohort was distributed to each college based on the student's admitted college from the 10<sup>th</sup> day census table. Accordingly, 474 students were assigned to Arts and Sciences, 185 to Business and Economics and 386 to Engineering and Applied Science. The 386 Engineering students include 22 Arts Engineers.

### **College Retention and Graduation Metrics**

The fundamental problem in defining retention and graduation metrics for colleges is distinguishing between students who transfer from one college into another from those who leave the university. The university is, of course, interested in the overall success of the cohort as well as the success of the individual colleges. Both the definitions and semantics are important so there are no misunderstandings on what the numbers means.

Rather than using retention rates, which make perfect sense for the entire freshman cohort but become muddled for college cohorts, we will switch to inactivity rates for colleges and determine them from a college and university perspective. We will continue to track student behavior from the fall of one semester to the fall of the following semester.

An *inactivity rate* will consistently mean the percent of a group of students who move from active status to inactive status from one fall to the next. These inactivity rates will be examined year by year just like the retention rates. Thus a freshman inactivity rate will be a percent of a group of freshman that do not return for the fall of their sophomore year.

These inactivity rates will be calculated for two different groups in each college. First we will consider those students who are active students in their original college in fall and then calculate the percent of them that are inactive the following fall. These numbers will be referred to as *college inactivity rates*. For example, the sophomore college inactivity rate will be the percent of students inactive in the fall of the junior year calculated from those actively enrolled in their original college in the fall of their sophomore year.

We will also determine the *cohort inactivity rates*. Here the concept is simply what percent of an entire college cohort moves from active to inactive status from one fall to the next. The expectation is that they should not differ significantly from the college inactivity rates.

The migration patterns between colleges are very complex with small numbers of students transferring more than once including returning to their original college. Consequently we will simply report a transfer out rate per year for each college. This *transfer rate* will be the percent of students who were active in their original college in fall that are active in a different college the following fall. Note that there is no overlap with the inactivity rates; they only distinguish between active and inactive.

Cumulative data on student persistence in the college of their original enrollment is also included. To be precise the yearly *college persistence rate* will be the percent of students from the original college cohort that are still active students in that college for the specified year, and the cohort persistence rate will be the percent of students from the original college cohort that are still active students in any college at Lehigh.

In a similar vein we will calculate both college and cohort graduation rates. The *college graduation rates* will be the percent of a college cohort that receives a first degree from that college in 4 or 6 years. And the *cohort graduation rate* will be the percent of the cohort that receives a first degree from Lehigh in 4 or 6 years. The expectation is that the difference between the cohort graduation rate and the college graduation rate will reflect the degree to which students transfer out of a particular college.

## College Graduation and Retention Data – 1995 Cohort

### College Inactivity Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 1 to 2	7.4%	7.0%	6.8%
Year 2 to 3	12.5%	8.4%	7.1%
Year 3 to 4	5.4%	1.4%	4.1%

### Cohort Inactivity Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 1 to 2	7.4%	7.0%	6.8%
Year 2 to 3	12.3%	8.1%	7.2%
Year 3 to 4	4.9%	1.3%	4.8%

### College Transfer Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 1 to 2	12.0%	2.7%	8.6%
Year 2 to 3	7.3%	6.0%	4.6%
Year 3 to 4	1.3%	1.4%	2.4%

### College Persistence Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 2	80.6%	90.3%	84.7%
Year 3	65.9%	77.8%	75.6%
Year 4	62.3%	77.3%	70.9%

### Cohort Persistence Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 2	92.6%	93.0%	93.3%
Year 3	81.3%	85.9%	87.0%
Year 4	78.5%	86.5%	83.6%

Note: CAS inactivity rates might be slightly inflated by students in six-year cooperative medical programs until the data is corrected by hand for them. They do appear correctly in the graduation data.

## College Graduation and Retention Data – 1996 Cohort

### College Inactivity Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 1 to 2	5.4%	7.7%	8.1%
Year 2 to 3	9.2%	5.4%	8.6%
Year 3 to 4	4.3%	3.5%	2.5%

### Cohort Inactivity Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 1 to 2	5.4%	7.7%	8.1%
Year 2 to 3	8.7%	6.3%	9.4%
Year 3 to 4	4.4%	3.3%	5.5%

### College Transfer Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 1 to 2	16.0%	2.9%	9.1%
Year 2 to 3	9.9%	1.6%	7.4%
Year 3 to 4	2.2%	1.7%	2.9%

### College Persistence Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 2	78.6%	89.4%	82.7%
Year 3	64.6%	83.6%	69.8%
Year 4	62.4%	81.2%	65.7%

### Cohort Persistence Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 2	94.6%	92.3%	91.9%
Year 3	86.8%	87.9%	83.5%
Year 4	85.2%	87.4%	81.2%

## College Graduation and Retention Data – 1997 Cohort

### College Inactivity Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 1 to 2	7.5%	7.7%	4.8%
Year 2 to 3	9.1%	5.6%	5.2%
Year 3 to 4	4.4%	2.0%	1.7%

### Cohort Inactivity Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 1 to 2	7.5%	7.7%	4.8%
Year 2 to 3	9.2%	6.3%	6.1%
Year 3 to 4	4.3%	2.2%	2.5%

### College Transfer Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 1 to 2	17.4%	7.2%	11.6%
Year 2 to 3	8.1%	9.6%	6.7%
Year 3 to 4	0.9%	1.3%	3.1%

### College Persistence Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 2	75.2%	85.1%	83.5%
Year 3	64.0%	73.1%	73.9%
Year 4	62.4%	73.6%	70.1%

### Cohort Persistence Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
Year 2	92.5%	92.3%	95.2%
Year 3	85.1%	88.5%	89.9%
Year 4	82.6%	88.9%	87.3%

## Graduation Rate Data

### 1995 College Graduation Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
4-Year	60.0%	69.7%	55.6%
6-Year	67.4%	77.3%	67.8%

### 1995 Cohort Graduation Rates:

	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
4-Year	72.4%	77.8%	63.9%
6-Year	83.2%	87.0%	80.5%

### 4-Year College Graduation Rates by College:

<u>Year</u>	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
1995	60.0%	69.7%	55.6%
1996	55.2%	73.4%	53.3%
1997	58.8%	65.4%	56.2%

### 4-Year Cohort Graduation Rates by College:

<u>Year</u>	<u>CAS</u>	<u>CBE</u>	<u>CEAS</u>
1995	72.4%	77.8%	63.5%
1996	72.4%	75.4%	62.4%
1997	75.4%	77.9%	67.6%

**Retention Summary by Class Cohort  
Fall 1995 - Fall 1998**

<u>1995 Cohort</u>	<u>Continuing Active</u>	<u>Returned to Active</u>	<u>Total Active</u>	<u>Retention Rate</u>	<u>Number Retained</u>
Year 1			1,045	92.9%	971
Year 2	971	0	971	90.3%	877
Year 3	877	3	880	94.7%	833
Year 4	833	22	855		

<u>1996 Cohort</u>	<u>Continuing Active</u>	<u>Returned to Active</u>	<u>Total Active</u>	<u>Retention Rate</u>	<u>Number Retained</u>
Year 1			1,101	93.2%	1,026
Year 2	1,026	0	1,026	91.5%	939
Year 3	939	6	945	94.7%	895
Year 4	895	31	926		

<u>1997 Cohort</u>	<u>Continuing Active</u>	<u>Returned to Active</u>	<u>Total Active</u>	<u>Retention Rate</u>	<u>Number Retained</u>
Year 1			1,098	93.4%	1,026
Year 2	1,026	0	1,026	92.5%	949
Year 3	949	11	960	95.5%	917
Year 4	917	25	942		

\* Data includes updates as of Fall 2001.

**Retention Summary by Class Cohort  
Fall 1998 - Fall 2000**

<u>1998 Cohort</u>	<u>Continuing Active</u>	<u>Returned to Active</u>	<u>Total Active</u>	<u>Retention Rate</u>	<u>Number Retained</u>
Year 1			1,113	92.9%	1,034
Year 2	1,034	0	1,034	94.4%	976
Year 3	976	1	977	96.0%	938
Year 4	938	15	953		

<u>1999 Cohort</u>	<u>Continuing Active</u>	<u>Returned to Active</u>	<u>Total Active</u>	<u>Retention Rate</u>	<u>Number Retained</u>
Year 1			1,077	93.9%	1,011
Year 2	1,011	0	1,011	93.4%	944
Year 3	944	7	951		
Year 4	0				

<u>2000 Cohort</u>	<u>Continuing Active</u>	<u>Returned to Active</u>	<u>Total Active</u>	<u>Retention Rate</u>	<u>Number Retained</u>
Year 1			1,129	94.2%	1,063
Year 2	1,063	0	1,063		
Year 3					
Year 4					

\* Data includes updates as of Fall 2001.

## Findings

The data implies that the challenge of achieving an 88% six-year graduation rate is not uniform across the admit cohorts of the three colleges. Consequently, different strategies may be needed across the colleges. This conclusion is based on the following specific observations about the data.

1. Although there are almost no statistically significant differences among the college inactivity rates for each year, CAS and CEAS consistently experience the highest inactivity rate from year 2 to year 3 suggesting a need for a greater emphasis on the sophomores in these colleges.
2. The college transfer rates from year 1 to year 2 frequently differ significantly at the 1% or 2% level in all 3 years examined implying that special coordinating strategies between specific colleges might be important.
3. For 1995 the difference between the six-year and four-year cohort graduation rates was examined and its variation at the extremes differed significantly at the 2% level indicating a possible need for strategies that extend beyond the normal four-year college experience in at least one college.
4. The difference between the largest and smallest six-year cohort graduation rate in 1995 is statistically significant at the 5% level.